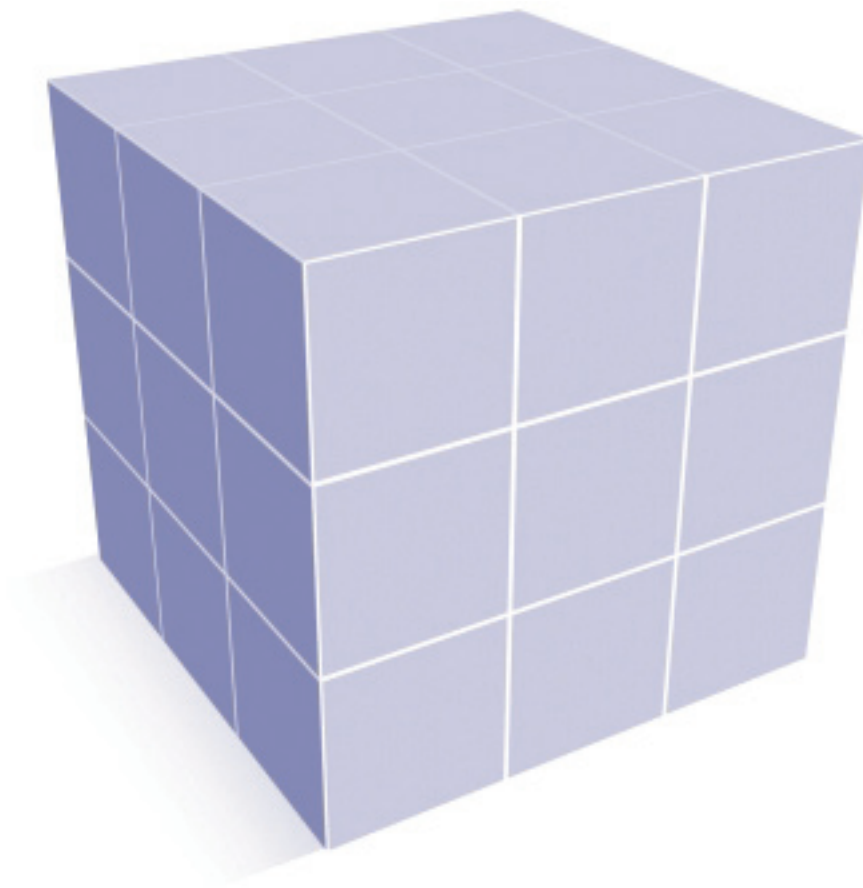


Selection Guide



盛群半導體股份有限公司
HOLTEK SEMICONDUCTOR INC.

www.holtek.com

Introduction

Continual growth and a persistent stream of new product releases onto the global market has been the hallmark of Holtek Semiconductor since the establishment of the company in 1983 to the present date. Although remaining focused in the area of microcontroller devices, Holtek has also made substantial inroads into a wide range of peripheral products. Behind these products developments are the company's highly qualified engineering design teams, which have been extremely successful in providing Holtek customers with a wide range of high quality industrial grade semiconductor devices. This range of mature and high quality semiconductor devices can now be found among many of today's well known consumer appliances and industrial products and stands as a witness to Holtek products being able to offer customers one of today's best choices in the market in terms of both price and performance.

Product Device Range

Holtek continues to retain its product development focus in the area of microcontrollers and their peripheral products. The huge and continually expanding microcontroller range includes an extensive range of fully integrated digital and analog functions such as A/D converters, LCD drivers, PWM generators, high current LED drivers, touch switches, SPI/I²C interfaces, USB drivers, Voice functions, RF functions, Telecom functions etc. Microcontroller devices meet with full industry specifications in having a wide voltage and temperature operating range and are provided in Mask, OTP and increasingly Flash type versions. Complementing its microcontrollers are Holtek many peripheral products such as Touch Switch ICs, LED driver ICs, Power Management ICs, etc. diversifying further the total product range and opening up the application areas into a wider market area.

Product Development Strategy

The commitment of Holtek to new product development and innovation can be seen through its increasing device functionality. With its years of development experience in the microcontroller arena, Holtek has relentlessly striven to include market and customer functional demands in its new device releases. The integration of features such as voice, touch key and power management functions into its microcontroller range show this commitment to an ever increasing functional integration. While being rightly proud of its ever expanding array of industrial quality MCU devices, the company also provides a comprehensive range of hardware and software development tools to ease the designer's product development process. In addition to its Microcontroller device range, Holtek will also continue to develop and release other peripheral devices in the communication, remote control, computer peripheral, memory, touch switch, power management, display driver, video and other product areas. Holtek's obligation to ISO compliance and its string of innovation awards and intellectual properties provide further evidence of the company's commitment to product development excellence.

Marketing Service Network

The sustained commitment to research and development is fully complemented by the company's strong global marketing focus giving the company a presence in most parts of the world. With an established large number of worldwide sales offices and agents, Holtek's global marketing and promotional structure will see the company take an increasingly prominent role and be well placed to take advantage of any new market opportunities which may arise.

Selecting Your Holtek Device

As the range of 8-bit microcontroller devices covers a vast range of types and functions, Holtek recommends that customers consult our on-line "Product Selector" to assist them in their selection of the best microcontroller for their specific application.

As Holtek is continually releasing new products, it should be noted that the website version, rather than the printed version of the selection guide, will contain the most up to date product information.

8-Bit OTP MCU		8-Bit Flash MCU
Cost-Effective I/O Type MCU Enhanced I/O Type MCU Enhanced I/O Type MCU with OPA I/O Type MCU Small Package I/O Type MCU I/O Type MCU with 16×16 High Current LED Driver LCD Type MCU Cost-Effective A/D Type MCU Enhanced A/D Type MCU A/D Type MCU TinyPower™ A/D Type MCU with DAC Small Package A/D Type MCU A/D Type MCU with 16×16 High Current LED Driver Multi-Channel A/D Type MCU A/D Type MCU with LCD TinyPower™ A/D Type MCU with LCD 1.5V Battery Type MCU 24V VFD MCU A/D Type MCU with UART Dual Slope A/D Type MCU with Touch Key A/D Type MCU with SPI Interface I/O Type USB MCU with SPI A/D Type USB MCU with SPI	I/O Type MCU with USB Interface A/D Type MCU with USB Interface 27MHz Keyboard/Mouse TX MCU 27MHz Keyboard/Mouse RX MCU 2.4GHz Keyboard/Mouse TX MCU 2.4GHz Keyboard/Mouse RX MCU R-F Type MCU C/R-F Type MCU Remote Type MCU Remote Type MCU with LCD Remote Type MCU with EEPROM Remote Type MCU with RF USB Audio MCU Phone MCU Phone MCU with CPT Phone MCU with CID Phone MCU with CPT & CID Enhanced Voice MCU A/D Type Voice MCU Q-Voice™ MCU Enhanced Music MCU Enhanced ROMless Music MCU	I/O Flash Type MCU with EEPROM Enhanced I/O Flash Type MCU with EEPROM Small Package I/O Flash Type MCU A/D Flash Type MCU with EEPROM Enhanced A/D Flash Type MCU with EEPROM Small Package A/D Flash Type MCU 1.5V Battery Flash Type MCU Brushless DC Motor Flash Type MCU Flash Type Voice MCU
Display Driver	Memory	Remote Controller
RAM Mapping LCD Controller & Driver RAM Mapping LED Controller & Driver Constant Current LED Driver VFD Controller & Driver VFD Clock Dot Character VFD Controller & Driver Other	3-wire EEPROM I ² C EEPROM	Remote Type MCU Remote Type MCU with LCD Remote Type MCU with EEPROM Remote Type MCU with RF 2 ¹² Encoder/Decoder 3 ⁹ Encoder 3 ¹² Encoder/Decoder 3 ¹⁸ Encoder/Decoder Learning Encoder TV Remote Controller
Power Management	Voice/Music	Computer
TinyPower™ LDO TinyPower™ LDO with Detector High PSRR LDO General Purpose LDO TinyPower™ Voltage Detector Step-Down DC/DC Converter PFM Step-up DC/DC Converter White LED Backlight Driver LED Lighting Driver High Efficiency Synchronous Step-up DC/DC Converter Charge Pump DC/DC Converter	Enhanced Voice MCU A/D Type Voice MCU Flash Type Voice MCU Q-Voice™ MCU Enhanced Music MCU Enhanced ROMless Music MCU EasyVoice™ Sound Effects	A/D Type MCU with SPI Interface I/O Type USB MCU with SPI A/D Type USB MCU with SPI I/O Type MCU with USB Interface A/D Type MCU with USB Interface I/O Type MCU 27MHz Keyboard/Mouse TX MCU 27MHz Keyboard/Mouse RX MCU 2.4GHz Keyboard/Mouse TX MCU 2.4GHz Keyboard/Mouse RX MCU USB Audio MCU Mouse Keyboard Full Speed USB Bridge
Communication	Analog	Video
Phone MCU Phone MCU with CPT Phone MCU with CID Phone MCU with CPT & CID Telecom Peripheral Basic Dialer	D/A Converter General OP Amplifier Audio Amplifier	CCD/CIS Analog Signal Processor CCD Vertical Driver Image Signal Processor
Miscellaneous		
Timepiece Clinical Thermometer Camera Peripheral PIR Controller Touch Key		

8-Bit OTP MCU
Cost-Effective I/O Type MCU

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	8-bit Timer	PFD	Stack	Package
HT48R062 HT48C062	2.2V~5.5V	400kHz~8MHz	1K×14	32×8	11	—	—	1	16DIP/NSOP
HT48R05A-1 HT48C05	2.2V~5.5V	400kHz~8MHz	0.5K×14	32×8	13	1	√	2	16NSOP/SSOP 18DIP/SOP
HT48R06A-1 HT48C06	2.2V~5.5V	400kHz~8MHz	1K×14	64×8	13	1	√	2	16NSOP/SSOP 18DIP/SOP

Note: Part numbers including a "C" are mask version devices while "R" are OTP devices.

Enhanced I/O Type MCU

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	I/O	8-bit Timer	RTC	Interface	D/A	PWM	R-Type LCD	PFD	Stack	Package
HT48R063	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	1K×14	64×8	14	1	√	—	—	—	—	√	2	16DIP/NSOP
HT48R064	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	1K×14	64×8	22	1	√	—	—	—	4COM	√	4	16DIP/NSOP 20DIP/SOP/SSOP 24SKDIP/SOP/SSOP
HT48R065	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	2K×15	96×8	26	1	√	—	—	—	4COM	√	4	16DIP/NSOP 20DIP/SOP/SSOP 24/28SKDIP/SOP/SSOP
HT48R066	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	4K×15	128×8	26	2	√	—	—	—	4COM	√	4	16DIP/NSOP 20DIP/SOP/SSOP 24/28SKDIP/SOP/SSOP
HT48R0662	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	4K×15	224×8	42	2	√(**)	—	—	8-bit×2	4COM	√	6	24/28SKDIP/SOP/SSOP 44QFP
HT48R067	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	8K×16	384×8	42	3	√(**)	—	—	8-bit×3	4COM	√	8	24/28SKDIP/SOP/SSOP 44QFP
HT48R068*	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	16K×16	512×8	50	4	√(**)	SPI/I ² C, SPI	16-bit×1	8-bit×4	4COM	√	8	28SKDIP/SOP/SSOP 44/52QFP
HT48R069*	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	32K×16	1024×8	62	4	√(**)	SPI/I ² C, SPI	16-bit×1	8-bit×4	4COM	√	8	44/52QFP 64LQFP

* Under development, available in 4Q, 2010.

Note: 1. These devices are only available in OTP versions.
2. All devices include a fully integrated RC system oscillator.
3. ** RTC is implemented by TinyPower structure.

Enhanced I/O Type MCU with OPA

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	I/O	8-bit Timer	RTC	OPA	Comparator	R-Type LCD	PFD	Stack	Package
HT48R066G	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	4K×15	128×8	26	2	√	2	1	4COM	√	4	20DIP/SOP/SSOP 24/28SKDIP/SOP/SSOP

Note: The device is only available in an OTP version.

I/O Type MCU

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	Timer			PFD	UART	Stack	Package
						8-bit	16-bit	RTC				
HT48R10A-1 HT48C10-1	2.2V~5.5V	400kHz~8MHz	1K×14	64×8	21	1	—	√	√	—	4	24SKDIP/SOP
HT48R30A-1 HT48C30-1	2.2V~5.5V	400kHz~8MHz	2K×14	96×8	25	1	—	√	√	—	4	24SKDIP/SOP 28SKDIP/SOP
HT48R50A-1 HT48C50-1	2.2V~5.5V	400kHz~8MHz	4K×15	160×8	35	1	1	√	√	—	6	28SKDIP/SOP, 48SSOP
HT48R502	2.2V~5.5V	400kHz~8MHz	4K×15	224×8	56	—	2	√	√	—	16	48SSOP, 64LQFP
HT48R70A-1 HT48C70-1	2.2V~5.5V	400kHz~8MHz	8K×16	224×8	56	—	2	√	√	—	16	48SSOP, 64LQFP
HT48RU80 HT48CU80	2.2V~5.5V	400kHz~8MHz	16K×16	576×8	56	1	2	√	√	√	16	48SSOP, 64LQFP

Note: 1. Part numbers including a "C" are mask version devices while "R" are OTP devices.
2. The RTC is available when the internal RC oscillator is selected as the system clock.

8-Bit OTP MCU
Small Package I/O Type MCU

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	I/O	8-bit Timer	RTC	Time Base	PFD	Stack	Package
HT48R01B	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	1K×15	96×8	8	2	√	√	√	6	10MSOP
HT48R02B	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	2K×15	96×8	8	2	√	√	√	6	10MSOP
HT48R01N	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	1K×15	96×8	10	2	√	√	√	6	16NSOP
HT48R02N	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	2K×15	96×8	10	2	√	√	√	6	16NSOP

Note: 1. These devices are only available in OTP versions.
2. The internal clock in the table is a fully integrated RC oscillator requiring no external components which can be used as the system clock.

I/O Type MCU with 16×16 High Current LED Driver

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	LED Driver Output	LED Share I/O	LED Share Output	Timer		PFD	Stack	Package
									8-bit	RTC			
HT48R52A	2.2V~5.5V	400kHz~8MHz or 32768Hz	2K×14	88×8	8	16×16	8	24	1	√	—	4	44/52QFP
HT48R54A	2.2V~5.5V	400kHz~8MHz or 32768Hz	4K×15	192×8	8	16×16	8	24	2	√	√	6	44/52QFP

Note: 1. These devices are only available in OTP versions.
2. The RTC can be used as the system clock giving a typical operating current of 20μA at 3V.
3. The standby current is 1μA at 3V with the RTC still running.

LCD Type MCU

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	Input	LCD	Segment Share Output	Timer			PFD	UART	Stack	Package
									8-bit	16-bit	RTC				
HT49R10A-1 HT49C10-1	2.2V~5.5V	400kHz~8MHz or 32768Hz	1K×14	64×8	8	2	14×4 or 15×3	—	1	—	√	√	—	2	44QFP
HT49R30A-1 HT49C30-1	2.2V~5.5V	400kHz~8MHz or 32768Hz	2K×14	96×8	8	6	18×4 or 19×3	—	1	—	√	√	—	4	48SSOP
HT49C30L	1.2V~2.2V	400kHz~500kHz or 32768Hz													
HT49R50A-1 HT49C50-1	2.2V~5.5V	400kHz~8MHz or 32768Hz	4K×15	160×8	12	8	32×4 or 33×3	—	2	—	√	√	—	6	48SSOP 64LQFP 100QFP
HT49C50L	1.2V~2.2V	400kHz~500kHz or 32768Hz													
HT49R70A-1 HT49C70-1	2.2V~5.5V	400kHz~8MHz or 32768Hz	8K×16	224×8	16	8	40×4 or 41×3	—	1	1	√	√	—	16	64LQFP 100QFP
HT49C70L	1.2V~2.2V	400kHz~500kHz or 32768Hz													
HT49RU80 HT49CU80	2.2V~5.5V	400kHz~8MHz or 32768Hz	16K×16	576×8	16	8	47×4 or 48×3	7	1	2	√	√	√	16	64LQFP 100QFP

Note: 1. Part numbers including a "C" are mask version devices, "R" are OTP devices, while part numbers suffixed with an "L" are low voltage mask version devices.
2. For the low voltage mask version devices, note that the HT49R30A-1, HT49R50A-1 and HT49R70A-1 devices can be used as corresponding OTP devices.

Cost-Effective A/D Type MCU

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	8-bit Timer	A/D	PWM	PFD	Stack	Package
HT46R46 HT46C46	2.2V~5.5V	400kHz~8MHz	1K×14	64×8	13	1	8-bit×4	8-bit×1	√	4	16NSOP, 18DIP/SOP 20SSOP
HT46R47 HT46C47	2.2V~5.5V	400kHz~8MHz	2K×14	64×8	13	1	9-bit×4	8-bit×1	√	6	16NSOP, 18DIP/SOP 20SSOP
HT46R48A HT46C48A				88×8	19						20DIP/SOP, 24SKDIP/SOP 24SSOP

Note: Part numbers including a "C" are mask version devices while "R" are OTP devices.

8-Bit OTP MCU
Enhanced A/D Type MCU

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	I/O	8-bit Timer	RTC	Interface	R-Type LCD	A/D	D/A	PWM	PFD	Stack	Package
HT46R064	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	1K×14	64×8	18	1	√	—	—	12-bit×4	—	8-bit×1	√	4	16DIP/NSOP 20DIP/SOP/SSOP
HT46R065	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	2K×15	96×8	22	2	√	—	4COM	12-bit×4	—	8-bit×1	√	6	16DIP/NSOP 20DIP/SOP/SSOP 24SKDIP/SOP/SSOP
HT46R066	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	4K×15	128×8	26	2	√	—	4COM	12-bit×8	—	8-bit×2	√	6	16DIP/NSOP 20DIP/SOP/SSOP 24/28SKDIP/SOP/SSOP
HT46R0662	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	4K×15	224×8	42	2	√ (**)	—	4COM	12-bit×8	—	8-bit×2	√	6	24/28SKDIP/SOP/SSOP 44QFP
HT46R067	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	8K×16	384×8	42	3	√ (**)	—	4COM	12-bit×8	—	8-bit×3	√	8	24/28SKDIP/SOP/SSOP 44QFP
HT46R068*	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	16K×16	512×8	50	4	√ (**)	SPI/I ² C, SPI	4COM	12-bit×16	16-bit×1	8-bit×4	√	8	28SKDIP/SOP/SSOP 44/52QFP
HT46R069*	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~12MHz	32K×16	1024×8	62	4	√ (**)	SPI/I ² C, SPI	4COM	12-bit×16	16-bit×1	8-bit×4	√	8	44/52QFP 64LQFP

* Under development, available in 4Q, 2010.

Note: 1. These devices are only available in OTP versions.

2. All devices include a fully integrated RC system oscillator.

3. ** RTC is implemented by TinyPower structure.

A/D Type MCU

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	Timer		I ² C	A/D	PWM	PFD	UART	Stack	Package
						8-bit	16-bit							
HT46R22 HT46C22	2.2V~5.5V	400kHz~8MHz	2K×14	64×8	19	1	—	√	9-bit×8	8-bit×1	√	—	6	24SKDIP/SOP
HT46R23 HT46C23	2.2V~5.5V	400kHz~8MHz	4K×15	192×8	23	—	1	√	10-bit×8	8-bit×2	√	—	8	24SKDIP/SOP 28SKDIP/SOP
HT46R232 HT46C232	2.2V~5.5V	400kHz~8MHz	4K×16	192×8	40	—	2	√	10-bit×8	8-bit×4	√	—	8	28SKDIP/SOP 48SSOP
HT46R24 HT46C24	2.2V~5.5V	400kHz~8MHz	8K×16	384×8	40	—	2	√	10-bit×8	8-bit×4	√	—	16	28SKDIP/SOP 48SSOP
HT46RU25 HT46CU25	2.2V~5.5V	400kHz~8MHz	16K×16	576×8	48	1	2	√	12-bit×8	8-bit×4	√	√	16	48/56SSOP
HT46RU26 HT46CU26	2.2V~5.5V	400kHz~8MHz	32K×16	768×8	48	1	2	√	12-bit×8	8-bit×4	√	√	16	48/56SSOP

Note: Part numbers including a "C" are mask version devices while "R" are OTP devices.

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	8-bit Timer	A/D	PWM	PFD	Stack	Package
HT46R51A	2.2V~5.5V	400kHz~8MHz	1K×15	96×8	14	1	12-bit×5	8-bit×1	√	6	16NSOP, 18DIP 20SOP/SSOP
HT46R52A	2.2V~5.5V	400kHz~8MHz	2K×15	128×8	14	1	12-bit×5	8-bit×1	√	6	16NSOP, 18DIP 20SOP/SSOP
HT46R53A	2.2V~5.5V	400kHz~8MHz	2K×15	192×8	22	1	12-bit×8	8-bit×1	√	6	28SKDIP/SOP
HT46R54A	2.2V~5.5V	400kHz~8MHz	4K×15	280×8	22	1	12-bit×8	8-bit×1	√	6	28SKDIP/SOP

Note: These devices are only available in OTP versions.

TinyPower™ A/D Type MCU with DAC

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	I/O	Timer			Interface	A/D	D/A	PWM	R-Type LCD	PFD	Stack	Package
							8-bit	16-bit	RTC								
HT56R22	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~12MHz or 32768Hz	2K×14	128×8	22	2	—	√	SPI/I ² C, SPI	12-bit×8	12-bit×1	12-bit×3	4COM	√	6	16DIP/NSOP/SSOP 20DIP/SOP/SSOP 24SKDIP/SOP/SSOP
HT56R23	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~12MHz or 32768Hz	4K×15	256×8	42	2	1	√	SPI/I ² C, SPI	12-bit×8	12-bit×1	12-bit×4	4COM	√	12	28SKDIP/SOP/SSOP 44QFP
HT56R24	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~12MHz or 32768Hz	8K×16	640×8	42	2	1	√	SPI/I ² C, SPI	12-bit×8	12-bit×1	12-bit×4	4COM	√	12	28SKDIP/SOP/SSOP 44QFP
HT56R25	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~12MHz or 32768Hz	16K×16	1152×8	50	3	1	√	SPI/I ² C, SPI	12-bit×8	12-bit×1	12-bit×4	4COM	√	12	28SKDIP/SOP/SSOP 44/52QFP
HT56R26	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~12MHz or 32768Hz	32K×16	2304×8	50	3	1	√	SPI/I ² C, SPI	12-bit×8	12-bit×1	12-bit×4	4COM	√	12	28SKDIP/SOP/SSOP 44/52QFP

Note: These devices are only available in OTP versions.

8-Bit OTP MCU
Small Package A/D Type MCU

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	I/O	8-bit Timer	RTC	Time Base	A/D	PWM	PFD	Stack	Package
HT46R01B	4MHz 8MHz 12MHz	2.2V~ 5.5V	32kHz~ 12MHz	1K×15	96×8	8	2	√	√	12-bit×4	8-bit×1	√	6	10MSOP
HT46R02B	4MHz 8MHz 12MHz	2.2V~ 5.5V	32kHz~ 12MHz	2K×15	96×8	8	2	√	√	12-bit×4	8-bit×1	√	6	10MSOP
HT46R01N	4MHz 8MHz 12MHz	2.2V~ 5.5V	32kHz~ 12MHz	1K×15	96×8	10	2	√	√	12-bit×4	8-bit×1	√	6	16NSOP
HT46R02N	4MHz 8MHz 12MHz	2.2V~ 5.5V	32kHz~ 12MHz	2K×15	96×8	10	2	√	√	12-bit×4	8-bit×1	√	6	16NSOP

Note: 1. These devices are only available in OTP versions.
2. The internal clock in the table is a fully integrated RC oscillator requiring no external components which can be used as the system clock.

A/D Type MCU with 16×16 High Current LED Driver

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	LED Driver Output	LED Share I/O	LED Share Output	Timer		A/D	PWM	R-Type LCD	PFD	Stack	Package
									8-bit	RTC						
HT46R92	2.2V~ 5.5V	400kHz~8MHz or 32768Hz	2K×14	88×8	8	16×16	8	24	1	√	12-bit×6	8-bit×2	4COM	—	6	44/52QFP
HT46R94	2.2V~ 5.5V	400kHz~8MHz or 32768Hz	4K×15	192×8	8	16×16	8	24	2	√	12-bit×8	8-bit×3	4COM	√	8	44/52QFP

Note: 1. These devices are only available in OTP versions.
2. The RTC can be used as the system clock giving a typical operating current of 20μA at 3V.
3. The standby current is 1μA at 3V with the RTC still running.
4. The LED driver output pins can also be used to drive LCDs with a 28×4, 1/2 bias drive type.

Multi-Channel A/D Type MCU

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	I/O	Timer		A/D	PWM	PFD	OPA	SPI/I ² C	Stack	Package
							8-bit	16-bit							
HT45R52	4MHz 8MHz 12MHz	2.2V~ 5.5V	400kHz~ 12MHz or 32768Hz	2K×15	192×8	18	1	—	12-bit×12	12-bit×2	√	1	1	4	16DIP/NSOP 20DIP/SSOP
HT45R54	4MHz 8MHz 12MHz	2.2V~ 5.5V	400kHz~ 12MHz or 32768Hz	4K×15	384×8	30	1	1	12-bit×24	12-bit×4	√	1	1	8	20DIP/SSOP 24/28SKDIP/SSOP 32QFN

Note: These devices are only available in OTP versions.

A/D Type MCU with LCD

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	LCD	Timer			A/D	PWM	PFD	UART	SPI	Stack	Package
							8-bit	16-bit	RTC							
HT46R62 HT46C62	2.2V~ 5.5V	400kHz~ 8MHz or 32768Hz	2K×14	88×8	20	19×4 or 20×3	1	—	√	9-bit×6	8-bit×3	√	—	—	6	52QFP 56SSOP
HT46R63 HT46C63	2.2V~ 5.5V	400kHz~ 8MHz	4K×15	208×8	32	19×4 or 20×3	—	1	√	8-bit×8	8-bit×4	—	—	—	8	56SSOP 100QFP
HT46R64 HT46C64	2.2V~ 5.5V	400kHz~ 8MHz or 32768Hz	4K×15	192×8	24	32×4 or 33×3	1	1	√	10-bit×8	8-bit×4	√	—	—	8	52QFP 56SSOP 100QFP
HT46R65 HT46C65	2.2V~ 5.5V	400kHz~ 8MHz or 32768Hz	8K×16	384×8	24	40×4 or 41×3	—	2	√	10-bit×8	8-bit×4	√	—	—	16	52QFP 56SSOP 100QFP
HT46R652	2.2V~ 5.5V	400kHz~ 8MHz or 32768Hz	8K×16	384×8	32	40×4 or 41×3	—	2	√	12-bit×8	8-bit×16	√	—	—	16	100QFP
HT46RU66 HT46CU66	2.2V~ 5.5V	400kHz~ 8MHz or 32768Hz	16K×16	576×8	32	46×4 or 47×3	1	2	√	12-bit×8	8-bit×4	√	√	—	16	52QFP 56SSOP 100QFP
HT46RU67 HT46CU67	2.2V~ 5.5V	400kHz~ 8MHz or 32768Hz	32K×16	768×8	32	46×4 or 47×3	1	2	√	12-bit×8	8-bit×4	√	√	√	16	52QFP 56SSOP 100QFP

Note: Part numbers including a "C" are mask version devices while "R" are OTP devices.

8-Bit OTP MCU
TinyPower™ A/D Type MCU with LCD

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	LCD	Segment Share Output	Timer			A/D	PWM	PFD	Interface	Stack	Package
								8-bit	16-bit	RTC						
HT56R62	2.2V~5.5V	400kHz~12MHz or 32768Hz	2K×14	128×8	20	24×4 or 25×3	16	2	—	√	12-bit×6	12-bit×3	√	SPI/I ² C	6	52QFP 64LQFP
HT56R64	2.2V~5.5V	400kHz~12MHz or 32768Hz	4K×15	192×8	24	32×4 or 33×3	24	1	1	√	12-bit×8	12-bit×4	√	SPI/I ² C	8	52QFP 64LQFP 100QFP
HT56R65	2.2V~5.5V	400kHz~12MHz or 32768Hz	8K×16	576×8	24	40×4 or 41×3	24	2	1	√	12-bit×8	12-bit×4	√	SPI/I ² C	12	52QFP 64LQFP 100QFP
HT56R66	2.2V~5.5V	400kHz~12MHz or 32768Hz	16K×16	1152×8	32	48×4 or 49×3	24	3	1	√	12-bit×8	12-bit×4	√	SPI/I ² C	12	52QFP 64LQFP 100QFP
HT56R67	2.2V~5.5V	400kHz~12MHz	32K×16	2304×8	32	48×4 or 49×3	24	3	1	√	12-bit×8	12-bit×4	√	SPI/I ² C	12	52QFP 64LQFP 100QFP

Note: These devices are only available in OTP versions.

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	LCD	Segment Share Output	Timer			A/D	PWM	PFD	Interface	Stack	Package
								8-bit	16-bit	RTC						
HT56R642	2.2V~5.5V	400kHz~12MHz or 32768Hz	4K×15	384×8	24	16×16 or 24×8	16	1	1	√	12-bit×8	12-bit×4	√	SPI/I ² C	8	64LQFP
HT56R644	2.2V~5.5V	400kHz~12MHz or 32768Hz	4K×15	576×8	24	32×16 or 40×8	24	1	1	√	12-bit×8	12-bit×4	√	SPI/I ² C	8	100QFP
HT56R654			8K×16	1152×8				2							12	
HT56R656	2.2V~5.5V	400kHz~12MHz or 32768Hz	8K×16	1152×8	24	48×16 or 56×8	24	2	1	√	12-bit×8	12-bit×4	√	SPI/I ² C	12	100QFP
HT56R666			16K×16					3								
HT56R668 HT56C668	2.2V~5.5V	400kHz~12MHz	16K×16	2304×8	24	64×16 or 72×8	24	3	1	√	12-bit×8	12-bit×4	√	SPI/I ² C	12	100QFP 128QFP
HT56R678 HT56C678			32K×16													
HT56R688*			48K×16													

* Under development, available in 3Q, 2010.

Note: Part numbers including a "C" are mask version devices while "R" are OTP devices.

1.5V Battery Type MCU

Part No.	Internal Clock	Input Voltage	System Clock	Program Memory	Data Memory	I/O	8-bit Timer	RTC	Time Base	A/D	PWM	PFD	Stack	Package
HT48R01M	4MHz 8MHz	0.7V~3.3V	32kHz~8MHz	1K×15	96×8	10	2	√	√	—	—	√	6	16NSOP
HT48R02M	4MHz 8MHz	0.7V~3.3V	32kHz~8MHz	2K×15	96×8	10	2	√	√	—	—	√	6	16NSOP
HT46R01M	4MHz 8MHz	0.7V~3.3V	32kHz~8MHz	1K×15	96×8	10	2	√	√	12-bit×4	8-bit×1	√	6	16NSOP
HT46R02M	4MHz 8MHz	0.7V~3.3V	32kHz~8MHz	2K×15	96×8	10	2	√	√	12-bit×4	8-bit×1	√	6	16NSOP

Note: 1. These devices are only available in OTP versions.

2. The internal clock in the table is a fully integrated RC oscillator requiring no external components which can be used as the system clock.

24V VFD MCU

Part No.	VCC	System Clock	Int. OSC	Program Memory	Data Memory	I/O	Timer		A/D	PWM	C/R-F	LDO	Segment/ Grid	Filament Driving	Buzzer Driving	Stack	Package
							8-bit	16-bit									
HT48R065V	12V~24V	400kHz~12MHz	√	2K×15	96×8	17	1	—	—	—	—	√	24	√	√	4	52QFP
HT46R065V	12V~24V	400kHz~12MHz	√	2K×15	96×8	17	2	—	12-bit×4	8-bit×1	—	√	24	√	√	6	52QFP
HT45R35V	12V~24V	400kHz~8MHz	—	2K×14	120×8	13	1	1	—	—	12	√	24	√	√	4	52QFP
HT45R37V	12V~24V	400kHz~8MHz or 32768Hz	√	4K×15	160×8	11	2	—	12-bit×2	12-bit×1	9	√	24	√	√	6	52QFP

Note: These devices are only available in OTP versions.

8-Bit OTP MCU

A/D Type MCU with UART

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	Timer		I ² C	A/D	PWM	PFD	UART	SPI	Stack	Package
						8-bit	16-bit								
HT46RU22	2.2V~5.5V	400kHz~8MHz	2K×14	64×8	19	1	—	√	9-bit×8	8-bit×1	√	√	—	6	24SKDIP/SOP 24SSOP
HT46RU232	2.2V~5.5V	400kHz~8MHz	4K×16	192×8	40	1	2	√	12-bit×8	8-bit×4	√	√	—	8	28SKDIP/SOP 48SSOP
HT46RU24	2.2V~5.5V	400kHz~8MHz	8K×16	384×8	40	1	2	√	12-bit×8	8-bit×4	√	√	—	16	28SKDIP/SOP 48SSOP
HT46RU25 HT46CU25	2.2V~5.5V	400kHz~8MHz	16K×16	576×8	48	1	2	√	12-bit×8	8-bit×4	√	√	—	16	48/56SSOP
HT46RU26 HT46CU26	2.2V~5.5V	400kHz~8MHz	32K×16	768×8	48	1	2	√	12-bit×8	8-bit×4	√	√	√	16	48/56SSOP

Note: Part numbers including a "C" are mask version devices while "R" are OTP devices.

Dual Slope A/D Type MCU with Touch Key

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	LCD	Timer			Dual Slope ADC	Touch Key	Vibration Amplifier	Charge Pump, Regulator	UART	Stack	Package
							8-bit	16-bit	RTC							
HT46R73D-3	2.2V~5.5V	400kHz~8MHz	4K×15	128×8	16	16×4	1	2	√	√	4	√	√	—	4	52QFP

Note: The device is only available in an OTP version.

A/D Type MCU with SPI Interface

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	8-bit Timer	SPI	A/D	PWM	Stack	Package
HT82J30R HT82J30A	2.2V~5.5V	4MHz~12MHz	4K×15	216×8	35	1	2	8-bit×16	8-bit×1	6	28SKDIP/SOP/SSOP 44QFP
HT82J31A	2.2V~5.5V	4MHz~12MHz	4K×15	216×8	22	1	2	—	—	6	28SKDIP/SOP

Note: 1. Part numbers including an "A" are mask version devices while "R" are OTP devices.

2. During development the HT82J30R can be used as an OTP device for the HT82J31A mask version device.

I/O Type USB MCU with SPI (USB 2.0 Full Speed)

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	Timer		End Points	LVR	PWM	I/O VDD Option	SPI	Stack	Package
						8-bit	16-bit							
HT82A520R	2.2V~5.5V	6MHz or 12MHz	4K×15	160×8	24	—	1	4	√	12-bit×3	√	1	6	20/24/28SSOP 32QFN
HT82A523R	3.3V~5.5V	6MHz or 12MHz	4K×15	192×8	40	1	1	4	√	—	√	2	6	32LQFP 48SSOP, 52QFP 64LQFP
HT82A525R*	3.3V~5.5V	6MHz or 12MHz	4K×15	192×8	42	1	1	4	√	12-bit×3	√	2	6	32QFN, 28/48SSOP 52QFP, 64LQFP

* Under development, available in 3Q, 2010.

Note: These devices are only available in OTP versions.

A/D Type USB MCU with SPI (USB 2.0 Full Speed)

Part No.	VDD	System Clock	Program Memory	Data Memory	Flash Memory	I/O	Timer			End-points	A/D	PWM	I/O VDD Option	SPI	Stack	Package
							8-bit	16-bit	RTC							
HT46RB50	2.2V~5.5V	6MHz or 12MHz	4K×15	192×8	—	38	1	1	—	4	10-bit×8	8-bit×2	—	1	6	28SKDIP/SOP 48SSOP
HT46RB70	2.2V~5.5V	6MHz or 12MHz	8K×16	384×8	—	38	—	2	—	6	10-bit×8	8-bit×4	—	1	16	28SKDIP/SOP 48SSOP
HT82A620R	2.2V~5.5V	6MHz or 12MHz	4K×15	160×8	—	24	—	1	—	4	12-bit×16	12-bit×3	√	1	6	20/24/28SSOP 32QFN
HT82A623R	2.2V~5.5V	6MHz or 12MHz	4K×15	160×8	—	32	—	2	√	4	12-bit×16	8-bit×2	√	2	6	28SOP/SSOP 48QFN
HT82A6208	2.2V~5.5V	6MHz or 12MHz	4K×15	160×8	8M	32	—	2	√	4	12-bit×16	8-bit×2	√	2	6	44/52QFP
HT82A6216	2.2V~5.5V	6MHz or 12MHz	4K×15	160×8	16M	32	—	2	√	4	12-bit×16	8-bit×2	√	2	6	44/52QFP

Note: These devices are only available in OTP versions.

I/O Type MCU with USB Interface (USB 2.0 Low Speed)

Part No.	VDD	System Clock	Program Memory	Data Memory		I/O	Timer		End-points	Built-in OSC	LDO 70mA	I/O VDD Option	SPI	R-type LCD	Stack	Package
				SRAM	EEPROM		8-bit	16-bit								
HT82K94E HT82K94A	2.2V~5.5V	6MHz or 12MHz	6K×16	224×8	—	40	1	1	4	—	—	—	—	—	8	32QFN, 48SSOP
HT82K95E HT82K95A	3.3V~5.5V	6MHz or 12MHz	4K×15	160×8	—	32	1	1	3	—	—	—	—	—	8	28SOP, 32QFN 48SSOP
HT82K95EE HT82K95AE					128×8											28SOP
HT82B40R HT82B40A	3.3V~5.5V	6MHz or 12MHz	4K×15	160×8	—	34	1	1	3	√	√	√	—	—	8	20/28/48SSOP 20/32QFN
HT82B40RE HT82B40AE					128×8											20QFN
HT82B60R*	3.3V~5.5V	6MHz or 12MHz	8K×16	224×8	—	42	1	1	4	√	√	√	1	4COM	8	20/28/48SSOP 32QFN

* Under development, available in 3Q, 2010.

Note: 1. Part numbers with a single "A" suffix are mask version devices, and with a single "E" and "R" suffix are OTP devices.

2. Part numbers with an "AE" suffix are mask version devices with EEPROM, and with an "EE" and "RE" suffix are OTP devices with EEPROM.

8-Bit OTP MCU

I/O Type MCU with USB Interface (USB 2.0 Low Speed)

Part No.	VDD	System Clock	Program Memory	Data Memory		I/O	Timer		End-points	Stack	Package
				SRAM	EEPROM		8-bit	16-bit			
HT82M99E HT82M99A	3.3V~5.5V	6MHz or 12MHz	2K×14	96×8	—	12	—	1	2	4	18DIP/SOP 20DIP/SOP/SSOP
HT82M99EE HT82M99AE					128×8						20SSOP
HT82M9AE HT82M9AA	3.3V~5.5V	6MHz or 12MHz	4K×15	224×8	—	16	—	1	3	4	20SOP/SSOP 24SSOP, 32QFN
HT82M9AEE HT82M9AAE					128×8						20/24SSOP
HT82M9BE HT82M9BA	3.3V~5.5V	6MHz or 12MHz	8K×16	224×8	—	20	1	1	4	8	24/28SSOP, 32QFN
HT82M9BEE HT82M9BAE					128×8						28SSOP

Note: 1. Part numbers with a single "A" suffix are mask version devices, and with a single "E" suffix are OTP devices.
2. Part numbers with an "AE" suffix are mask version devices with EEPROM, and with an "EE" suffix are OTP devices with EEPROM.

A/D Type MCU with USB Interface (USB 2.0 Low Speed)

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	Timer		A/D	End-points	PWM	Stack	Package
						8-bit	16-bit					
HT82K96E HT82K96A	4.4V~5.5V	6MHz or 12MHz	4K×15	160×8	32	1	1	8-bit×6	3	—	8	28SOP 48SSOP
HT82J97E HT82J97A	4.0V~5.5V	6MHz or 12MHz	2K×14	96×8	20	—	1	8-bit×6	2	8-bit×2	4	20/28SOP

Note: Part numbers including an "A" are mask version devices while "E" are OTP devices.

27MHz Keyboard/Mouse TX MCU

Part No.	VDD	System Clock	Program Memory	Data Memory		I/O	16-bit Timer	Built-in DC/DC	27MHz AMP	Built-in Modulated Cap.	Stack	Package
				SRAM	EEPROM							
HT82K74E HT82K74EE	2.0V~3.3V	27MHz	2K×15	96×8	—	36	1	√	√	√	4	28SSOP, 32QFN 48SSOP/LQFP
					128×8							28/48SSOP, 48LQFP

Note: Part numbers with a single "E" suffix are OTP devices while an "EE" are OTP devices with EEPROM.

27MHz Keyboard/Mouse RX MCU

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	Timer		End-points	Built-in IF Block	Stack	Package
						8-bit	16-bit				
HT82D20R HT82D20A	3.3V~5.5V	12MHz	2K×14	96×8	8	—	1	2	×1	4	28SSOP
HT82D22R HT82D22A	3.3V~5.5V	12MHz	4K×15	160×8	10	1	1	3	×2	8	48QFN

Note: Part numbers including an "A" are mask version devices while "R" are OTP devices.

2.4GHz Keyboard/Mouse TX MCU

Part No.	VDD	System Clock		Program Memory	Data Memory		I/O	16-bit Timer	Built-in DC/DC	SPI	Built-in OSC	Built-in 2.4G RF Block	Stack	Package
		MCU	RF		SRAM	EEPROM								
HT82M75R	2.0V~3.6V	6MHz	—	4K×15	128×8	—	24	1	√	1	√	—	6	20/28SOP/SSOP 32QFN
HT82K75R	2.0V~3.6V	6MHz	—	4K×15	160×8	—	40	1	√	1	√	—	6	48SSOP
HT82M75RE	2.0V~3.6V	6MHz	—	4K×15	128×8	128×8	22	1	√	1	√	—	6	32QFN
HT82K75RE	2.0V~3.6V	6MHz	—	4K×15	160×8	128×8	36	1	√	1	√	—	6	48SSOP
HT82M75REW	2.0V~3.6V	6MHz	32MHz	4K×15	128×8	128×8	15	1	√	—	√	√	6	40QFN
HT82K75REW	2.0V~3.6V	6MHz	32MHz	4K×15	160×8	128×8	31	1	√	—	√	√	6	64LQFP

Note: 1. These devices are only available in OTP versions.
2. Part numbers with an "E" suffix are devices with an EEPROM, and with a "EW" suffix are devices with EEPROM and a 2.4GHz RFIC.

2.4GHz Keyboard/Mouse RX MCU

Part No.	VDD	System Clock		Program Memory	Data Memory		I/O	Timer		End-points	Built-in OSC	Built-in 2.4G RF Block	Stack	Package
		MCU	RF		SRAM	EEPROM		8-bit	16-bit					
HT82D40REW	3.3V~5.5V	6MHz or 12MHz	32MHz	4K×15	160×8	128×8	16	1	1	3	√	√	8	40QFN

Note: The device is only available in an OTP version.

8-Bit OTP MCU

R-F Type MCU

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	LCD	Timer		R-F	IR Carrier	PFD	Stack	Package
							16-bit	RTC					
HT47C06L	1.2V~2.2V	32768Hz~128kHz	1K×16	32×8	8	13×3 14×2	1	—	1ch	—	—	2	44QFP
HT47R10A-1 HT47C10-1	2.2V~5.5V	400kHz~8MHz	1K×16	32×8	8	10×2 10×3 9×4	1	√	1ch	—	—	2	44QFP
HT47C10L	1.2V~2.2V	32768Hz				9×4		—					
HT47R20A-1 HT47C20-1	2.2V~5.5V	400kHz~8MHz	2K×16	64×8	12	20×2 20×3 19×4	1	√	2ch	√	√	4	64LQFP
HT47C20L	1.2V~2.2V	32768Hz						—		—	—		

Note: 1. Part numbers including a "C" are mask version devices, "R" are OTP devices, while part numbers suffixed with an "L" are low voltage mask version devices.
2. For the low voltage mask version devices, note that the HT47R20A-1 device can be used as a corresponding OTP device.

C/R-F Type MCU

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	I/O	Timer			C/ R-F	High Current Output	A/D	PWM	OPA	SPI/ I ² C	Stack	Package
							8-bit	16-bit	RTC								
HT45R35	—	2.2V~5.5V	400kHz~8MHz	2K×14	120×8	16	1	1	—	12	—	—	—	—	—	4	16DIP/NSOP 20DIP/SOP 24/28SKDIP/SOP 32QFN
HT45R36	—	2.2V~5.5V	400kHz~8MHz	2K×14	120×8	25	1	1	—	16	8×8	—	—	—	—	4	32QFN 44/52QFP
HT45R37	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~8MHz	4K×15	160×8	27	2	1	√	16	—	12-bit×6	12-bit×2	—	1	6	20DIP/SOP 24/28SKDIP/SOP 32QFN, 44QFP
HT45R38	—	2.2V~5.5V	400kHz~8MHz	4K×15	192×8	29	2	1	—	12	8×8	12-bit×5	8-bit×2	1	—	6	32QFN, 52QFP

Note: These devices are only available in OTP versions.

Remote Type MCU

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	I/O	Timer		IR Carrier	LVR	PFD	Stack	Package
							8-bit	16-bit					
HT48RA0-2 HT48CA0-2	—	2.0V~3.6V	400kHz~4MHz	1K×14	32×8	15	—	—	√	√	—	1	20SSOP
HT48RA0-5	4095kHz	2.0V~3.6V	400kHz~4095kHz	1K×14	32×8	17	—	—	√	√	—	1	20SSOP
HT48RA1 HT48CA1	—	2.0V~5.5V	400kHz~8MHz	8K×16	224×8	23	1	1	—	√	√	8	28SOP 28SSOP(209mil)
HT48RA3 HT48CA3	—	2.0V~3.6V	400kHz~8MHz	24K×16	224×8	23	1	1	—	√	√	8	28SOP 28SSOP(209mil)
HT48RA5 HT48CA5	—	2.0V~5.5V	400kHz~4MHz	40K×16	224×8	23	1	1	—	√	√	8	28SOP 28SSOP(209mil)

Note: Part numbers including a "C" are mask version devices while "R" are OTP devices.

Remote Type MCU with LCD

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	Input	LCD	Segment Share		Timer			IR Carrier	LVR	Stack	Package
								I/O	Output	8-bit	16-bit	RTC				
HT49RA0 HT49CA0	2.0V~3.6V	4MHz	2K×14	96×8	8	8	21×2, 21×3, 20×4	0	8	1	—	√	√	√	4	52QFP
HT49RA1 HT49CA1	2.0V~3.6V	4MHz	4K×15	160×8	8	8	32×4, 33×3, 33×2	4	8	1	1	√	√	√	4	52QFP 64LQFP

Note: Part numbers including a "C" are mask version devices while "R" are OTP devices.

Remote Type MCU with EEPROM

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	I/O	8-bit Timer	RTC	OPA	Comparator	R-Type LCD	PFD	Stack	Package
HT45R22E	4095kHz	2.2V~3.6V	32kHz~4095kHz	4K×15	128×8	1K×8	22	2	√	2	1	4COM	√	4	20/24SOP

Note: The device is only available in an OTP version.

Remote Type MCU with RF

Part No.	VDD	System Clock	Program Memory		Data Memory	Data EEPROM	I/O	Timer		A/D	PWM	PFD	TX	Carrier Frequency	Type	Stack	Package
			OTP	Flash				8-bit	10-bit								
HT68F03T3	2.2V~3.6V	32kHz~12MHz	—	1K×14	64×8	64×8	7	—	2	—	√	√	√	300~450MHz	ASK	4	16NSOP
HT66F03T3	2.2V~3.6V	32kHz~12MHz	—	1K×14	64×8	64×8	7	—	2	12-bit×4	√	√	√	300~450MHz	ASK	4	16NSOP
HT48R01T3	2.2V~3.6V	32kHz~8MHz	1K×15	—	96×8	—	9	2	—	—	—	√	√	315/433MHz	ASK	6	16NSOP
HT46R01T3	2.2V~3.6V	32kHz~8MHz	1K×15	—	96×8	—	9	2	—	12-bit×4	8-bit×1	√	√	315/433MHz	ASK	6	16NSOP

Note: Part numbers including an "F" are Flash version devices while "R" are OTP devices.

8-Bit OTP MCU

USB Audio MCU

Part No.	VDD	System Clock	End-points	Transfer	FIFO (Byte)	Program Memory	Data Memory	I/O	A/D	D/A	Power AMP	Other	Package
HT82A821R	3.3V~5.5V	6MHz or 12MHz	EP0	CTL	8	2K×15	192×8	8	—	48kHz 16-bit ×2	4Ω ×2	—	24SOP 24SSOP
			EP1	INT	8								
			EP2	ISO(O)	384								
HT82A822R	3.3V~5.5V	6MHz or 12MHz	EP0	CTL	8	4K×15	704×8 + 512×8(read only)	24	—	48kHz 16-bit ×2	4Ω ×2	—	48SSOP
			EP1	INT	8								
			EP2	ISO(O)	384								
HT82A824R*	3.3V~5.5V	6MHz or 12MHz	EP0	CTL	8	8K×16	864×8 + 512×8(read only)	23	—	44.1/48kHz 16-bit ×2	32Ω ×2	ADC×6, SPI, PFD, UART, Attenuator×2, AUDIO_IN×2	48SSOP 48LQFP
			EP1, EP4	INT	8, 32								
			EP2	ISO(O)	384								
HT82A834R	3.3V~5.5V	6MHz or 12MHz	EP5, EP6	BUK	32, 64	4K×15	192×8	24	16kHz 16-bit	48kHz 16-bit ×2	4Ω ×2	SPI, PFD, MUSIC_IN	48SSOP 48LQFP
			EP0	CTL	8								
			EP1, EP4	INT	8, 32								
HT82A836R	3.3V~5.5V	6MHz or 12MHz	EP2	ISO(O)	384	8K×16	384×8	44	16kHz 16-bit	48kHz 16-bit ×2	4Ω ×2	ADC×6, PWM×2, SPI, PFD, MUSIC_IN	80LQFP 100QFP
			EP3	ISO(I)	64								
			EP0	CTL	8								
HT82A850R	3.3V~5.5V	6MHz, 12MHz or 16MHz	EP1, EP4	INT	8, 32	4K×15	384×8	24	8kHz 16-bit	8kHz 16-bit ×2	4Ω ×2	SPI, PFD, MUSIC_IN	48LQFP
			EP2	ISO(O)	384								
			EP3	ISO(I)	32								
HT82A851R	3.3V~5.5V	6MHz, 12MHz or 16MHz	EP0	CTL	8	4K×15	384×8	16	—	—	—	SPI, PFD	24SSOP
			EP1, EP4	INT	8, 32								
			EP2	ISO(O)	384								

* Under development, available in 3Q, 2010.

Note: These devices are only available in OTP versions.

Phone MCU

Part No.	VDD	Program Memory	Data Memory	General I/O	Timer	DTMF Generator	Stack	Package
HT95R22	2.2V~5.5V	4K×16	576×8	20	16-bit×2	√	8	28SOP
HT95R23	2.2V~5.5V	4K×16	1152×8	36	16-bit×2	√	8	48SSOP
HT95R24	2.2V~5.5V	8K×16	2112×8	36	16-bit×2	√	8	48SSOP
HT95R25	2.2V~5.5V	16K×16	2112×8	52	16-bit×2	√	8	64LQFP

Note: These devices are only available in OTP versions.

Part No.	VDD	Program Memory	Data Memory	General I/O	Timer	D/A	I ² C/SPI	DTMF Generator	DTMF Receiver	Stack	Package
HT95R33	2.2V~5.5V	4K×16	1152×8	28	16-bit×2	—	—	√	√	8	48SSOP
HT95R34	2.2V~5.5V	8K×16	2112×8	28	16-bit×2	—	—	√	√	8	48SSOP
HT95R35	2.2V~5.5V	16K×16	2112×8	44	16-bit×3	12-bit×1	√	√	√	8	64LQFP

Note: These devices are only available in OTP versions.

Phone MCU with CPT

Part No.	VDD	Program Memory	Data Memory	General I/O	Timer	D/A	I ² C/SPI	DTMF Generator	DTMF Receiver	CPT	Stack	Package
HT95R43	2.2V~5.5V	4K×16	1152×8	28	16-bit×2	—	—	√	√	√	8	64LQFP
HT95R44	2.2V~5.5V	8K×16	2112×8	28	16-bit×2	—	—	√	√	√	8	64LQFP
HT95R45	2.2V~5.5V	16K×16	2112×8	44	16-bit×3	12-bit×1	√	√	√	√	8	64/80LQFP

Note: These devices are only available in OTP versions.

Phone MCU with CID

Part No.	VDD	Program Memory	Data Memory	General I/O	Timer	R-Type LCD	I ² C/SPI	D/A	DTMF Generator	DTMF Receiver	FSK Receiver	Stack	Package
HT95R54	2.2V~5.5V	8K×16	2112×8	40	16-bit×3	4COM	√	12-bit×1	√	√	√	8	64LQFP
HT95R55	2.2V~5.5V	16K×16	2112×8	40	16-bit×3	4COM	√	12-bit×1	√	√	√	8	64LQFP

Note: These devices are only available in OTP versions.

Phone MCU with CPT & CID

Part No.	VDD	Program Memory	Data Memory	General I/O	Timer	I ² C/SPI	D/A	DTMF Generator	DTMF Receiver	FSK Receiver	CPT	Stack	Package
HT95R64	2.2V~5.5V	8K×16	2112×8	40	16-bit×3	√	12-bit×1	√	√	√	√	8	64/80LQFP
HT95R65	2.2V~5.5V	16K×16	2112×8	40	16-bit×3	√	12-bit×1	√	√	√	√	8	64/80LQFP

Note: These devices are only available in OTP versions.

8-Bit OTP MCU
Enhanced Voice MCU

Part No.	VDD	Program Memory	Data Memory	Voice ROM	Voice Capacity	I/O	Timer		Audio Output		Stack	Package
							8-bit	16-bit	DAC	PWM		
HT86B03	2.2V~5.5V	4K×16	192×8	96K×8	36sec	12	3	—	12-bit×1	—	8	16NSOP 24SSOP(150/209mil)
HT86BR10	2.2V~5.5V	8K×16	192×8	192K×8	72sec	16	3	—	12-bit×1	√	8	24SSOP(209mil) 28SOP, 44QFP
HT86B10												24SSOP(150/209mil) 28SOP, 44QFP
HT86B20	2.2V~5.5V	8K×16	192×8	256K×8	96sec	16	3	—	12-bit×1	√	8	28SOP, 44QFP
HT86BR30	2.2V~5.5V	8K×16	192×8	384K×8	144sec	16	3	—	12-bit×1	√	8	28SOP, 44QFP
HT86B30												
HT86B40	2.2V~5.5V	8K×16	384×8	512K×8	192sec	20	3	1	12-bit×1	√	8	28SOP, 44QFP
HT86B50	2.2V~5.5V	8K×16	384×8	768K×8	288sec	20	3	1	12-bit×1	√	8	28SOP, 44QFP
HT86BR60	2.2V~5.5V	8K×16	384×8	1024K×8	384sec	20	3	1	12-bit×1	√	8	28SOP
HT86B60												28SOP, 44QFP
HT86B70	2.2V~5.5V	8K×16	384×8	1536K×8	576sec	24	3	1	12-bit×1	√	8	44/100QFP
HT86B80	2.2V~5.5V	8K×16	384×8	2048K×8	768sec	24	3	1	12-bit×1	√	8	44/100QFP
HT86B90	2.2V~5.5V	8K×16	384×8	3072K×8	1152sec	24	3	1	12-bit×1	√	8	100QFP

Note: 1. Part numbers including an "R" are OTP devices, all others are mask version devices.
2. Evaluation kits are available for product development and verification purposes, please contact Holtek for further information.
3. For the HT86B90, the operating voltage is 2.2V~5.5V at $f_{SYS}=4\text{MHz}$ and 3.3V~5.5V at $f_{SYS}=8\text{MHz}$.
4. The quoted Voice Capacity is based on a 21Kbps data rate.

A/D Type Voice MCU

Part No.	VDD	Program Memory	Data Memory	Voice ROM	Voice Capacity	I/O	Timer		D/A	A/D	Power AMP	Stack	Package
							8-bit	RTC					
HT86A36	2.0V~5.5V	8K×16	384×8	96K×8	36sec	40	4	√	12-bit×1	12-bit×4	√	8	44QFP 64LQFP(10x10mm)
HT86AR72	2.2V~5.5V	8K×16	384×8	192K×8	72sec	40	4	√	12-bit×1	12-bit×4	√	8	44QFP 64LQFP(10x10mm)
HT86A72	2.0V~5.5V												

Note: 1. Part numbers including an "R" are OTP devices, all others are mask version devices.
2. Evaluation kits are available for product development and verification purposes, please contact Holtek for further information.
3. Built-in 1W power amplifier for 8Ω speaker.
4. The quoted Voice Capacity is based on a 21Kbps data rate.

Q-Voice™ MCU

Part No.	VDD	Program Memory	Data Memory	Voice ROM	Voice Capacity	I/O	D/A	Package
HT83004	2.4V~5.0V	2K×15	80×8	8K×8	3sec	12	PWM	28SOP, 20SSOP(150mil/209mil)
HT83007	2.4V~5.0V	2K×15	80×8	16K×8	6sec	12	PWM	28SOP, 20SSOP(150mil/209mil)
HT83010	2.4V~5.0V	2K×15	80×8	24K×8	9sec	12	PWM	28SOP, 20SSOP(150mil/209mil)
HT83020	2.4V~5.0V	2K×15	80×8	48K×8	18sec	12	PWM	28SOP, 20SSOP(150mil/209mil)
HT83038	2.4V~5.0V	2K×15	80×8	96K×8	36sec	12	PWM	28SOP, 20SSOP(150mil/209mil)
HT83050	2.4V~5.0V	2K×15	80×8	128K×8	48sec	12	PWM	28SOP, 20SSOP(150mil/209mil)
HT83R074	2.4V~5.0V	2K×15	80×8	192K×8	72sec	12	PWM	28SOP, 20SSOP(209mil)
HT83074								28SOP, 20SSOP(150mil/209mil)

Note: 1. Part numbers including an "R" are OTP devices, all others are mask version devices.
2. Evaluation kits are available for product development and verification purposes, please contact Holtek for further information.
3. The PWM output is capable of directly driving an 8Ω speaker.
4. Q-Voice™ is a trademark of Holtek Semiconductor Inc.
5. The quoted Voice Capacity is based on a 21Kbps data rate.

8-Bit OTP MCU
Enhanced Music MCU (4 Polyphony)

Part No.	VDD	Program Memory	Data Memory	I/O	Timer		D/A	A/D	Speech	Power AMP	Package
					8-bit	16-bit					
HT37Q20	2.4V~5.5V	32K×16	320×8	16	2	1	16-bit×1	—	PCM/ADPCM	—	20/28SOP
HT37Q30	2.4V~5.5V	64K×16	320×8	20	2	1	16-bit×1	—	PCM/ADPCM	✓	28SOP, 48SSOP
HT37Q40	3.3V~5.5V	96K×16	320×8	28	2	1	16-bit×1	—	PCM/ADPCM	✓	28SOP, 64QFP, 80LQFP
HT37Q50	3.3V~5.5V	128K×16	320×8	28	2	1	16-bit×1	—	PCM/ADPCM	✓	28SOP, 64QFP, 80LQFP
HT37Q60	3.6V~5.5V	192K×16	320×8	28	2	1	16-bit×1	—	PCM/ADPCM	✓	28SOP, 64QFP, 80LQFP
HT37Q70	3.6V~5.5V	256K×16	320×8	28	2	1	16-bit×1	—	PCM/ADPCM	✓	28SOP, 64QFP, 80LQFP

Note: The waveform data and program code share the same memory space.

Enhanced Music MCU (8 Polyphony)

Part No.	VDD	Program Memory	Data Memory	I/O	Timer		D/A	A/D	Speech	Power AMP	Package
					8-bit	16-bit					
HT37A20	2.4V~5.5V	32K×16	320×8	16	2	1	16-bit×1	—	PCM/ADPCM	—	20/28SOP
HT37A30	2.4V~5.5V	64K×16	320×8	20	2	1	16-bit×2	—	PCM/ADPCM	✓	28SOP, 48SSOP
HT37A40	3.3V~5.5V	96K×16	320×8	28	2	1	16-bit×2	12-bit×8	PCM/ADPCM	✓	28SOP, 64QFP, 80LQFP
HT37A50	3.3V~5.5V	128K×16	320×8	28	2	1	16-bit×2	12-bit×8	PCM/ADPCM	✓	28SOP, 64QFP, 80LQFP
HT37A60	3.6V~5.5V	192K×16	320×8	28	2	1	16-bit×2	12-bit×8	PCM/ADPCM	✓	28SOP, 64QFP, 80LQFP
HT37A70	3.6V~5.5V	256K×16	320×8	28	2	1	16-bit×2	12-bit×8	PCM/ADPCM	✓	28SOP, 64QFP, 80LQFP

Note: The waveform data and program code share the same memory space.

Enhanced Music MCU (16 Polyphony)

Part No.	VDD	Program Memory	Data Memory	I/O	Timer		D/A	A/D	Speech	Power AMP	Package
					8-bit	16-bit					
HT37B30	2.4V~5.5V	64K×16	640×8	32	2	1	16-bit×2	12-bit×8	PCM/ADPCM	✓	28SOP, 80LQFP
HT37B50	2.4V~5.5V	128K×16	640×8	32	2	1	16-bit×2	12-bit×8	PCM/ADPCM	✓	28SOP, 80LQFP
HT37B70	3.0V~5.5V	256K×16	640×8	40	2	1	16-bit×2	12-bit×8	PCM/ADPCM	✓	80LQFP
HT37B90	3.0V~5.5V	512K×16	1280×8	40	2	1	16-bit×2	12-bit×8	PCM/ADPCM	✓	100QFP

Note: The waveform data and program code share the same memory space.

Enhanced ROMless Music MCU (16 Polyphony)

Part No.	VDD	Program Memory	Data Memory	I/O	Timer		D/A	A/D	Speech	Power AMP	Package
					8-bit	16-bit					
HT37P00	2.4V~5.5V	—	4096×8	56	3	1	16-bit×2	12-bit×16	PCM/ADPCM	✓	128QFP

Note: The waveform data and program code share the same memory space.

8-Bit Flash MCU
I/O Flash Type MCU with EEPROM

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	I/O	Timer		PFD	Stack	Package
							8-bit	16-bit			
HT48F06E	2.2V~5.5V	400kHz~12MHz	1K×14	64×8	128×8	13	1	—	√	2	16NSOP, 18DIP/SOP 20SSOP
HT48F10E	2.2V~5.5V	400kHz~12MHz	1K×14	64×8	128×8	19	1	—	√	4	24SKDIP/SOP/SSOP
HT48F30E	2.2V~5.5V	400kHz~12MHz	2K×14	96×8	128×8	23	1	—	√	4	24SKDIP/SOP/SSOP 28SKDIP/SOP/SSOP
HT48F50E	2.2V~5.5V	400kHz~12MHz	4K×15	160×8	256×8	33	1	1	√	6	28SKDIP/SOP/SSOP 48SSOP
HT48F70E	2.2V~5.5V	400kHz~12MHz	8K×16	224×8	256×8	56	—	2	√	16	48SSOP, 64LQFP

Enhanced I/O Flash Type MCU with EEPROM

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	I/O	RTC	Timer Module	PFD	Comp.	Interface	Stack	Package
HT68F20*	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~20MHz or 32768Hz	1K×14	64×8	32×8	18	√	10-bit CTM×1 10-bit STM×1	√	2	SPI/I ² C	4	16DIP/NSOP/SSOP 20DIP/SOP/SSOP
HT68F30	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~20MHz or 32768Hz	2K×14	96×8	64×8	22	√	10-bit CTM×1 10-bit ETM×1	√	2	SPI/I ² C	4	16DIP/NSOP/SSOP 20DIP/SOP/SSOP 24SKDIP/SOP/SSOP
HT68FU30												UART		
HT68FB30												USB		
HT68F40	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~20MHz or 32768Hz	4K×15	192×8	128×8	42	√	10-bit CTM×1 10-bit ETM×1 16-bit STM×1	√	2	SPI/I ² C	8	24SKDIP/SOP/SSOP 28SKDIP/SOP/SSOP 44QFP, 32/40/48QFN 48SSOP
HT68FU40												UART		
HT68FB40												USB		
HT68F50	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~20MHz or 32768Hz	8K×16	384×8	256×8	42	√	10-bit CTM×2 10-bit ETM×1 16-bit STM×1	√	2	SPI/I ² C	8	28SKDIP/SOP/SSOP 44QFP, 40/48QFN 48SSOP
HT68FU50												UART		
HT68FB50												USB		
HT68F60*	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~20MHz or 32768Hz	12K×16	576×8	256×8	50	√	10-bit CTM×2 10-bit ETM×1 16-bit STM×1	√	2	SPI/I ² C	12	44/52QFP, 40/48QFN 48SSOP
HT68FU60*												UART		
HT68FB60*												USB		

* Under development, available in 3Q, 2010.

Note: 1. Part numbers which include a "U" have an internal UART function; part numbers which include a "B" have a USB interface.

2. All devices include a fully integrated RC system oscillator.

3. Four I/O lines on each device can be configured as software LCD COM driver pins.

Small Package I/O Flash Type MCU

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	I/O	RTC	Timer Module	PFD	Comp.	Stack	Package
HT68F03	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~20MHz	1K×14	64×8	64×8	8	√	CTM 10-bit×1 STM 10-bit×1	√	1	4	10MSOP
HT68F04	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~20MHz	2K×15	96×8	64×8	8	√	CTM 10-bit×1 STM 10-bit×1	√	1	8	10MSOP

Note: The internal clock in the table is a fully integrated RC oscillator requiring no external components which can be used as the system clock.

A/D Flash Type MCU with EEPROM

Part No.	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	I/O	8-bit Timer	A/D	PWM	PFD	Stack	Package
HT46F46E	2.2V~5.5V	400kHz~12MHz	1K×14	64×8	128×8	13	1	8-bit×4	8-bit×1	√	4	16NSOP 18DIP/SOP
HT46F47E	2.2V~5.5V	400kHz~12MHz	2K×14	64×8	128×8	13	1	9-bit×4	8-bit×1	√	6	16NSOP, 18DIP/SOP 20SSOP
HT46F48E	2.2V~5.5V	400kHz~12MHz	2K×14	88×8	128×8	19	1	9-bit×4	8-bit×1	√	6	24SKDIP/SOP/SSOP
HT46F49E	2.2V~5.5V	400kHz~12MHz	4K×15	128×8	256×8	23	1	9-bit×4	8-bit×2	√	6	24SKDIP/SOP/SSOP 28SKDIP/SOP/SSOP

8-Bit Flash MCU

Enhanced A/D Flash Type MCU with EEPROM

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	I/O	RTC	A/D	Timer Module	PFD	Comp.	Interface	Stack	Package
HT66F20*	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~20MHz or 32768Hz	1K×14	64×8	32×8	18	✓	12-bit×8	10-bit CTM×1 10-bit STM×1	✓	2	SPI/I ² C	4	16DIP/NSOP/SSOP 20DIP/SOP/SSOP
HT66F30	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~20MHz or 32768Hz	2K×14	96×8	64×8	22	✓	12-bit×8	10-bit CTM×1 10-bit ETM×1	✓	2	SPI/I ² C	4	16DIP/NSOP/SSOP 20DIP/SOP/SSOP 24SKDIP/SOP/SSOP
HT66FU30													UART		
HT66FB30													USB		
HT66F40	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~20MHz or 32768Hz	4K×15	192×8	128×8	42	✓	12-bit×8	10-bit CTM×1 10-bit ETM×1 16-bit STM×1	✓	2	SPI/I ² C	8	24SKDIP/SOP/SSOP 28SKDIP/SOP/SSOP 44QFP, 32/40/48QFN 48SSOP
HT66FU40													UART		
HT66FB40													USB		
HT66F50	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~20MHz or 32768Hz	8K×16	384×8	256×8	42	✓	12-bit×8	10-bit CTM×2 10-bit ETM×1 16-bit STM×1	✓	2	SPI/I ² C	8	28SKDIP/SOP/SSOP 44QFP, 40/48QFN 48SSOP
HT66FU50													UART		
HT66FB50													USB		
HT66F60*	4MHz 8MHz 12MHz	2.2V~5.5V	400kHz~20MHz or 32768Hz	12K×16	576×8	256×8	50	✓	12-bit×12	10-bit CTM×2 10-bit ETM×1 16-bit STM×1	✓	2	SPI/I ² C	12	44/52QFP, 40/48QFN 48SSOP
HT66FU60*													UART		
HT66FB60*													USB		

* Under development, available in 3Q, 2010.

Note: 1. Part numbers which include a "U" have an internal UART function; part numbers which include a "B" have a USB interface.

2. All devices include a fully integrated RC system oscillator.

3. Four I/O lines on each device can be configured as software LCD COM driver pins.

Small Package A/D Flash Type MCU

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	I/O	RTC	A/D	Timer Module	PFD	Comp.	Stack	Package
HT66F03	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~20MHz	1K×14	64×8	64×8	8	✓	12-bit×4	CTM 10-bit×1 STM 10-bit×1	✓	1	4	10MSOP
HT66F04	4MHz 8MHz 12MHz	2.2V~5.5V	32kHz~20MHz	2K×15	96×8	64×8	8	✓	12-bit×4	CTM 10-bit×1 STM 10-bit×1 ETM 10-bit×1	✓	1	8	10MSOP

Note: The internal clock in the table is a fully integrated RC oscillator requiring no external components which can be used as the system clock.

1.5V Battery Flash Type MCU

Part No.	Internal Clock	Input Voltage	System Clock	Program Memory	Data Memory	Data EEPROM	I/O	RTC	A/D	Timer Module	PFD	Comp.	Stack	Package
HT68F03M	4MHz 8MHz 12MHz	0.7V~3.3V	32kHz~12MHz	1K×14	64×8	64×8	8	✓	—	CTM 10-bit×1 STM 10-bit×1	✓	1	4	16NSOP
HT68F04M	4MHz 8MHz 12MHz	0.7V~3.3V	32kHz~12MHz	2K×15	96×8	64×8	8	✓	—	CTM 10-bit×1 STM 10-bit×1	✓	1	8	16NSOP
HT66F03M	4MHz 8MHz 12MHz	0.7V~3.3V	32kHz~12MHz	1K×14	64×8	64×8	8	✓	12-bit×4	CTM 10-bit×1 STM 10-bit×1	✓	1	4	16NSOP
HT66F04M	4MHz 8MHz 12MHz	0.7V~3.3V	32kHz~12MHz	2K×15	96×8	64×8	8	✓	12-bit×4	CTM 10-bit×1 STM 10-bit×1 ETM 10-bit×1	✓	1	8	16NSOP

Note: The internal clock in the table is a fully integrated RC oscillator requiring no external components which can be used as the system clock.

Brushless DC Motor Flash Type MCU

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	I/O	Timer		Hall Ext.	A/D	PWM	PFD	OPA	Comp.	Stack	Package
							8-bit	16-bit								
HT45FM03B	12MHz 16MHz 20MHz	4.5V~5.5V	400kHz~20MHz	4K×15	192×8	26	1	1	1	12-bit×8	10-bit×3	✓	1	1	8	28SOP

Flash Type Voice MCU

Part No.	VDD	VIN	Program Memory	Data Memory	Flash Voice ROM	Voice Capacity	I/O	8-bit Timer	I ² C/SPI	Audio Output		Stack	Package
										DAC	PWM		
HT83F10	2.7V~3.6V	—	2K×15	80×8	128K×8	32sec	12	2	✓	12-bit×1	✓	8	44QFP
HT83F10P	3.3V	3.6V~24V											
HT83F20	2.7V~3.6V	—	2K×15	80×8	256K×8	64sec	12	2	✓	12-bit×1	✓	8	44QFP
HT83F20P	3.3V	3.6V~24V											
HT83F40	2.7V~3.6V	—	2K×15	80×8	512K×8	128sec	12	2	✓	12-bit×1	✓	8	44QFP
HT83F40P	3.3V	3.6V~24V											
HT83F60	2.7V~3.6V	—	2K×15	80×8	1024K×8	256sec	12	2	✓	12-bit×1	✓	8	44QFP
HT83F60P	3.3V	3.6V~24V											
HT83F80	2.7V~3.6V	—	2K×15	80×8	2048K×8	512sec	12	2	✓	12-bit×1	✓	8	44QFP
HT83F80P	3.3V	3.6V~24V											

Note: The quoted Voice Capacity is based on a 32Kbps data rate.

Display Driver

RAM Mapping LCD Controller & Driver

Part No.	Common	Segment	VDD	LCD Voltage	Pixels	Duty	Bias	Gray Scale	Serial Data	Built-in OSC.	Ext. Crystal	Keyscan	Package
HT1620	4	32	2.4V~3.3V	3/2VDD	—	1/2, 1/3, 1/4	1/2, 1/3	—	1	—	√	—	64LQFP Gold Bump
HT1621	4	32	2.4V~5.2V	3V~VDD	—	1/2, 1/3, 1/4	1/2, 1/3	—	1	√	√	—	28SKDIP, 44QFP 48SSOP/LQFP Gold Bump
HT1622	8	32	2.7V~5.2V	3V~VDD	—	1/8	1/4	—	1	√	—	—	44/52QFP, 64LQFP Gold Bump
HT16220	8	32	2.7V~5.2V	3V~VDD	—	1/8	1/4	—	1	—	√	—	64LQFP Gold Bump
HT1623	8	48	2.7V~5.2V	3V~VDD	—	1/8	1/4	—	1	√	√	—	100QFP Gold Bump
HT1625	8	64	2.7V~5.2V	3V~VDD	—	1/8	1/4	—	1	√	√	—	100QFP
HT1626	16	48	2.7V~5.2V	3V~VDD	—	1/16	1/5	—	1	√	√	—	100QFP
HT1628*	4	44	2.4V~5.5V	3V~VDD	—	1/4	1/2, 1/3	—	1	√	—	—	48LQFP 44/52QFP
HT16K23*	8	16	2.4V~5.5V	3V~VDD	128	1/8	1/4	—	1	√	—	16×1	28SOP
	4	20			80	1/4	1/3	—	1	√	—	20×1	
HT1647	16	64	2.7V~5.2V	3V~VDD	—	1/16	1/4, 1/5	4	4	√	√	—	100QFP
HT1647A								—					
HT1650	32	64	2.7V~5.2V	3V~VDD	—	1/16, 1/32	1/5, 1/6	—	4	√	√	—	128QFP
HT1660	32	96	2.7V~5.2V	3V~VDD	—	1/16, 1/32	1/5, 1/6	—	4	√	√	—	208QFP
HT1670	32	128	2.7V~5.2V	3V~VDD	—	1/16, 1/32	1/5, 1/6	—	4	√	√	—	208QFP

* Under development, available in 3Q, 2010.

RAM Mapping LED Controller & Driver

Part No.	VDD	Segment	Common	Row Source Current	Com Source Current	Interface	Keyscan	Package
HT1632C	2.4V~5.5V	32	8	40mA	250mA	3-Wire	—	52QFP
		24	16					
HT16K33*	4.5V~5.5V	16	8	30mA	200mA	I ² C	13×3	28SOP
		12	8				10×3	24SSOP
		8	8				8×3	20SOP

* Under development, available in 4Q, 2010.

Constant Current LED Driver

Part No.	VDD	Output	Constant Current Range	Min. OE	Power Saving Mode	Package
HT16D595*	2.4V~5.5V	8	Fix. 48mA	200ns	—	16NSOP
HT16D742*	3.0V~5.5V	16	0.5~45mA	200ns/120ns 60ns/30ns	√	24SSOP
HT16D762*	3.0V~5.5V	16	3.0~45mA	200ns/120ns 60ns/30ns	—	24SSOP

* Under development, available in 4Q, 2010.

Note: HT16D595 is pin-to-pin compatible with 74HC595 but provides constant current.

VFD Controller & Driver

Part No.	Segment	Digit	VDD	Output Voltage	Key Matrix	General Input	LED Output	Dimming Step	Package
HT16511	12~20	16~8	5V	VDD~35V	12×4	4	5	8	52QFP
HT16512	11~16	11~6	5V	VDD~35V	6×4	4	4	8	44QFP
HT16515	16~24	12~4	3.0V~5.5V	VDD~35V	16×2	—	4	8	44QFP

VFD Clock

Part No.	VDD	Function Description	IDD Max.	Package	Futaba VFD Panel Part No.
HT16561	4V~16V	1/1 Duty, 12Hr	2mA	44QFP	4BT68ZM, 4BT224GN
HT16562	4V~18V	1/2 Duty, 12Hr	1mA	30SSOP	2BT167GNM, 2BT428GN
HT16565	4V~16V	1/1 Duty, 24Hr	2mA	44QFP	Please contact Futaba
HT16566	4V~18V	1/2 Duty, 24Hr	1mA	30SSOP	Please contact Futaba

Dot Character VFD Controller & Driver

Part No.	Segment	Digit	VDD	Output Voltage	Key Matrix	Display RAM	CGROM	CGRAM	General Output	Package
HT16514	80	24	2.7V~5.5V	50V	12×4	80×8 bits	248×5×8 bits	8×5×8 bits	—	144LQFP
HT16528	80	24	2.7V~5.5V	60V	12×4	80×8 bits	248×5×8 bits	8×5×8 bits	—	144LQFP
HT16525	40+2AD	24	2.7V~5.5V	60V	—	24×8 bits	248×5×8 bits	8×5×8 bits	2	80LQFP
HT16523*	35+2AD	16	2.7V~5.5V	40V	—	16×8 bits	248×5×7 bits	8×5×7 bits	2	64LQFP

* Under development, available in 3Q, 2010.

Other

Part No.	VDD	Function Description	Package
HT74164	2.0V~6.6V	8-bit SIPO shift register	14DIP/SOP

Note: Compatible with 74HC164.

Memory

3-wire EEPROM

Part No.	Capacity	VDD	Clock Rate (MHz)	Write Speed @2.4V (ms)	Operating Current @5V (mA)	Standby Current @5V (μA)	Package
HT93LC46	64×16/128×8	2.2V~5.5V	2	5	5	10	8DIP/SOP/TSSOP
HT93LC66	256×16/512×8	2.2V~5.5V	2	5	5	10	8DIP/SOP/TSSOP
HT93LC86	1024×16/2048×8	2.2V~5.5V	2	5	5	10	8DIP/SOP/TSSOP

I²C EEPROM

Part No.	Capacity	VDD	Clock Rate (kHz)	Write Speed @2.4V (ms)	Operating Current @5V (mA)	Standby Current @5V (μA)	Package
HT24LC02	256×8	2.2V~5.5V	400	5	5	5	8DIP/SOP/TSSOP
HT24LC04	512×8	2.2V~5.5V	400	5	5	5	8DIP/SOP/TSSOP
HT24LC08	1024×8	2.2V~5.5V	400	5	5	5	8DIP/SOP/TSSOP
HT24LC16	2048×8	2.2V~5.5V	400	5	5	5	8DIP/SOP/TSSOP
HT24LC32	4096×8	2.4V~5.5V	400	5	5	5	8DIP/SOP/TSSOP
HT24LC64	8192×8	2.4V~5.5V	400	5	5	5	8DIP/SOP/TSSOP

Note: I²C is a trademark of Philips Semiconductors.

Part No.	Capacity	VDD	Clock Rate (kHz)	Write Speed @2.4V (ms)	Operating Current @5V (mA)	Standby Current @5V (μA)	Package
HT2201	128×8	2.2V~5.5V	400	5	5	4	SIP-4, SOT23-5

Note: Operating temperature range -40°C ~ +85°C

Remote Controller

Remote Type MCU

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	I/O	Timer		IR Carrier	LVR	PFD	Stack	Package
							8-bit	16-bit					
HT48RA0-2 HT48CA0-2	—	2.0V~3.6V	400kHz~4MHz	1K×14	32×8	15	—	—	√	√	—	1	20SSOP
HT48RA0-5	4095kHz	2.0V~3.6V	400kHz~4095kHz	1K×14	32×8	17	—	—	√	√	—	1	20SSOP
HT48RA1 HT48CA1	—	2.0V~5.5V	400kHz~8MHz	8K×16	224×8	23	1	1	—	√	√	8	28SOP 28SSOP(209mil)
HT48RA3 HT48CA3	—	2.0V~3.6V	400kHz~8MHz	24K×16	224×8	23	1	1	—	√	√	8	28SOP 28SSOP(209mil)
HT48RA5 HT48CA5	—	2.0V~5.5V	400kHz~4MHz	40K×16	224×8	23	1	1	—	√	√	8	28SOP 28SSOP(209mil)

Note: Part numbers including a "C" are mask version devices while "R" are OTP devices.

Remote Type MCU with LCD

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	Input	LCD	Segment Share		Timer			IR Carrier	LVR	Stack	Package
								I/O	Output	8-bit	16-bit	RTC				
HT49RA0 HT49CA0	2.0V~3.6V	4MHz	2K×14	96×8	8	8	21×2, 21×3, 20×4	0	8	1	—	√	√	√	4	52QFP
HT49RA1 HT49CA1	2.0V~3.6V	4MHz	4K×15	160×8	8	8	32×4, 33×3, 33×2	4	8	1	1	√	√	√	4	52QFP 64LQFP

Note: Part numbers including a "C" are mask version devices while "R" are OTP devices.

Remote Type MCU with EEPROM

Part No.	Internal Clock	VDD	System Clock	Program Memory	Data Memory	Data EEPROM	I/O	8-bit Timer	RTC	OPA	Comparator	R-Type LCD	PFD	Stack	Package
HT45R22E	4095kHz	2.2V~3.6V	32kHz~4095kHz	4K×15	128×8	1K×8	22	2	√	2	1	4COM	√	4	20/24SOP

Note: The device is only available in an OTP version.

Remote Type MCU with RF

Part No.	VDD	System Clock	Program Memory		Data Memory	Data EEPROM	I/O	Timer		A/D	PWM	PFD	TX	Carrier Frequency	Type	Stack	Package
			OTP	Flash				8-bit	10-bit								
HT68F03T3	2.2V~3.6V	32kHz~12MHz	—	1K×14	64×8	64×8	7	—	2	—	√	√	√	300~450MHz	ASK	4	16NSOP
HT66F03T3	2.2V~3.6V	32kHz~12MHz	—	1K×14	64×8	64×8	7	—	2	12-bit×4	√	√	√	300~450MHz	ASK	4	16NSOP
HT48R01T3	2.2V~3.6V	32kHz~8MHz	1K×15	—	96×8	—	9	2	—	—	—	√	√	315/433MHz	ASK	6	16NSOP
HT46R01T3	2.2V~3.6V	32kHz~8MHz	1K×15	—	96×8	—	9	2	—	12-bit×4	8-bit×1	√	√	315/433MHz	ASK	6	16NSOP

Note: Part numbers including an "F" are Flash version devices while "R" are OTP devices.

2¹² Encoder/Decoder

Part No.	Encoder/Decoder	VDD	Addr. No.	Addr./Data No.	Data Type	Trig.	Check Times	38kHz Carrier	Package	Pair
HT12E	Encoder	2.4V~12V	8	4	—	TE	—	—	18DIP, 20SOP	HT12D/12F
HT12D	Decoder	2.4V~12V	8	4	Latch	—	3	—	18DIP, 20SOP	HT12A/12E
HT12F	Decoder	2.4V~12V	12	0	—	—	3	—	18DIP, 20SOP	HT12A/12E

3⁹ Encoder

Part No.	Encoder/Decoder	VDD	Addr. No.	Addr./Data No.	Trig.	Package
HT6026	Encoder	4V~18V	0	9	TE	16DIP/NSOP

3¹² Encoder/Decoder

Part No.	Encoder/Decoder	VDD	Addr. No.	Addr./Data No.	Data Type	Trig.	Check Times	Package	Pair
HT6010	Encoder	2.4V~12V	8	4	—	TE	—	18DIP, 20SOP	HT6030/32/34
HT6012	Encoder	2.4V~12V	10	2	—	Data	—	18DIP, 20SOP	HT6032
HT6014	Encoder	2.4V~12V	8	4	—	Data	—	18DIP, 20SOP	HT6034
HT6030	Decoder	2.4V~12V	12	0	—	—	2	18DIP, 20SOP	HT6010
HT6032	Decoder	2.4V~12V	10	2	Latch	—	2	18DIP, 20SOP	HT6010/12
HT6034	Decoder	2.4V~12V	8	4	Latch	—	2	18DIP, 20SOP	HT6010/14

Remote Controller

31⁸ Encoder/Decoder

Part No.	Encoder/Decoder	VDD	Addr. No.	Addr./Data No.	Data Type	Trig.	Check Times	Package	Pair
HT680	Encoder	2.4V~12V	8	4	—	TE	—	18DIP/SOP	HT692
HT600	Encoder	2.4V~12V	9	5	—	TE	—	20DIP/SOP	HT604L/614
HT6207	Encoder	2.4V~12V	10	4	—	Data	—	20DIP/SOP	HT604L/614
HT604L	Decoder	2.4V~12V	10	4	Latch	—	2	20DIP/SOP	HT600/6207
HT614	Decoder	2.4V~12V	10	4	Momentary	—	2	20DIP/SOP	HT600/6207
HT692	Decoder	2.4V~12V	10	2	Momentary	—	2	18DIP	HT680

Learning Encoder

Part No.	VDD	Addr. No.	Addr./Data No.	Trig.	Package
HT6P20B	2V~12V	22	2	Data	8DIP/SOP
HT6P20D	2V~12V	20	4	Data	16DIP/NSOP

TV Remote Controller

Part No.	Encoder/Decoder	VDD	Addr. No.	Addr./Data No.	Key No.	38kHz Carrier	Package
HT6220A	Encoder	2.0V~3.6V	16	8	30	√	16NSOP
HT6221A	Encoder	2.0V~3.6V	16	8	32	√	20SOP
HT6222A	Encoder	2.0V~3.6V	16	8	64	√	24SOP, Chip, Wafer

Power Management
HT71XX-1 TinyPower™ LDO

Part No.	Maximum Input Voltage	Output Voltage	Typical Output Current (mA)	Typical Current Consumption (μA)	Tolerance	Package
HT1015-1	12V	1.5V	18	2.2	±3%	TO92, SOT23-5, SOT89
HT7121-1	24V	2.1V	30	2.5	±3%	TO92, SOT23-5, SOT89
HT7123-1	24V	2.3V	30	2.5	±3%	TO92, SOT23-5, SOT89
HT7125-1	24V	2.5V	30	2.5	±3%	TO92, SOT23-5, SOT89
HT7127-1	24V	2.7V	30	2.5	±3%	TO92, SOT23-5, SOT89
HT7130-1	24V	3.0V	30	2.5	±3%	TO92, SOT23-5, SOT89
HT7133-1	24V	3.3V	30	2.5	±3%	TO92, SOT23-5, SOT89
HT7136-1	24V	3.6V	30	2.5	±3%	TO92, SOT23-5, SOT89
HT7144-1	24V	4.4V	30	2.5	±3%	TO92, SOT23-5, SOT89
HT7150-1	24V	5.0V	30	2.5	±3%	TO92, SOT23-5, SOT89

HT75XX-1 TinyPower™ LDO

Part No.	Maximum Input Voltage	Output Voltage	Typical Output Current (mA)	Typical Current Consumption (μA)	Tolerance	Package
HT7521-1	24V	2.1V	100	2.5	±3%	TO92, SOT23-5, SOT89
HT7523-1	24V	2.3V	100	2.5	±3%	TO92, SOT23-5, SOT89
HT7525-1	24V	2.5V	100	2.5	±3%	TO92, SOT23-5, SOT89
HT7527-1	24V	2.7V	100	2.5	±3%	TO92, SOT23-5, SOT89
HT7530-1	24V	3.0V	100	2.5	±3%	TO92, SOT23-5, SOT89
HT7533-1	24V	3.3V	100	2.5	±3%	TO92, SOT23-5, SOT89
HT7536-1	24V	3.6V	100	2.5	±3%	TO92, SOT23-5, SOT89
HT7540-1	24V	4.0V	100	2.5	±3%	TO92, SOT23-5, SOT89
HT7544-1	24V	4.4V	100	2.5	±3%	TO92, SOT23-5, SOT89
HT7550-1	24V	5.0V	150	2.5	±3%	TO92, SOT23-5, SOT89
HT7560-1	24V	6.0V	150	2.5	±3%	TO92, SOT23-5, SOT89
HT7570-1	24V	7.0V	150	2.5	±3%	TO92, SOT23-5, SOT89
HT7580-1	24V	8.0V	150	2.5	±3%	TO92, SOT23-5, SOT89
HT7590-1	24V	9.0V	150	2.5	±3%	TO92, SOT23-5, SOT89
HT75A0-1	24V	10.0V	150	2.5	±3%	TO92, SOT23-5, SOT89
HT75C0-1	24V	12.0V	150	2.5	±3%	TO92, SOT23-5, SOT89

HT73XX TinyPower™ LDO

Part No.	Maximum Input Voltage	Output Voltage	Typical Output Current (mA)	Typical Current Consumption (μA)	Tolerance	Package
HT7318	12V	1.8V	150	3.5	±3%	TO92, SOT89
HT7325	12V	2.5V	180	3.5	±3%	TO92, SOT89
HT7327	12V	2.7V	200	3.5	±3%	TO92, SOT89
HT7330	12V	3.0V	250	3.5	±3%	TO92, SOT89
HT7333	12V	3.3V	250	3.5	±3%	TO92, SOT89
HT7335	12V	3.5V	250	3.5	±3%	TO92, SOT89
HT7350	12V	5.0V	250	3.5	±3%	TO92, SOT89

HT72XX TinyPower™ LDO

Part No.	Maximum Input Voltage	Output Voltage	Typical Output Current (mA)	Typical Current Consumption (μA)	Tolerance	Package
HT7218	8V	1.8V	300	4	±2%	TO92, SOT23, SOT23-5, SOT89
HT7225	8V	2.5V	300	4	±2%	TO92, SOT23, SOT23-5, SOT89
HT7227	8V	2.7V	300	4	±2%	TO92, SOT23, SOT23-5, SOT89
HT7230	8V	3.0V	300	4	±2%	TO92, SOT23, SOT23-5, SOT89
HT7233	8V	3.3V	300	4	±2%	TO92, SOT23, SOT23-5, SOT89
HT7250	8V	5.0V	300	4	±2%	TO92, SOT23, SOT23-5, SOT89

HT78XX TinyPower™ LDO

Part No.	Maximum Input Voltage	Output Voltage	Typical Output Current (mA)	Typical Current Consumption (μA)	Tolerance	Package
HT7818	8V	1.8V	500	4	±2%	TO92, SOT223, SOT23-5, SOT89
HT7825	8V	2.5V	500	4	±2%	TO92, SOT223, SOT23-5, SOT89
HT7827	8V	2.7V	500	4	±2%	TO92, SOT223, SOT23-5, SOT89
HT7830	8V	3.0V	500	4	±2%	TO92, SOT223, SOT23-5, SOT89
HT7833	8V	3.3V	500	4	±2%	TO92, SOT223, SOT23-5, SOT89
HT7850	8V	5.0V	500	4	±2%	TO92, SOT223, SOT23-5, SOT89

Power Management
HT71AXXX TinyPower™ LDO with Detector

Part No.	Maximum Input Voltage	Regulator Voltage	Detector Voltage	LDO Output Current (mA)	Typical Current Consumption (μA)	Tolerance	Package
HT71A3324	12V	3.3V	2.4V	30	6	±3%	SOT89-5
HT71A3327	12V	3.3V	2.7V	30	6	±3%	SOT89-5
HT71A3344	12V	3.3V	4.4V	30	6	±3%	SOT89-5
HT71A5024	12V	5.0V	2.4V	30	6	±3%	SOT89-5
HT71A5027	12V	5.0V	2.7V	30	6	±3%	SOT89-5
HT71A5033	12V	5.0V	3.3V	30	6	±3%	SOT89-5
HT71A5042	12V	5.0V	4.2V	30	6	±3%	SOT89-5
HT71A5044	12V	5.0V	4.4V	30	6	±3%	SOT89-5

HT75BXX High PSRR LDO (150mA)

Part No.	Maximum Input Voltage	Output Voltage	Typical Output Current (mA)	Typical Current Consumption (μA)	Tolerance	Package
HT75B15*	7V	1.5V	150	10	±2%	SOT23-5
HT75B18*	7V	1.8V	150	10	±2%	SOT23-5
HT75B25*	7V	2.5V	150	10	±2%	SOT23-5
HT75B28*	7V	2.8V	150	10	±2%	SOT23-5
HT75B30*	7V	3.0V	150	10	±2%	SOT23-5
HT75B33*	7V	3.3V	150	10	±2%	SOT23-5
HT75B50*	7V	5.0V	150	10	±2%	SOT23-5

* Under development, available in 3Q, 2010.

HT72BXX High PSRR LDO (300mA)

Part No.	Maximum Input Voltage	Output Voltage	Typical Output Current (mA)	Typical Current Consumption (μA)	Tolerance	Package
HT72B15*	7V	1.5V	300	10	±2%	SOT23-5, SOT89, TO92
HT72B18*	7V	1.8V	300	10	±2%	SOT23-5, SOT89, TO92
HT72B25*	7V	2.5V	300	10	±2%	SOT23-5, SOT89, TO92
HT72B28*	7V	2.8V	300	10	±2%	SOT23-5, SOT89, TO92
HT72B30*	7V	3.0V	300	10	±2%	SOT23-5, SOT89, TO92
HT72B33*	7V	3.3V	300	10	±2%	SOT23-5, SOT89, TO92
HT72B50*	7V	5.0V	300	10	±2%	SOT23-5, SOT89, TO92

* Under development, available in 3Q, 2010.

HT78BXX High PSRR LDO (500mA)

Part No.	Maximum Input Voltage	Output Voltage	Typical Output Current (mA)	Typical Current Consumption (μA)	Tolerance	Package
HT78B15*	7V	1.5V	500	10	±2%	SOT223, SOT23-5, SOT89, TO92
HT78B18*	7V	1.8V	500	10	±2%	SOT223, SOT23-5, SOT89, TO92
HT78B25*	7V	2.5V	500	10	±2%	SOT223, SOT23-5, SOT89, TO92
HT78B28*	7V	2.8V	500	10	±2%	SOT223, SOT23-5, SOT89, TO92
HT78B30*	7V	3.0V	500	10	±2%	SOT223, SOT23-5, SOT89, TO92
HT78B33*	7V	3.3V	500	10	±2%	SOT223, SOT23-5, SOT89, TO92
HT78B50*	7V	5.0V	500	10	±2%	SOT223, SOT23-5, SOT89, TO92

* Under development, available in 3Q, 2010.

HT1087 General Purpose LDO

Part No.	Maximum Input Voltage	Output Voltage	Typical Output Current (mA)	Typical Current Consumption (mA)	Tolerance	Package
HT1087-ADJ	12V	Adj.	500	8	±2%	TO92, SOT89
HT1087-15	12V	1.5V	500	8	±2%	TO92, SOT89
HT1087-18	12V	1.8V	500	8	±2%	TO92, SOT89
HT1087-25	12V	2.5V	500	8	±2%	TO92, SOT89
HT1087-33	12V	3.3V	500	8	±2%	TO92, SOT89
HT1087-50	12V	5.0V	500	8	±2%	TO92, SOT89

HT1117 General Purpose LDO

Part No.	Maximum Input Voltage	Output Voltage	Typical Output Current (A)	Typical Current Consumption (mA)	Tolerance	Package
HT1117-ADJ	12V	Adj.	1	8	±2%	SOT223
HT1117-18	12V	1.8V	1	8	±2%	SOT223
HT1117-25	12V	2.5V	1	8	±2%	SOT223
HT1117-28	12V	2.85V	1	8	±2%	SOT223
HT1117-33	12V	3.3V	1	8	±2%	SOT223
HT1117-50	12V	5.0V	1	8	±2%	SOT223

Power Management
HT1086 General Purpose LDO

Part No.	Maximum Input Voltage	Output Voltage	Typical Output Current (A)	Typical Current Consumption (mA)	Tolerance	Package
HT1086-ADJ	12V	Adj.	1.5	8	±2%	TO220, TO252, TO263, SOT223
HT1086-18	12V	1.8V	1.5	8	±2%	TO220, TO252, TO263, SOT223
HT1086-25	12V	2.5V	1.5	8	±2%	TO220, TO252, TO263, SOT223
HT1086-28	12V	2.85V	1.5	8	±2%	TO220, TO252, TO263, SOT223
HT1086-33	12V	3.3V	1.5	8	±2%	TO220, TO252, TO263, SOT223
HT1086-50	12V	5.0V	1.5	8	±2%	TO220, TO252, TO263, SOT223

TinyPower™ Voltage Detector

Part No.	Maximum Input Voltage	Detect Voltage	Hysteresis Width (V)	Typical Current Consumption (μA)	Tolerance	Package
HT7022A-1	24V	2.2V	0.11	4	±3%	TO92, SOT23-5, SOT89
HT7024A-1	24V	2.4V	0.12	4	±3%	TO92, SOT23-5, SOT89
HT7027A-1	24V	2.7V	0.135	4	±3%	TO92, SOT23-5, SOT89
HT7033A-1	24V	3.3V	0.165	4	±3%	TO92, SOT23-5, SOT89
HT7039A-1	24V	3.9V	0.195	4	±3%	TO92, SOT23-5, SOT89
HT7044A-1	24V	4.4V	0.22	4	±3%	TO92, SOT23-5, SOT89
HT7050A-1	24V	5.0V	0.25	4	±3%	TO92, SOT23-5, SOT89

Step-Down DC/DC Converter

Part No.	Input Voltage	Output Current	Frequency	V _{OUT} Min.	V _{OUT} Max.	I _{ShutDown}	I _Q	Package
HT7412*	23V	2A	380kHz	0.92V	20V	20μA	1.1mA	8SOP, 10MSOP
HT7412A*	23V	3A	380kHz	1.23V	20V	20μA	1.1mA	8SOP

* Under development, available in 3Q, 2010.

PFM Step-up DC/DC Converter (100mA)

Part No.	Input Voltage	Output Voltage	Output Current	Switching Frequency (kHz)	Typical Current Consumption I _{DD2} (μA)	Typical Efficiency	Package
HT7718	0.7V~6.0V	1.8V	100mA	115	4	80%	TO92, SOT23, SOT23-5, SOT89
HT7727	0.7V~6.0V	2.7V	100mA	115	4	85%	TO92, SOT23, SOT23-5, SOT89
HT7730	0.7V~6.0V	3.0V	100mA	115	4	85%	TO92, SOT23, SOT23-5, SOT89
HT7733	0.7V~6.0V	3.3V	100mA	115	4	85%	TO92, SOT23, SOT23-5, SOT89
HT7737	0.7V~6.0V	3.7V	100mA	115	4	85%	TO92, SOT23, SOT23-5, SOT89
HT7750	0.7V~6.0V	5.0V	100mA	115	4	85%	TO92, SOT23, SOT23-5, SOT89

PFM Step-up DC/DC Converter (200mA)

Part No.	Input Voltage	Output Voltage	Output Current	Switching Frequency (kHz)	Typical Current Consumption I _{DD2} (μA)	Typical Efficiency	Package
HT7727A	0.7V~6.0V	2.7V	200mA	200	5	85%	TO92, SOT23, SOT23-5, SOT89
HT7730A	0.7V~6.0V	3.0V	200mA	200	5	85%	TO92, SOT23, SOT23-5, SOT89
HT7733A	0.7V~6.0V	3.3V	200mA	200	5	85%	TO92, SOT23, SOT23-5, SOT89
HT7750A	0.7V~6.0V	5.0V	200mA	200	5	85%	TO92, SOT23, SOT23-5, SOT89

White LED Backlight Driver

Part No.	Topology	Input Voltage	Frequency	Output Voltage		Max. LED No.	Backlight Type	Brightness Control	Package
HT7936A	Charge Pump	2.8V~5.0V	1.0MHz	5.0V		4	Parallel	PWM	SOT23-6
HT7936B				4.5V		6			
Part No.	Topology	Input Voltage	Frequency	Typical OVP	Maximum Efficiency	Max. LED No.	Backlight Type	Brightness Control	Package
HT7937	boost	2.5V~5.5V	1.2MHz	28V	85%	6	Single Series WLED	PWM/Analog DC	SOT23-6
HT7938	boost	2.6V~5.5V	1.2MHz	39V	88%	10	Single Series WLED	PWM/Analog DC	SOT23-6
HT7939	boost	2.6V~5.5V	1.2MHz	32V	90%	40	Series/Parallel Mixed	PWM/Analog DC	SOT23-6
HT7940*	boost	4.5V~26V	600kHz/1.2MHz	LED Open/Short Protection	88%	60	Up to 10 Series 6ch Constant Current Sink	PWM	20QFN
HT7941*	boost	4.5V~26V	600kHz/1.2MHz	LED Open/Short Protection	88%	80	Up to 10 Series 8ch Constant Current Sink	PWM	24QFN

* Under development, available in 3Q, 2010.

LED Lighting Driver

Part No.	Topology	Input Voltage	Extended V _{IN} with External Bias	LED String Voltage	Internal Power MOSFET	I _{LED}	Jitter Control	Package
HT7L4091*	AC/DC buck DC/DC buck	8V~24V	Up to 265V	3V~265V	—	350mA~1A	√	8SOP

* Under development, available in 3Q, 2010.

Power Management						
High Efficiency Synchronous Step-up DC/DC Converter						
Part No.	Input Voltage	Output Voltage	Typical Output Current ($V_{IN}=2.0V$)	Typical Quiescent Consumption (μA)	Efficiency	Package
HT77S10	0.7V~5.5V	Adj. 3.3V, 5.0V	$V_O=5.0V, I_O=230mA$ $V_O=3.3V, I_O=350mA$	20	91%	8MSOP/SOP
HT77S11	0.7V~5.5V	Adj. 3.3V, 5.0V	$V_O=5.0V, I_O=160mA$ $V_O=3.3V, I_O=300mA$	20	91%	8MSOP/SOP
Charge Pump DC/DC Converter						
Part No.	VDD	Conversion Voltage	Typical Output Current (mA)	Typical Standby Current (μA)	Output Impedance	Package
HT7660	3V~12V	VDD ~ -VDD	20	80	60 Ω	8DIP/SOP

Voice/Music

Enhanced Voice MCU

Part No.	VDD	Program Memory	Data Memory	Voice ROM	Voice Capacity	I/O	Timer		Audio Output		Stack	Package
							8-bit	16-bit	DAC	PWM		
HT86B03	2.2V~5.5V	4K×16	192×8	96K×8	36sec	12	3	—	12-bit×1	—	8	16NSOP 24SSOP(150/209mil)
HT86BR10	2.2V~5.5V	8K×16	192×8	192K×8	72sec	16	3	—	12-bit×1	√	8	24SSOP(209mil) 28SOP, 44QFP
HT86B10												24SSOP(150/209mil) 28SOP, 44QFP
HT86B20	2.2V~5.5V	8K×16	192×8	256K×8	96sec	16	3	—	12-bit×1	√	8	28SOP, 44QFP
HT86BR30	2.2V~5.5V	8K×16	192×8	384K×8	144sec	16	3	—	12-bit×1	√	8	28SOP, 44QFP
HT86B30												
HT86B40	2.2V~5.5V	8K×16	384×8	512K×8	192sec	20	3	1	12-bit×1	√	8	28SOP, 44QFP
HT86B50	2.2V~5.5V	8K×16	384×8	768K×8	288sec	20	3	1	12-bit×1	√	8	28SOP, 44QFP
HT86BR60	2.2V~5.5V	8K×16	384×8	1024K×8	384sec	20	3	1	12-bit×1	√	8	28SOP
HT86B60												28SOP, 44QFP
HT86B70	2.2V~5.5V	8K×16	384×8	1536K×8	576sec	24	3	1	12-bit×1	√	8	44/100QFP
HT86B80	2.2V~5.5V	8K×16	384×8	2048K×8	768sec	24	3	1	12-bit×1	√	8	44/100QFP
HT86B90	2.2V~5.5V	8K×16	384×8	3072K×8	1152sec	24	3	1	12-bit×1	√	8	100QFP

Note: 1. Part numbers including an "R" are OTP devices, all others are mask version devices.
2. Evaluation kits are available for product development and verification purposes, please contact Holtek for further information.
3. For the HT86B90, the operating voltage is 2.2V~5.5V at $f_{SYS}=4\text{MHz}$ and 3.3V~5.5V at $f_{SYS}=8\text{MHz}$.
4. The quoted Voice Capacity is based on a 21Kbps data rate.

A/D Type Voice MCU

Part No.	VDD	Program Memory	Data Memory	Voice ROM	Voice Capacity	I/O	Timer		D/A	A/D	Power AMP	Stack	Package
							8-bit	RTC					
HT86A36	2.0V~5.5V	8K×16	384×8	96K×8	36sec	40	4	√	12-bit×1	12-bit×4	√	8	44QFP 64LQFP(10×10mm)
HT86AR72	2.2V~5.5V	8K×16	384×8	192K×8	72sec	40	4	√	12-bit×1	12-bit×4	√	8	44QFP 64LQFP(10×10mm)
HT86A72	2.0V~5.5V												

Note: 1. Part numbers including an "R" are OTP devices, all others are mask version devices.
2. Evaluation kits are available for product development and verification purposes, please contact Holtek for further information.
3. Integrated 1W power amplifier for driving an 8Ω speaker.
4. The quoted Voice Capacity is based on a 21Kbps data rate.

Flash Type Voice MCU

Part No.	VDD	VIN	Program Memory	Data Memory	Flash Voice ROM	Voice Capacity	I/O	8-bit Timer	I ² C/SPI	Audio Output		Stack	Package
										DAC	PWM		
HT83F10	2.7V~3.6V	—	2K×15	80×8	128K×8	32sec	12	2	√	12-bit×1	√	8	44QFP
HT83F10P	3.3V	3.6V~24V											
HT83F20	2.7V~3.6V	—	2K×15	80×8	256K×8	64sec	12	2	√	12-bit×1	√	8	44QFP
HT83F20P	3.3V	3.6V~24V											
HT83F40	2.7V~3.6V	—	2K×15	80×8	512K×8	128sec	12	2	√	12-bit×1	√	8	44QFP
HT83F40P	3.3V	3.6V~24V											
HT83F60	2.7V~3.6V	—	2K×15	80×8	1024K×8	256sec	12	2	√	12-bit×1	√	8	44QFP
HT83F60P	3.3V	3.6V~24V											
HT83F80	2.7V~3.6V	—	2K×15	80×8	2048K×8	512sec	12	2	√	12-bit×1	√	8	44QFP
HT83F80P	3.3V	3.6V~24V											

Note: The quoted Voice Capacity is based on a 32Kbps data rate.

Q-Voice™ MCU

Part No.	VDD	Program Memory	Data Memory	Voice ROM	Voice Capacity	I/O	D/A	Package
HT83004	2.4V~5.0V	2K×15	80×8	8K×8	3sec	12	PWM	28SOP, 20SSOP(150mil/209mil)
HT83007	2.4V~5.0V	2K×15	80×8	16K×8	6sec	12	PWM	28SOP, 20SSOP(150mil/209mil)
HT83010	2.4V~5.0V	2K×15	80×8	24K×8	9sec	12	PWM	28SOP, 20SSOP(150mil/209mil)
HT83020	2.4V~5.0V	2K×15	80×8	48K×8	18sec	12	PWM	28SOP, 20SSOP(150mil/209mil)
HT83038	2.4V~5.0V	2K×15	80×8	96K×8	36sec	12	PWM	28SOP, 20SSOP(150mil/209mil)
HT83050	2.4V~5.0V	2K×15	80×8	128K×8	48sec	12	PWM	28SOP, 20SSOP(150mil/209mil)
HT83R074	2.4V~5.0V	2K×15	80×8	192K×8	72sec	12	PWM	28SOP, 20SSOP(209mil)
HT83074								28SOP, 20SSOP(150mil/209mil)

Note: 1. Part numbers including an "R" are OTP devices, all others are mask version devices.
2. Evaluation kits are available for product development and verification purposes, please contact Holtek for further information.
3. The PWM output is capable of directly driving an 8Ω speaker.
4. Q-Voice™ is a trademark of Holtek Semiconductor Inc.
5. The quoted Voice Capacity is based on a 21Kbps data rate.

Voice/Music

Enhanced Music MCU (4 Polyphony)

Part No.	VDD	Program Memory	Data Memory	I/O	Timer		D/A	A/D	Speech	Power AMP	Package
					8-bit	16-bit					
HT37Q20	2.4V~5.5V	32K×16	320×8	16	2	1	16-bit×1	—	PCM/ADPCM	—	20/28SOP
HT37Q30	2.4V~5.5V	64K×16	320×8	20	2	1	16-bit×1	—	PCM/ADPCM	√	28SOP, 48SSOP
HT37Q40	3.3V~5.5V	96K×16	320×8	28	2	1	16-bit×1	—	PCM/ADPCM	√	28SOP, 64QFP, 80LQFP
HT37Q50	3.3V~5.5V	128K×16	320×8	28	2	1	16-bit×1	—	PCM/ADPCM	√	28SOP, 64QFP, 80LQFP
HT37Q60	3.6V~5.5V	192K×16	320×8	28	2	1	16-bit×1	—	PCM/ADPCM	√	28SOP, 64QFP, 80LQFP
HT37Q70	3.6V~5.5V	256K×16	320×8	28	2	1	16-bit×1	—	PCM/ADPCM	√	28SOP, 64QFP, 80LQFP

Note: The waveform data and program code share the same memory space.

Enhanced Music MCU (8 Polyphony)

Part No.	VDD	Program Memory	Data Memory	I/O	Timer		D/A	A/D	Speech	Power AMP	Package
					8-bit	16-bit					
HT37A20	2.4V~5.5V	32K×16	320×8	16	2	1	16-bit×1	—	PCM/ADPCM	—	20/28SOP
HT37A30	2.4V~5.5V	64K×16	320×8	20	2	1	16-bit×2	—	PCM/ADPCM	√	28SOP, 48SSOP
HT37A40	3.3V~5.5V	96K×16	320×8	28	2	1	16-bit×2	12-bit×8	PCM/ADPCM	√	28SOP, 64QFP, 80LQFP
HT37A50	3.3V~5.5V	128K×16	320×8	28	2	1	16-bit×2	12-bit×8	PCM/ADPCM	√	28SOP, 64QFP, 80LQFP
HT37A60	3.6V~5.5V	192K×16	320×8	28	2	1	16-bit×2	12-bit×8	PCM/ADPCM	√	28SOP, 64QFP, 80LQFP
HT37A70	3.6V~5.5V	256K×16	320×8	28	2	1	16-bit×2	12-bit×8	PCM/ADPCM	√	28SOP, 64QFP, 80LQFP

Note: The waveform data and program code share the same memory space.

Enhanced Music MCU (16 Polyphony)

Part No.	VDD	Program Memory	Data Memory	I/O	Timer		D/A	A/D	Speech	Power AMP	Package
					8-bit	16-bit					
HT37B30	2.4V~5.5V	64K×16	640×8	32	2	1	16-bit×2	12-bit×8	PCM/ADPCM	√	28SOP, 80LQFP
HT37B50	2.4V~5.5V	128K×16	640×8	32	2	1	16-bit×2	12-bit×8	PCM/ADPCM	√	28SOP, 80LQFP
HT37B70	3.0V~5.5V	256K×16	640×8	40	2	1	16-bit×2	12-bit×8	PCM/ADPCM	√	80LQFP
HT37B90	3.0V~5.5V	512K×16	1280×8	40	2	1	16-bit×2	12-bit×8	PCM/ADPCM	√	100QFP

Note: The waveform data and program code share the same memory space.

Enhanced ROMless Music MCU (16 Polyphony)

Part No.	VDD	Program Memory	Data Memory	I/O	Timer		D/A	A/D	Speech	Power AMP	Package
					8-bit	16-bit					
HT37P00	2.4V~5.5V	—	4096×8	56	3	1	16-bit×2	12-bit×16	PCM/ADPCM	√	128QFP

Note: The waveform data and program code share the same memory space.

EasyVoice™

Part No.	VDD	Voice Capacity	Key (Max.)	Output (Max.)	D/A	Package
HT81006	2.4V~5.0V	6sec	8	2	PWM	16DIP
HT81R09 HT81009	2.4V~5.0V	9sec	8	2	PWM	16DIP
HT81012	2.4V~5.0V	12sec	8	2	PWM	16DIP
HT81R18 HT81018	2.4V~5.0V	18sec	8	2	PWM	16DIP
HT81R36	2.4V~5.0V	36sec	8	2	PWM	16DIP

Note: 1. Part Numbers including an "R" are OTP devices while others are mask version devices.

2. For the HT81006 and HT81012, the higher voice capacity OTP devices are available for product development and verification purposes.

3. The PWM output is capable of directly driving an 8Ω speaker & piezoelectric buzzer.

4. EasyVoice™ is a trademark of Holtek Semiconductor Inc.

Sound Effects

Part No.	Description	VDD	Command Input	Built-in VCO	Built-in RAM	Delay Time (ms)	Package
HT8950/HT8950A	Voice Changer	2.4V~4.0V	Manual	√	—	—	16/18DIP
HT8970	Voice Echo	4.5V~5.5V	Manual	√	20kb	30~330	16DIP/SOP
HT8972	Voice Echo	4.5V~5.5V	Manual	√	40kb	30~330	16DIP/SOP

Computer

A/D Type MCU with SPI Interface

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	8-bit Timer	SPI	A/D	PWM	Stack	Package
HT82J30R HT82J30A	2.2V~5.5V	4MHz~12MHz	4K×15	216×8	35	1	2	8-bit×16	8-bit×1	6	28SKDIP/SOP/SSOP 44QFP
HT82J31A	2.2V~5.5V	4MHz~12MHz	4K×15	216×8	22	1	2	—	—	6	28SKDIP/SOP

Note: 1. Part numbers including an "A" are mask version devices while "R" are OTP devices.
2. During development the HT82J30R can be used as an OTP device for the HT82J31A mask version device.

I/O Type USB MCU with SPI (USB 2.0 Full Speed)

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	Timer		End Points	LVR	PWM	I/O VDD Option	SPI	Stack	Package
						8-bit	16-bit							
HT82A520R	2.2V~5.5V	6MHz or 12MHz	4K×15	160×8	24	—	1	4	√	12-bit×3	√	1	6	20/24/28SSOP 32QFN
HT82A523R	3.3V~5.5V	6MHz or 12MHz	4K×15	192×8	40	1	1	4	√	—	√	2	6	32LQFP 48SSOP, 52QFP 64LQFP
HT82A525R*	3.3V~5.5V	6MHz or 12MHz	4K×15	192×8	42	1	1	4	√	12-bit×3	√	2	6	32QFN, 28/48SSOP 52QFP; 64LQFP

* Under development, available in 3Q, 2010.
Note: These devices are only available in OTP versions.

A/D Type USB MCU with SPI (USB 2.0 Full Speed)

Part No.	VDD	System Clock	Program Memory	Data Memory	Flash Memory	I/O	Timer			End-points	A/D	PWM	I/O VDD Option	SPI	Stack	Package
							8-bit	16-bit	RTC							
HT82A620R	2.2V~5.5V	6MHz or 12MHz	4K×15	160×8	—	24	—	1	—	4	12-bit×16	12-bit×3	√	1	6	20/24/28SSOP 32QFN
HT82A623R	2.2V~5.5V	6MHz or 12MHz	4K×15	160×8	—	32	—	2	√	4	12-bit×16	8-bit×2	√	2	6	28SOP/SSOP 48QFN
HT82A6208	2.2V~5.5V	6MHz or 12MHz	4K×15	160×8	8M	32	—	2	√	4	12-bit×16	8-bit×2	√	2	6	44/52QFP
HT82A6216	5.5V	12MHz	4K×15	160×8	16M											

Note: These devices are only available in OTP versions.

I/O Type MCU with USB Interface (USB 2.0 Low Speed)

Part No.	VDD	System Clock	Program Memory	Data Memory		Interface	I/O	Timer		End-points	Built-in OSC	LDO 70mA	I/O VDD Option	SPI	R-type LCD	Stack	Package
				SRAM	EEPROM			8-bit	16-bit								
HT82K94E HT82K94A	2.2V~5.5V	6MHz or 12MHz	6K×16	224×8	—	USB+PS/2	40	1	1	4	—	—	—	—	—	8	32QFN, 48SSOP
HT82K95E HT82K95A	3.3V~5.5V	6MHz or 12MHz	4K×15	160×8	—	USB+PS/2	32	1	1	3	—	—	—	—	—	8	28SOP, 32QFN 48SSOP
HT82K95EE HT82K95AE					128×8												
HT82B40R HT82B40A	3.3V~5.5V	6MHz or 12MHz	4K×15	160×8	—	USB+PS/2	34	1	1	3	√	√	√	—	—	8	20/28/48SSOP 20/32QFN
HT82B40RE HT82B40AE					128×8												
HT82B60R*	3.3V~5.5V	6MHz or 12MHz	8K×16	224×8	—	USB+PS/2	42	1	1	4	√	√	√	1	4COM	8	20/28/48SSOP 32QFN

* Under development, available in 3Q, 2010.
Note: 1. Part numbers with a single "A" suffix are mask version devices, and with a single "E" and "R" suffix are OTP devices.
2. Part numbers with an "AE" suffix are mask version devices with EEPROM, and with an "EE" and "RE" suffix are OTP devices with EEPROM.

Part No.	VDD	System Clock	Program Memory	Data Memory		Interface	I/O	Timer		End-points	Stack	Package
				SRAM	EEPROM			8-bit	16-bit			
HT82M99E HT82M99A	3.3V~5.5V	6MHz or 12MHz	2K×14	96×8	—	USB+PS/2	12	—	1	2	4	18DIP/SOP 20DIP/SOP/SSOP
HT82M99EE HT82M99AE					128×8							
HT82M9AE HT82M9AA	3.3V~5.5V	6MHz or 12MHz	4K×15	224×8	—	USB+PS/2	16	—	1	3	4	20SOP/SSOP 24SSOP, 32QFN
HT82M9AEE HT82M9AAE					128×8							
HT82M9BE HT82M9BA	3.3V~5.5V	6MHz or 12MHz	8K×16	224×8	—	USB+PS/2	20	1	1	4	8	24/28SSOP, 32QFN
HT82M9BEE HT82M9BAE					128×8							

Note: 1. Part numbers with a single "A" suffix are mask version devices, and with a single "E" suffix are OTP devices.
2. Part numbers with an "AE" suffix are mask version devices with EEPROM, and with an "EE" suffix are OTP devices with EEPROM.

Computer

A/D Type MCU with USB Interface (USB 2.0 Low Speed)

Part No.	VDD	System Clock	Program Memory	Data Memory	Interface	I/O	Timer		A/D	End-points	PWM	Stack	Package
							8-bit	16-bit					
HT82K96E HT82K96A	4.4V~5.5V	6MHz or 12MHz	4K×15	160×8	USB+PS/2	32	1	1	8-bit×6ch	3	—	8	28SOP 48SSOP
HT82J97E HT82J97A	4.0V~5.5V	6MHz or 12MHz	2K×14	96×8	USB+PS/2	20	—	1	8-bit×6ch	2	8-bit×2	4	20/28SOP

Note: Part numbers including an "A" are mask version devices while "E" are OTP devices.

I/O Type MCU

Part No.	VDD	System Clock	Program Memory	Data Memory	Interface	I/O	Timer		LVD for Battery-in	SPI	Stack	Package
							8-bit	16-bit				
HT82K68E-L HT82K68A-L	1.8V~5.5V	RC/Crystal	3K×16	160×8	PS/2	37	1	—	—	—	6	20/28SOP 32QFN, 48SSOP
HT82K70E-L HT82K76E-L	1.8V~5.5V	RC/Crystal	4K×16 8K×16	216×8	PS/2	43	—	2	√	√	8	28/48SSOP, 32QFN

Note: 1. Part numbers including an "A" are mask version devices, and including an "E" are OTP devices.

2. Part numbers including an "L" are low voltage devices.

27MHz Keyboard/Mouse TX MCU

Part No.	VDD	System Clock	Program Memory	Data Memory		I/O	16-bit Timer	Built-in DC/DC	27MHz AMP	Built-in Modulated Cap.	Stack	Package
				SRAM	EEPROM							
HT82K74E HT82K74EE	2.0V~3.3V	27MHz	2K×15	96×8	— 128×8	36	1	√	√	√	4	28SSOP, 32QFN 48SSOP/LQFP 28/48SSOP, 48LQFP

Note: Part numbers with a single "E" suffix are OTP devices while an "EE" are OTP devices with EEPROM.

27MHz Keyboard/Mouse RX MCU

Part No.	VDD	System Clock	Program Memory	Data Memory	I/O	Timer		End-points	Built-in IF Block	Stack	Package
						8-bit	16-bit				
HT82D20R HT82D20A	3.3V~5.5V	12MHz	2K×14	96×8	8	—	1	2	×1	4	28SSOP
HT82D22R HT82D22A	3.3V~5.5V	12MHz	4K×15	160×8	10	1	1	3	×2	8	48QFN

Note: Part numbers including an "A" are mask version devices while "R" are OTP devices.

2.4GHz Keyboard/Mouse TX MCU

Part No.	VDD	System Clock		Program Memory	Data Memory		I/O	16-bit Timer	Built-in DC/DC	SPI	Built-in OSC	Built-in 2.4G RF Block	Stack	Package
		MCU	RF		SRAM	EEPROM								
HT82M75R	2.0V~3.6V	6MHz	—	4K×15	128×8	—	24	1	√	1	√	—	6	20/28SOP/SSOP 32QFN
HT82K75R	2.0V~3.6V	6MHz	—	4K×15	160×8	—	40	1	√	1	√	—	6	48SSOP
HT82M75RE	2.0V~3.6V	6MHz	—	4K×15	128×8	128×8	22	1	√	1	√	—	6	32QFN
HT82K75RE	2.0V~3.6V	6MHz	—	4K×15	160×8	128×8	36	1	√	1	√	—	6	48SSOP
HT82M75REW	2.0V~3.6V	6MHz	32MHz	4K×15	128×8	128×8	15	1	√	—	√	√	6	40QFN
HT82K75REW	2.0V~3.6V	6MHz	32MHz	4K×15	160×8	128×8	31	1	√	—	√	√	6	64LQFP

Note: 1. These devices are only available in OTP versions.

2. Part numbers with an "E" suffix are devices with an EEPROM, and with a "EW" suffix are devices with EEPROM and a 2.4GHz RFIC.

2.4GHz Keyboard/Mouse RX MCU

Part No.	VDD	System Clock		Program Memory	Data Memory		I/O	Timer		End-points	Built-in OSC	Built-in 2.4G RF Block	Stack	Package
		MCU	RF		SRAM	EEPROM		8-bit	16-bit					
HT82D40REW	3.3V~5.5V	6MHz or 12MHz	32MHz	4K×15	160×8	128×8	16	1	1	3	√	√	8	40QFN

Note: The device is only available in an OTP version.

Computer													
USB Audio MCU													
Part No.	VDD	System Clock	End-points	Transfer	FIFO (Byte)	Program Memory	Data Memory	I/O	A/D	D/A	Power AMP	Other	Package
HT82A821R	3.3V~5.5V	6MHz or 12MHz	EP0	CTL	8	2K×15	192×8	8	—	48kHz 16-bit ×2	4Ω ×2	—	24SOP 24SSOP
			EP1	INT	8								
			EP2	ISO(O)	384								
HT82A822R	3.3V~5.5V	6MHz or 12MHz	EP0	CTL	8	4K×15	704×8 + 512×8(read only)	24	—	48kHz 16-bit ×2	4Ω ×2	—	48SSOP
			EP1	INT	8								
			EP2	ISO(O)	384								
HT82A824R*	3.3V~5.5V	6MHz or 12MHz	EP0	CTL	8	8K×16	864×8 + 512×8(read only)	23	—	44.1/48kHz 16-bit ×2	32Ω ×2	ADC×6, SPI, PFD, UART, Attenuator×2, AUDIO_IN×2	48SSOP 48LQFP
			EP1, EP4	INT	8, 32								
			EP2	ISO(O)	384								
			EP5, EP6	BUK	32, 64								
HT82A834R	3.3V~5.5V	6MHz or 12MHz	EP0	CTL	8	4K×15	192×8	24	16kHz 16-bit	48kHz 16-bit ×2	4Ω ×2	SPI, PFD, MUSIC_IN	48SSOP 48LQFP
			EP1, EP4	INT	8, 32								
			EP2	ISO(O)	384								
			EP3	ISO(I)	64								
HT82A836R	3.3V~5.5V	6MHz or 12MHz	EP0	CTL	8	8K×16	384×8	44	16kHz 16-bit	48kHz 16-bit ×2	4Ω ×2	ADC×6, PWM×2, SPI, PFD, MUSIC_IN	80LQFP 100QFP
			EP1, EP4	INT	8, 32								
			EP2	ISO(O)	384								
			EP3	ISO(I)	64								
HT82A850R	3.3V~5.5V	6MHz, 12MHz or 16MHz	—	—	—	4K×15	384×8	24	8kHz 16-bit	8kHz 16-bit ×2	4Ω ×2	SPI, PFD, MUSIC_IN	48LQFP
HT82A851R	3.3V~5.5V	6MHz, 12MHz or 16MHz	EP0	CTL	8	4K×15	384×8	16	—	—	—	SPI, PFD	24SSOP
			EP1, EP4	INT	8, 32								
			EP2	ISO(O)	384								
			EP3	ISO(I)	32								
* Under development, available in 3Q, 2010. Note: These devices are only available in OTP versions.													
Mouse													
Part No.	Description					VDD	System Frequency	X/Y axis		Z axis		Package	
HT82M39A	3-key 3D PS/2 mouse controller					4.75V~5.25V	2MHz	Photo, Ball 800 DPI Opto 400 DPI		Optomech/Mechanical		16DIP	
HT82M35A HT82M35B HT82M35C HT82M35D HT82M35A-1 HT82M35B-1 HT82M35C-1 HT82M35D-1	3/5-key 3D PS/2 optical mouse controller (for Avago ADNS-5020)					4.0V~5.5V	2MHz	Avago Sensor Opto 500/1000 DPI		Optomech/Mechanical (Z axis/4/2)		16DIP	
HT82M30A HT82M30B HT82M30C HT82M30D	3/5-key 3D PS/2 optical mouse controller (for Avago ADNS-2051/2610/2620)					4.0V~5.5V	2MHz	Avago Sensor Opto 400/800 DPI		Optomech/Mechanical (Z axis/4/2)		16DIP	
HT82M98A	3-key 3D USB+PS/2 mouse controller					4.4V~5.25V	6MHz	Photo, Ball 800 DPI Opto 400 DPI		Optomech/Mechanical		18/20DIP	
HT82M21A	3-key 3D USB+PS/2 optical mouse controller (for Avago ADNS-2051/2610/2620)					4.4V~5.25V	6MHz	Avago Sensor Opto 400/800 DPI		Optomech/Mechanical (Z axis/4/2)		18DIP	
HT82M22A	5-key 3D USB+PS/2 optical mouse controller (for Avago ADNS-2051/2610/2620)					4.4V~5.25V	6MHz	Avago Sensor Opto 400/800 DPI		Optomech/Mechanical (Z axis/4/2)		20DIP	
HT82M23A HT82M23B HT82M23C	3/5-key USB+PS/2 or USB only optical mouse controller (for Avago ADNS-2051/2610/2620)					4.4V~5.25V	6MHz	Avago Sensor Opto 400/800 DPI		Optomech/Mechanical (Z axis/4/2)		18/20DIP/SOP	
HT82M25A HT82M25B HT82M25C HT82M25A-1 HT82M25B-1 HT82M25C-1	3/5-key USB+PS/2 or USB only optical mouse controller (for Avago ADNS-5020)					4.4V~5.25V	6MHz	Avago Sensor Opto 500/1000 DPI		Optomech/Mechanical (Z axis/4/2)		18/20DIP/SOP	
HT82M28A	3/5-key USB optical mouse controller for VISTA (for Avago ADNS-5020/2610/2620, for PixArt PAN3101)					4.4V~5.25V	6MHz	PixArt Sensor, Avago Sensor Opto 400/500/800/1000/1600 DPI		Optomech/Mechanical (Z axis/2)		20DIP/SOP	
Keyboard													
Part No.		Description			VDD		Oscillator		Interface		Package		
HT82K628A		WIN2000 KB			4.75V~5.25V		RC		PS/2		40DIP, 48SSOP		
HT82K629A		WIN2000 KB			4.75V~5.25V		Crystal		USB+PS/2		40DIP, 48SSOP		
Full Speed USB Bridge													
Part No.		Description			VDD		System Clock		Endpoints		Package		
HT45B0K		SPI to USB Bridge			3.3V~5.5V		6MHz or 12MHz		6		16NSOP		

Communication

Phone MCU

Part No.	VDD	Program Memory	Data Memory	General I/O	Timer	DTMF Generator	Stack	Package
HT95R22	2.2V~5.5V	4K×16	576×8	20	16-bit×2	√	8	28SOP
HT95R23	2.2V~5.5V	4K×16	1152×8	36	16-bit×2	√	8	48SSOP
HT95R24	2.2V~5.5V	8K×16	2112×8	36	16-bit×2	√	8	48SSOP
HT95R25	2.2V~5.5V	16K×16	2112×8	52	16-bit×2	√	8	64LQFP

Note: These devices are only available in OTP versions.

Part No.	VDD	Program Memory	Data Memory	General I/O	Timer	D/A	I ² C/SPI	DTMF Generator	DTMF Receiver	Stack	Package
HT95R33	2.2V~5.5V	4K×16	1152×8	28	16-bit×2	—	—	√	√	8	48SSOP
HT95R34	2.2V~5.5V	8K×16	2112×8	28	16-bit×2	—	—	√	√	8	48SSOP
HT95R35	2.2V~5.5V	16K×16	2112×8	44	16-bit×3	12-bit×1	√	√	√	8	64LQFP

Note: These devices are only available in OTP versions.

Phone MCU with CPT

Part No.	VDD	Program Memory	Data Memory	General I/O	Timer	D/A	I ² C/SPI	DTMF Generator	DTMF Receiver	CPT	Stack	Package
HT95R43	2.2V~5.5V	4K×16	1152×8	28	16-bit×2	—	—	√	√	√	8	64LQFP
HT95R44	2.2V~5.5V	8K×16	2112×8	28	16-bit×2	—	—	√	√	√	8	64LQFP
HT95R45	2.2V~5.5V	16K×16	2112×8	44	16-bit×3	12-bit×1	√	√	√	√	8	64/80LQFP

Note: These devices are only available in OTP versions.

Phone MCU with CID

Part No.	VDD	Program Memory	Data Memory	General I/O	Timer	R-Type LCD	I ² C/SPI	D/A	DTMF Generator	DTMF Receiver	FSK Receiver	Stack	Package
HT95R54	2.2V~5.5V	8K×16	2112×8	40	16-bit×3	4COM	√	12-bit×1	√	√	√	8	64LQFP
HT95R55	2.2V~5.5V	16K×16	2112×8	40	16-bit×3	4COM	√	12-bit×1	√	√	√	8	64LQFP

Note: These devices are only available in OTP versions.

Phone MCU with CPT & CID

Part No.	VDD	Program Memory	Data Memory	General I/O	Timer	I ² C/SPI	D/A	DTMF Generator	DTMF Receiver	FSK Receiver	CPT	Stack	Package
HT95R64	2.2V~5.5V	8K×16	2112×8	40	16-bit×3	√	12-bit×1	√	√	√	√	8	64/80LQFP
HT95R65	2.2V~5.5V	16K×16	2112×8	40	16-bit×3	√	12-bit×1	√	√	√	√	8	64/80LQFP

Note: These devices are only available in OTP versions.

Telecom Peripheral

Part No.	Description	VDD	OSC Frequency	Package
HT9200A HT9200B	DTMF generator	2.5V~5.5V	3.58MHz	8DIP/SOP 14SOP
HT9170B HT9170D	DTMF receiver	2.5V~5.5V	3.58MHz	18DIP 18SOP
HT9172	DTMF receiver	2.5V~5.5V	3.58MHz	18DIP/SOP
HT9020B	Call progress tone detector	2.5V~5.5V	32768Hz	8DIP/SOP
HT9032C HT9032D	FSK decoder	3.5V~5.5V	3.58MHz	16DIP/SOP 8DIP/SOP

Note: The HT9172 has enhanced performance over the HT9170B/HT9170D devices.

Basic Dialer

Part No.	VDD	Mem. No.	Hand Free	Hold Line	LCD Interface	Key-tone	Flash Mode	Package	Remark
HT93214A	2.0V~5.5V	1	—	—	—	—	C	16DIP	Minimum flash time=300ms
HT93214B	2.0V~5.5V	1	√	—	—	—	C	18DIP	Minimum flash time=300ms
HT93214AT	2.0V~5.5V	1	—	—	—	√	C	18DIP	Minimum flash time=300ms
HT9302G	2.0V~5.5V	1	—	—	—	—	D/C	16DIP/NSOP	—
HT9302A	2.0V~5.5V	2	—	—	—	—	D/C	18DIP	—
HT9302B	2.0V~5.5V	2	√	√	—	—	D/C	22SKDIP	—
HT9302C	2.0V~5.5V	2	—	—	√	—	D/C	20DIP	—
HT9302D	2.0V~5.5V	2	√	√	√	—	D/C	24SKDIP	—

Analog

D/A Converter

Part No.	Description	VDD	Package
HT82V731	16-bit stereo audio D/A converter	2.4V~5.5V	8SOP
HT82V737	16-bit stereo audio D/A converter with earphone driver	2.4V~5.5V	16NSOP
HT82V738	24-bit stereo audio D/A converter	3V~5V	16NSOP

General OP Amplifier

Part No.	Description	OP No.	VDD	BW (Hz)	Current (μA)/OP	Package
HT9231	Single OP amplifier	1	2.0V~5.5V	2.3M	220	TSOT23-5
HT9232	Dual OP amplifier	2	2.0V~5.5V	2.3M	220	8DIP/SOP
HT9234	Quad OP amplifier	4	2.0V~5.5V	2.3M	220	14DIP/SOP
HT9274	Quad micropower OP amplifier	4	1.6V~5.5V	100K	3	14DIP/SOP
HT9291	TinyPower™ Single OP amplifier	1	1.4V~5.5V	11K	0.6	TSOT23-5
HT9292	TinyPower™ Dual OP amplifier	2	1.4V~5.5V	11K	0.6	8DIP/SOP
HT9294	TinyPower™ Quad OP amplifier	4	1.4V~5.5V	11K	0.6	14DIP/SOP

Audio Amplifier

Part No.	Description	VDD	Output Power	Mute/Shutdown Function	Package
HT82V732	Stereo audio power amplifier	3V~5.5V	60mW into 32Ω	—	8SOP
HT82V733	Mono audio power amplifier	2.4V~5.5V	400mW into 8Ω	√	8DIP/SOP
HT82V735	Stereo audio power amp with shutdown	2.4V~6V	330mW into 32Ω	√	8SOP
HT82V736	Stereo audio power amp with mute	2.4V~6V	65mW into 32Ω	√	8SOP
HT82V739	1200mW Mono audio power amp with shutdown	2.2V~5.5V	1200mW into 8Ω	√	8DIP/SOP

Video

CCD/CIS Analog Signal Processor

Part No.	Application Field	VDD	AVDD	Input Channel	A/D (Bit)	MSPS	A/D Full Scale	Power Consumption	Package
HT82V26A	CCD/CIS Scanner / MFP	3.0V~5.25V	4.75V~5.25V	3 (2/1)	16	30	2V	400mW	28SOP/SSOP(209mil)
HT82V36	Bus (USB) Power CIS Scanner	3.0V~3.6V	3.0V~3.6V	1	16	6	1.4V	56mW	28SSOP(209mil)
HT82V38	CCD/CIS Scanner / MFP	3.15V~3.45V	3.15V~3.45V	3 (2/1)	16	30	1.6V/2.0V	350mW	28SSOP(209mil)
HT82V42	CIS Scanner / MFP	3.0V~3.6V	3.0V~3.6V	1	16	15	2.0V	188mW	20TSSOP/SSOP(209mil)
HT82V46*	CCD/CIS Scanner / MFP	3.0V~3.6V	3.0V~3.6V	3 (2/1)	16	45	1.2V/2.0V	400mW	28SSOP(209mil)
HT82V842A	CCD Surveillance/DSC System	2.7V~3.6V	2.7V~3.6V	1	10	20	1.0V	70mW	48LQFP

* Under development, available in 3Q, 2010.

CCD Vertical Driver

Part No.	Application Field	VIN	VOUT	VDD	VH	VL	VH-VL (Max.)	Channel Output			Package
								3-Level	2-Level	Shutter	
HT82V805	CCD Surveillance/DSC System	—	—	3.0V~5.5V	14.5V~15.5V	-9.5V~-7.5V	24V	2	2	1	16SSOP 16/20TSSOP
HT82V806	CCD Surveillance/DSC System	—	—	3.0V~5.5V	12V~20V	-10V~-5V	27V	4	2	1	24SSOP
HT82V814*	CCD Surveillance Camera System	9V~18V	3.3V, 5V, 12V~15V, -5V~9V	3.0V~5.5V	14.5V~15.5V	-9.5V~-7.5V	24V	2	2	1	40QFN

* Under development, available in 3Q, 2010.

Image Signal Processor

Part No.	Application Field	VDD	CCD Sensor Input	Major Function	Video Output	Package
HT82V862R	CCD Surveillance/ Vehicle Camera System	3.0V~3.6V	NTSC/PAL 270K/320K/410K/470K pixels	Color image signal processor, TV encoder, video DAC with 2 patents and 6 patents pending	NTSC/PAL CVBS	80LQFP
HT82V863R*	CCD Surveillance/ Vehicle Camera System	3.0V~3.6V	NTSC/PAL 270K/320K/410K/470K pixels	Color image signal processor, TV encoder, video DAC, video amplifier, CCIR656 encoder with 2 patents pending	NTSC/PAL CVBS, CCIR656	64/80LQFP

* Under development, available in 1Q, 2011.

Miscellaneous

Timepiece

Part No.	VDD	Operating Current (μA)	Main Function	Standby Current (μA)	External X'tal Osc.	Package
HT1380	2.0V~5.5V	1.2	Time Keeper	0.1	32.768kHz	8DIP
HT1381						8SOP
HT1382*	2.0V~5.5V	2.0	Time Keeper	0.1	32.768kHz	8DIP/SOP/TSSOP 10MSOP
HT13R90	2.2V~5.5V	5.0	Programmable Timer	1	32.768kHz	8DIP/SOP

* Under development, available in 3Q, 2010.

Clinical Thermometer

Part No.	VDD	Measurement Range	Resolution	Detect Stable Time	Auto Power Off
HT7500	1.3V~1.65V	32°C~42°C	0.1°C	16sec	√
HT7501	1.3V~1.65V	32°C~43°C	0.01°C	8sec	√

Camera Peripheral

Part No.	Description	VDD	Operating Current	Standby Current	Package
HT6751A HT6751B	Motor Driver	2.0V~6.0V	—	<2μA at 5V	8SOP

PIR Controller

Part No.	VDD	Operating Current	Standby Current	ZC Off/On for Override	Flash on Mode Auto-change	Comparator Window	Effective Trigger Width	Triac Drive	Relay Drive	LED	Buzzer	LVD	Package
HT7610A	5V~12V	100μA	—	2 times	Flash	$\frac{1}{16}(V_{DD}-V_{EE})$	>24ms	—	√	—	—	—	16DIP
HT7610B								√	—	—	—		
HT7611A	5V~12V	100μA	—	1 time	No flash	$\frac{1}{16}(V_{DD}-V_{EE})$	>24ms	—	√	—	—	—	16DIP
HT7611B								√	—	—	—		
HT7612	3.3V~5.5V	—	15μA	2 times	Flash	$V_{ref} \times (1/2 \pm 1/6)$	>24ms	√	√	√	√	√	16DIP/NSOP

Note: 1. Part numbers suffixed with an "A" are for Relay applications while those suffixed with a "B" are for Triac applications.
2. Operating and standby current values are typical values.

Touch Key

Part No.	Touch Key	Operating Current at 3V		Key Output Type	Package	Serial Interface	Auto Calibration
		One-key Wake-up	Any-key Wake-up				
BS801B	1-Key	1.5μA	—	Level-Hold or Toggle	SOT23-6	—	√
BS802B	2-Key	—	2.0μA	Level-Hold or Toggle	8SOP	—	√
BS804B	4-Key	1.5μA	3.0μA	—	8SOP	√	√
				Level-Hold or Toggle	16NSOP		
BS806B	6-Key	1.5μA	4.0μA	Level-Hold	16NSOP	—	√
BS808B	8-Key	1.5μA	5.0μA	—	16NSOP	√	√
				Level-Hold	20SOP/SSOP	—	
Part No.	Touch Key	Operating Current at 3V		Key Output Type	Package	Serial Interface	Auto Calibration
		One-key State	Any-key State				
BS801C	1-Key	3.0μA	—	Level-Hold or Toggle	SOT23-6	—	√
BS802C	2-Key	—	5.0μA	Level-Hold or Toggle	8SOP	—	√
BS804C	4-Key	3.0μA	8.0μA	—	8SOP	√	√
				Level-Hold or Toggle	16NSOP		
BS806C	6-Key	3.0μA	14.0μA	Level-Hold	16NSOP	—	√
BS808C	8-Key	3.0μA	18.0μA	—	16NSOP	√	√
				Level-Hold	20SOP/SSOP	—	

MCU Programming Tools

Holtek is fully aware that success of their microcontroller device range also depends upon the availability of high quality development tools. As a result Holtek has developed a full suite of professional hardware and software tools to provide designers with an excellent set of development resources to ensure their applications are designed and debugged as efficiently as possible. In this section can be found details regarding which set of tools should be used for each microcontroller device.

HT-IDE3000 Development Environment

The HT-IDE3000 is a fully integrated development system for the Holtek range of microcontrollers. Working in conjunction with the HT-ICE hardware emulator, the HT-IDE3000 system provides a user friendly workbench to ensure the process of application program development and debug is as efficient and trouble free as possible. By combining all software tools, such as editor, cross assembler, linker, library manager, symbolic debuggers as well as hardware tools, application designers have all the tools required at their disposal to ensure rapid development and debug of their new designs. An HT-IDE3000 User's Guide is available for download from the Holtek website, which provides much more detailed information on the HT-IDE3000 development system.

The software functions of the development system include a user-friendly windows based workbench which integrates together functions such as program editor, cross assembler, linker and library manager. An additional feature of the system is its software simulation mode which enables the system to run without connection to the HT-ICE emulator hardware.

The HT-IDE3000 development system software is available for free download from the Holtek website. To ensure that users are provided with the latest modifications and enhancements to the system and to support new device releases, Service Packs are regularly provided.

HT-ICE — Holtek In-Circuit Emulator

The HT-ICEs are multi-featured hardware emulators to assist designers with the rapid development of their Holtek MCU applications. Their expansive integrated hardware and software features, provide designers with a full suite of tools for rapid and easy product development. At the heart of the system is the hardware emulator, which can fully emulate Holtek 8-bit MCU devices in real time as well as providing full debug and trace integrated functions. The HT-ICE package includes the hardware mainboard platform, CD, flat cables, power adapter, power cord and printer cable.

HT-ICE — Holtek In-Circuit Emulator				
HT-ICE	Device Type	Supported Part No.	Included IO Interface Card	Included OTP Adaptor
CICE48U000006A	Cost-Effective I/O	HT48R05A-1, HT48C05, HT48R062, HT48C062, HT48R06A-1, HT48C06	CPCB48E000004C	CADPDIP40A
	I/O	HT48R10A-1, HT48C10-1, HT48R30A-1, HT48C30-1, HT48R50A-1, HT48C50-1, HT48R502, HT48R70A-1, HT48C70-1, HT48RU80, HT48CU80		
	I/O Flash with EEPROM	HT48F06E, HT48F10E, HT48F30E, HT48F50E, HT48F70E		
	Remote	HT48RA0-2, HT48CA0-2, HT48RA0-1, HT48CA0-1, HT48RA1, HT48CA1, HT48RA3, HT48CA3, HT48RA5, HT48CA5		
CICE201A	Enhanced I/O	HT48R063, HT48R064, HT48R065, HT48R066, HT48R0662, HT48R067, HT46R064, HT46R065, HT46R066, HT46R0662, HT46R067		
	Small Package I/O	HT48R01B, HT48R02B, HT48R01N, HT48R02N		
	Small Package A/D	HT46R01B, HT46R02B, HT46R01N, HT46R02N		
	24V VFD	HT48R065V, HT46R065V		
	1.5V Battery	HT48R01M, HT48R02M, HT46R01M, HT46R02M		
CICE48R52A006A	I/O with 16×16 High Current LED Driver	HT48R52A, HT48R54A	CPCB48R52A006A	
CICE45R54008A	Multi-channel A/D	HT45R52, HT45R54	CPCB45R54008A	
CICE49U000006A	LCD	HT49R10A-1, HT49C10-1, HT49R30A-1, HT49C30-1, HT49C30L, HT49R50A-1, HT49C50-1, HT49C50L, HT49R70A-1, HT49C70-1, HT49C70L, HT49RU80, HT49CU80	CPCB49C000001B	CADPDIP40A
CICE46F000007A	Cost-Effective A/D	HT46R46, HT46C46, HT46R47, HT46C47, HT46R48A, HT46C48A	CPCB46SER0001D	CADPDIP40B
	A/D	HT46R22, HT46C22, HT46R23, HT46C23, HT46R232, HT46C232, HT46R24, HT46C24, HT46RU25, HT46CU25, HT46RU26, HT46C26, HT46R51A, HT46R52A, HT46R53A, HT46R54A		
	A/D with UART	HT46RU22, HT46RU232, HT46RU24, HT46RU25, HT46CU25, HT46RU26, HT46CU26		
	A/D Flash with EEPROM	HT46F46E, HT46F47E, HT46F48E, HT46F49E		
	C/R-F	HT45R35, HT45R36, HT45R38		
	24V VFD	HT45R35V		
CICE46L000007A	Cost-Effective A/D	HT46R46, HT46C46, HT46R47, HT46C47, HT46R48A, HT46C48A	CPCB46SER0001D	CADPDIP40B
	A/D	HT46R22, HT46C22, HT46R23, HT46C23, HT46R232, HT46C232, HT46R24, HT46C24, HT46R51A, HT46R52A, HT46R53A, HT46R54A		
	A/D with LCD	HT46R62, HT46C62, HT46R63, HT46C63, HT46R64, HT46C64, HT46R65, HT46C65, HT46R652, HT46RU66, HT46CU66, HT46RU67, HT46CU67		
	A/D with UART	HT46RU22, HT46RU232, HT46RU24, HT46RU25, HT46CU25, HT46RU26, HT46CU26		
	C/R-F	HT45R36, HT45R38		
	24V VFD	HT45R35V		
CICE45R370008A	C/R-F	HT45R37	CPCB45R370008B	

HT-ICE — Holtek In-Circuit Emulator

HT-ICE	Device Type	Supported Part No.	Included IO Interface Card	Included OTP Adaptor
CICE46R940007A	A/D with 16×16 High Current LED Driver	HT46R92, HT46R94	CPCB46R940007A	
CICE56R620008B	TinyPowe™ A/D	HT56R62	CPCB56R620008A	
CICE56R640007B		HT56R64	CPCB56R640007A	
CICE56R650008B		HT56R65	CPCB56R650008A	
CICE56R670008B		HT56R66, HT56R67	CPCB56R670008A	
CICE56R642008B		HT56R642	CPCB56R642008A	
CICE56R654008B		HT56R644, HT56R654	CPCB56R654008A	
CICE56R666008B		HT56R656, HT56R666	CPCB56R666008A	
CICE56R678008B		HT56R668, HT56R678	CPCB56R678008A	
CICE82J300006A	A/D with SPI Interface	HT82J30R, HT82J30A, HT82J31A	CPCB82J300006A	
CICE82A523R07A	I/O USB with SPI	HT82A520R, HT82A523R	CPCB82A523R07B	
CICE46RB70005B	A/D USB	HT46RB50, HT46RB70	CPCB46RB70005B	CADP46RB7DI28A
CICE82A620008A		HT82A620R, HT82A623R, HT82A6208, HT82A6216		
CICE82K680004A	I/O	HT82K68E-L, HT82K68A-L	CPCB82K680004A	CADPDIP40A
CICE82K960004A	I/O with USB Interface	HT82K94E, HT82K94A, HT82K95E, HT82K95A, HT82K95EE, HT82K95AE, HT82B40R, HT82B40A, HT82B60R	CPCB82K960004D	CADP82K96DI40A
	A/D with USB Interface	HT82K96E, HT82K96A		
	27MHz KB/MS RX	HT82D22R		
CICE82M990004B	I/O with USB Interface	HT82M99E, HT82M99A, HT82M99EE, HT82M99AE, HT82M9AE, HT82M9AA, HT82M9AEE, HT82M9AAE, HT82M9BE, HT82M9BA, HT82M9BEE, HT82M9BAE	CPCB82M990004D	CADP82J97DI28A
	A/D with USB Interface	HT82J97E, HT82J97A		
	27MHz KB/MS RX	HT82D20R	CPCB82M990004C	
CICE82K760008B	27MHz KB/MS TX	HT82K74E, HT82K74EE	CPCB82K760008D	
CICE47R200005A	R-F Type	HT47R10A-1, HT47C10-1, HT47R20A-1, HT47C20-1, HT47C20L	CPCB47R200005A	CADPDIP40A
CICE47C10L006A		HT47C06L, HT47C10L	CPCB47C10L006A	
CICE48RA03005A	Remote	HT48RA0-3, HT48CA0-3	CPCB48RA03005A	
CICE49RA00006A	Remote with LCD	HT49RA0, HT49CA0	CPCB49RA00006A	
CICE49RA10007A		HT49RA1, HT49CA1	CPCB49RA10007A	
CICE82A822005A	USB Audio	HT82A821R, HT82A822R	CPCB82A822005A	CADPDIP40A
CICE82A832005A		HT82A834R, HT82A850R, HT82A851R	CPCB82A832005A	
CICE82A836007A		HT82A836R	CPCB82A836007A	
CICE95R3X0008A	Phone	HT95R22, HT95R23, HT95R24	CPCB95R3X0008B	
		HT95R33, HT95R34		
CICE95R350008A	Phone	HT95R25	CPCB95R350008A	
		HT95R35		
CICE95R550009A	Phone with CID	HT95R54, HT95R55	CPCB95R550009B	
	Phone with CPT & CID	HT95R64, HT95R65		
CICE86B000008A	Enhanced Voice MCU	HT86B10, HT86B20, HT86B30, HT86B40, HT86B50, HT86B60, HT86B70, HT86B80, HT86B90, HT86BR10, HT86BR30, HT86BR60	CPCB86B000008A	
CICE860000004A	Q-Voice™	HT83004, HT83007, HT83010, HT83020, HT83038, HT83050, HT83R074, HT83074	CPCB860000004A	CADPDIP40A
CICE83F000008B	Flash Type Voice MCU	HT83F10, HT83F10P, HT83F20, HT83F20P, HT83F40, HT83F40P, HT83F60, HT83F60P, HT83F80, HT83F80P	CPCB83F000008B	
M1001A	Enhanced I/O Flash	HT68F30, HT68F40, HT68F50		
	Enhanced A/D Flash	HT66F30, HT66F40, HT66F50		
CICE45R370008A	24V VFD	HT45R37V		
CICE82K760008B	I/O	HT82K70E-L, HT82K76E-L		
CICE45FM03B08A	Brushless DC Motor Flash MCU	HT45FM03B		

HT-ICE Interface Card

For Holtek's MCU development, dedicated HT-ICEs and their associated HT-ICE Interface Cards are provided. Please check the HT-ICE Interface Card Reference Manual for overall Interface Card information.

HT-ICE Interface Card		
I/O Interface Card	Supported Part No.	HT-ICE (MEV Board)
CPCB48E000004C	HT48F06E, HT48F10E, HT48F30E, HT48F50E, HT48F70E, HT48R05A-1, HT48C05, HT48R062, HT48C062, HT48R06A-1, HT48C06, HT48R10A-1, HT48C10-1, HT48R30A-1, HT48C30-1, HT48R50A-1, HT48C50-1, HT48R502, HT48R70A-1, HT48C70-1, HT48RA0-2, HT48CA0-2, HT48RA0-1, HT48CA0-1, HT48RA1, HT48CA1, HT48RA3, HT48CA3, HT48RA5, HT48CA5, HT48RU80, HT48CU80	CICE48U000006A
CPCB48R52A006A	HT48R52A, HT48R54A	CICE48R52A006A
CPCB49C000001B	HT49R10A-1, HT49C10-1, HT49R30A-1, HT49C30-1, HT49C30L, HT49R50A-1, HT49C50-1, HT49C50L, HT49R70A-1, HT49C70-1, HT49C70L, HT49RU80, HT49CU80	CICE49U000006A
CPCB46SER0001D	HT46R22, HT46C22, HT46R23, HT46C23, HT46R232, HT46C232, HT46R24, HT46C24, HT46R46, HT46C46, HT46R47, HT46C47, HT46R48A, HT46C48A, HT46R51A, HT46R52A, HT46R53A, HT46R54A, HT46R62, HT46C62, HT46R63, HT46C63, HT46R64, HT46C64, HT46R65, HT46C65, HT46R652, HT46RU22, HT46RU232, HT46RU24, HT46RU25, HT46CU25, HT46RU26, HT46CU26, HT46RU66, HT46CU66, HT46CU67, HT46RU67	CICE46L000007A
	HT46R22, HT46C22, HT46R23, HT46C23, HT46R232, HT46C232, HT46R24, HT46C24, HT46R46, HT46C46, HT46R47, HT46C47, HT46R48A, HT46C48A, HT46RU22, HT46RU232, HT46RU24, HT46RU25, HT46CU25, HT46RU26, HT46CU26, HT46R51A, HT46R52A, HT46R53A, HT46R54A, HT46F46E, HT46F47E, HT46F48E, HT46F49E	CICE46F000007A
CPCB46R940007A	HT46R92, HT46R94	CICE46R940007A
CPCB56R620008A	HT56R62	CICE56R620008B
CPCB56R640007A	HT56R64	CICE56R640007B
CPCB56R650008A	HT56R65	CICE56R650008B
CPCB56R670008A	HT56R66, HT56R67	CICE56R670008B
CPCB56R642008A	HT56R642	CICE56R642008B
CPCB56R654008A	HT56R644, HT56R654	CICE56R654008B
CPCB56R666008A	HT56R656, HT56R666	CICE56R666008B
CPCB56R678008A	HT56R668, HT56R678	CICE56R678008B
CPCB4XR06X009A	HT48R01B, HT48R02B, HT48R01M, HT48R02M, HT48R01N, HT48R02N, HT46R01B, HT46R02B, HT46R01M, HT46R02M, HT46R01N, HT46R02N, HT48R065V, HT46R065V	CICE4XR06X009A
CPCB46SER0001D	HT45R35V	CICE46F000007A CICE46L000007A
CPCB45R370008B	HT45R37V	CICE45R370008A
CPCB82J300006A	HT82J30R, HT82J30A, HT82J31A	CICE82J300006A
CPCB82A523R07B	HT82A523R, HT82A520R	CICE82A523R07A
CPCB46RB70005B	HT46RB50, HT46RB70	CICE46RB70005B
CPCB82A620008B	HT82A623R, HT82A620B, HT82A6216, HT82A620R	CICE82A620008A
CPCB82K680004A	HT82K68E-L, HT82K68A-L	CICE82K680004A
CPCB82K760008B	HT82K74E, HT82K74EE	CICE82K760008B
CPCB82K760008C	HT82K70E-L, HT82K76E-L	
CPCB82K960004D	HT82K94E, HT82K94A, HT82K95E, HT82K95A, HT82K95EE, HT82K95AE, HT82K96E, HT82K96A, HT82B40R, HT82B40A, HT82B60R, HT82D22R	CICE82K960004A
CPCB82M990004C	HT82D22R	CICE82M990004B
CPCB82M990004D	HT82J97E, HT82J97A, HT82M99E, HT82M99A, HT82M99EE, HT82M99AE, HT82M9AE, HT82M9AA, HT82M9AEE, HT82M9AAE, HT82M9BE, HT82M9BA, HT82M9BEE, HT82M9BAE	
CPCB47C10L006A	HT47C06L, HT47C10L	CICE47C10L006A
CPCB47R200005A	HT47R10A-1, HT47C10-1, HT47R20A-1, HT47C20-1, HT47C20L	CICE47R200005A
CPCB45R380006B	HT45R36, HT45R38	CICE46L000007A CICE46F000007A
CPCB45R350007A	HT45R35	CICE46F000007A CICE46L000007A
CPCB48RA03005A	HT48RA0-3, HT48CA0-3	CICE48RA03005A
CPCB49RA00006A	HT49RA0, HT49CA0	CICE49RA00006A
CPCB49RA10007A	HT49RA1, HT49CA1	CICE49RA10007A
CPCB82A822005A	HT82A821R, HT82A822R	CICE82A822005A
CPCB82A832005A	HT82A834R, HT82A850R, HT82A851R	CICE82A832005A
CPCB82A836007A	HT82A836R	CICE82A836007A
CPCB95R3X0008B	HT95R22, HT95R23, HT95R24, HT95R33, HT95R34	CICE95R3X0008A
CPCB95R550009B	HT95R54, HT95R55, HT95R64, HT95R65	CICE95R550009A
CPCB45FM03B08A	HT45FM03B	CICE45FM03B08A
CPCB860000004A	HT83004, HT83007, HT83010, HT83020, HT83038, HT83050, HT83R074, HT83074	CICE860000004A
CPCB86B000008A	HT86B10, HT86B20, HT86B30, HT86B40, HT86B50, HT86B60, HT86B70, HT86B80, HT86B90, HT86BR10, HT86BR30, HT86BR60	CICE86B000008A
CPCB83F000008B	HT83F10, HT83F10P, HT83F20, HT83F20P, HT83F40, HT83F40P, HT83F60, HT83F60P, HT83F80, HT83F80P	CICE83F000008B
D1001A	HT66F30, HT68F30	M1001A
D1002A	HT66F40, HT68F30	
D1003A	HT66F50, HT68F30	

OTP/Flash Programmer

Although most of the HT-ICE hardware emulators now come equipped with an integrated programmer, Holtek also supplies a range of additional tools for device programming. These programmers can be used to program OTP or Flash type devices during product development or for low to medium volume production purposes. Most of these programmers can operate by connecting to a PC or to operate in a stand alone mode. More information on the relevant programmers can be found within the programmer's Users Guide. Note that if the device package type to be programmed does not match the supplied Textool socket, extra Adapter Cards are available to accommodate various device package types.

Various kinds of OTP/Flash programmers exist, of which are included a partial-lock programmer and two-chips-in-one programmer, which support the MCU with partial lock function and two chips in one package respectively. Also, a Flash programmer provides the Flash devices programming functions. The detailed information is contained within HT-MTPWriter User's Guide.

OTP/Flash Programmer		
Product Name	Product Code	Product Contents
HT-Writer	COTPWITER00A	HT-Writer (with an adapter card CADPDIP40A), CD, Power Adapter, RS-232 Cable The HT-Writer supports most Holtek OTP MCU devices with the exception of the following: HT56R64, HT56R678, HT45R0S, HT45R0MA, HT45R11, HT45R0Y which are supported by the Holtek MSR Writer. The following devices are also not supported by the HT-Writer but are supported by the Holtek VMR writer: HT36Rx, HT86Rx, HT83Rx, HT46RU26, HT46RU67, HT46RU68
HT-2Cwriter (2-chip-in-one)	COTPEEPROM005A	HT-2Cwriter (with an adapter card CADPDIP40B), CD, Power Adapter, RS-232 Cable
HT-PLWriter (Partial Lock)	COTPPLOCK0005A	HT-PLwriter (with an adapter card CADPDIP40A), CD, Power Adapter, RS-232 Cable
Holtek M1 Writer	EW-M1 V1.0	Holtek M1-writer (with CADPDIP40A), CD, Power Adaptor, RS-232 Cable, EIC-101 (Special Note: Supports MTP ISP Programming On-line and Off-line)
Holtek VMR Writer	EW-VMR	Holtek VMR-writer, CD, Power Adaptor, USB Cable Holtek MCU writer for HT36Rx, HT86Rx, HT83Rx, HT46RU26, HT46RU67, HT46RU68
Holtek PTS writer	EW-PTS V1.0	Holtek PTS-writer, CD, Power Adaptor, USB Cable
Holtek MSR Writer	EW-MSR V1.0	Holtek MSR-writer, CD, Power Adaptor, RS-232 Cable Holtek MCU writer for HT56R64, HT56R678
Holtek MTP ISP cable	EIC-100	EIC-100, USB Cable

Product Application Combination

Product Application Combination		
S/W	H/W	Description
HOPE3000	e-Writer	Support all Holtek OTP/Flash MCUs
EverPro M1000	HT-writer	Support existing OTP
	EW-MSR	Support existing OTP of special programming timing
	EW-M1	Support existing Flash
EverPro M1001	EW-VMR	Support HT36R & HT86R OTP
EverPro K1000	On-board writer	Support existing OTP, Flash, included in IDE3000 S/W
EverPro S1000	EIC-100 Starter Kit	Penetrates PC USB port to make In-system programming Starter Kit

Accessories and Learning Kits

A USB interface cable is available to allow the HT-ICE emulators to interface to the PC USB port rather than the standard printer port. Additionally a prototype board is available for the HT46 and HT48 R/C/F series of devices. A Starter Kit and Learner Kit is also available which can be used in place of the HT-ICE for product learning and application development purposes.

Accessories and Learning Kits		
Product Name	Product Code	Product Contents
EIC-100	EIC-100 V1.0	Flash USB interfaced ISP cable
EP-100	EP-100 V1.0	Prototype board for HT46 and HT48 R/C/F series
Flash/MTP Learning Kits	ELK-400 V1.0	ESK-100 (new Flash/MTP starter kit), EIC-100, EP-100, USB cable
USB ICE Cable	CUSBICECABLE4A	HT-ICE printer port to USB converter cable

OTP/Flash Adapter Card

The Holtek OTP/Flash Programmers and HT-ICE are supplied with a single Adapter Card into which the OTP/Flash devices can be placed for programming. However as the standard supplied Adapter Card may not fit all available package types, others are available. To enable selection of the appropriate Adapter Card type, the following table shows a cross reference between the Adapter Card part number, device and package type.

OTP Adapter Card		
Product Code	Device Part No.	Product Contents
CADPDIP40A	HT48R062	16DIP
	HT48R05A-1, HT48R06A-1, HT48F06E, HT46R46, HT46R47, HT46R51A, HT46R52A, HT46F46E, HT46F47E	18DIP
	HT46R48A	20DIP
	HT48R10A-1, HT48R30A-1, HT48F10E, HT48F30E, HT46R22, HT46R23, HT46R48A, HT46F48E, HT46F49E, HT46RU22	24SKDIP
	HT48R30A-1, HT48R50A-1, HT48F30E, HT48F50E, HT46R23, HT46R232, HT46R24, HT46R53A, HT46R54A, HT46F49E, HT46RU232, HT46RU24	28SKDIP
CADPSOP28A	HT48R05A-1, HT48R06A-1, HT46R46, HT46R47, HT48F06E, HT46F46E, HT47F47E	18SOP
	HT46R48A, HT46R51A, HT46R52A, HT82K68E-L	20SOP
	HT48R10A-1, HT48R30A-1, HT48F10E, HT48F30E, HT46R22, HT46R23, HT46RU22, HT46R48A, HT46F48E, HT46F49E	24SOP
	HT48R30A-1, HT48R50A-1, HT48F30E, HT48F50E, HT46R23, HT46R232, HT46R24, HT46F49E, HT46RU232, HT46RU24, HT48RA1, HT48RA3, HT48RA5, HT82K68E-L	28SOP
CADPMSSOP28A	HT48RA1, HT48RA3, HT48RA5	28SSOP (209mil)
CADPNSSOP28A	HT48F30E, HT48F50E, HT46F49E, HT82K70E-L, HT82K76E-L	28SSOP
	HT48F10E, HT48F30E, HT46RU22, HT46R48A, HT46F48E, HT46F49E	24SSOP
CADP10MSOP-B	HT48R01B, HT48R02B, HT46R01B, HT46R02B	10MSOP
CADP16NSOP-A	HT48R062, HT48R05A-1, HT48R06A-1, HT48F06E, HT46R46, HT46R47, HT46R51A, HT46R52A, HT46F46E, HT46F47E	16NSOP
CADP16NSOP-D	HT45R35	16NSOP
CADP16NSOP-F	HT48R063, HT48R064, HT48R065, HT48R066, HT46R064, HT46R065, HT46R066	16NSOP
CADP16NSOP-H	HT66F30, HT68F30	16NSOP
CADP16NSOP-K	HT48R01M, HT48R02M, HT48R01N, HT48R02N, HT46R01M, HT46R02M, HT46R01N, HT46R02N	16NSOP
CADP20QFN-B	HT82B40R, HT82B40A	20QFN
CADP28SOP-AA	HT45R35, HT45R37	24/28SOP
CADP28SOP-AD	HT45R35	20SOP
CADP28SOP-AE	HT95R22	28SOP
CADP28SOP-AG	HT86B10, HT86B30, HT86BR10, HT86BR30	28SOP
CADP28SOP-AH	HT86B60, HT86BR60	28SOP
CADP28SOP-AJ	HT82A623R	28SOP
CADP28SOP-AN	HT66F30, HT66F40, HT66F50, HT66FU30, HT68F30, HT68F40, HT68F50, HT68FU30	20/24/28SOP
CADP28SOP-AS	HT45FM03B	28SOP
CADP28SOP-D	HT82M99E, HT82M9AE, HT82M9BEE	18/20/28SOP
CADP28SOP-X	HT83R074	28SOP
CADP28SSOP-AD	HT82D20R	28SSOP (150mil)
CADP28SSOP-AE	HT82K74E, HT82K74EE	28SSOP (150mil)
CADP28SSOP-AH	HT66F30, HT66F40, HT66F50, HT68F30, HT68F40, HT68F50	16/20/24/28SSOP (150mil)
CADP28SSOP-B	HT48RA0-3	20SSOP (150mil)
CADP28SSOP-M	HT82M99E, HT82M99EE, HT82M9AE, HT82M9BE, HT82M9AEE	20/24/28SSOP (150mil)
CADP28SSOP-N	HT45R35, HT45R37	24/28SSOP (150mil)
CADP28SSOP-U	HT45R35	20SSOP (150mil)
CADP28SSOP-V	HT82B40R, HT82B40A, HT82A520R, HT82A620R	20SSOP (150mil)
CADP28SSOP-W	HT82A520R, HT82A620R	24SSOP (150mil)
CADP28SSOP-X	HT82B40R, HT82B40A, HT82A520R, HT82A620R	28SSOP (150mil)
CADP28SSOP-Y	HT82A623R	28SSOP (150mil)
CADP30SSOP-F	HT82A851R	24SSOP (209mil)
CADP32LQFP-A	HT82A523R	32LQFP
CADP32QFN-B	HT82K68E-L, HT82K70E-L, HT82K76E-L	32QFN
CADP32QFN-C	HT82M9AE, HT82M9BE	32QFN
CADP32QFN-D	HT82K94E, HT82K95E	32QFN
CADP32QFN-E	HT82B40R, HT82B40A	32QFN
CADP32QFN-F	HT82A520R, HT82A620R	32QFN
CADP32QFN-K	HT66F40, HT68F40	32QFN
CADP32QFN-H	HT82K74E	32QFN
CADP40DIP-AC	HT45R37	28SKDIP
CADP40DIP-AD	HT66F30, HT66F40, HT66FU30, HT68F30, HT68F40, HT68FU30	16/20DIP, 24/28SKDIP
	HT66F50, HT68F50	28SKDIP
CADP40DIP-T	HT45R35, HT45R37	16DIP, 24/28SKDIP
CADP40DIP-X	HT45R35	20DIP
CADP40QFN6-A	HT66F40, HT66F50, HT66FU40, HT68F40, HT68F50, HT68FU40	40QFN
CADP44QFP-AD	HT45R37	44QFP

OTP Adapter Card		
CADP44QFP-F	HT48R52A, HT48R54A, HT46R92, HT49R94	44QFP
CADP44QFP-R	HT83F10, HT83F10P, HT83F20, HT83F20P, HT83F40, HT83F40P, HT83F60, HT83F60P, HT83F80, HT83F80P	44QFP
CADP44QFP-U	HT82A6208, HT82A6216	44QFP
CADP44QFP-V	HT66F40, HT66F50, HT66FU40, HT66FU50, HT68F40, HT68F50, HT68FU40, HT68FU50	44QFP
CADP46R54SO28A	HT46R53A, HT46R54A	28SOP
CADP46R62QF44A	HT49R10A-1, HT45R36	44QFP
CADP46R62QF52A	HT46R62, HT46R64, HT46R65, HT46RU66, HT46RU67, HT56R62, HT56R64, HT56R65, HT56R66, HT56R67, HT45R36, HT45R38	52QFP
CADP46R62SS56A	HT46R62, HT46R64, HT46R65, HT46RU66, HT46RU67	56SSOP
CADP46R62SS56A	HT49R30A-1, HT49R50A-1	48SSOP
CADP46R63QF10A	HT46R63	100QFP
CADP46R63SS56A	HT46R63	56SSOP
CADP46R64QF10A	HT46R64, HT46R65, HT46R652	100QFP
CADP46R66QF10A	HT46RU66, HT46RU67, HT56R64, HT56R65, HT56R66, HT56R67	100QFP
CADP46RB7DI28A	HT46RB50, HT46RB70	28SKDIP
CADP46RB7SO28A	HT46RB50, HT46RB70	28SOP
CADP46RB7SS48A	HT46RB50, HT46RB70	48SSOP
CADP48QFN-A	HT82A623R	48QFN
CADP48QFN-B	HT82D22R	48QFN
CADP48QFN-C	HT66F40, HT66F50, HT66FU40, HT66FU50, HT68F40, HT68F50, HT68FU40, HT68FU50	48QFN
CADP47R10QF44A	HT47R10A-1	44QFP
CADP48LQFP-D	HT82K74E, HT82K74EE	48LQFP
CADP48R05SN16A	HT48F06E, HT46R46, HT46R47, HT46R51A, HT46R52A, HT46F47E	20SSOP
	HT48R05A-1, HT48R06A-1	16SSOP (150mil)
CADP48R50SS48A	HT46RU25, HT46RU26	56SSOP
	HT48R502, HT48R50A-1, HT48R70A-1, HT48RU80, HT48F50E, HT48F70E, HT46R232, HT46R24, HT46RU232, HT46RU24, HT46RU25, HT46RU26, HT82K68E-L, HT82K70E-L, HT82K76E-L	48SSOP
CADP48R53QF52A	HT48R52A, HT48R54A, HT46R92, HT49R94	52QFP
CADP48RA0SN28A	HT48RA0-1	24SSOP (150mil)
	HT48RA0-2	20SSOP (150mil)
CADP48RA0SO28A	HT48RA0-1	24SOP
CADP49R50QF10A	HT49R50A-1, HT49R70A-1, HT49RU80	100QFP
CADP52QFP-E	HT49RA0, HT49RA1	52QFP
CADP52QFP-F	HT82A523R	52QFP
CADP52QFP-N	HT82A6208, HT82A6216	52QFP
CADP52QFP-Q	HT48R065V	52QFP
CADP52QFP-T	HT46R065V	52QFP
CADP52QFP-G	HT45R35V	52QFP
CADP52QFP-P	HT45R37V	52QFP
CADP56SSOP-P	HT82A523R	48SSOP
CADP56SSOP-R	HT95R23, HT95R24, HT95R33, HT95R34	48SSOP
CADP56SSOP-S	HT82B40R, HT82B40A	48SSOP
CADP56SSOP-T	HT82K74E, HT82K74EE	48SSOP
CADP56SSOP-W	HT66F40, HT66F50, HT66FU40, HT68F40, HT68F50, HT68FU40	48SSOP
CADP64LQFP-A	HT48R502, HT48R70A-1, HT48RU80, HT48F70E	64LQFP
CADP64LQFP-B	HT47R20A-1	64LQFP
CADP64LQFP-E	HT49RA1	64LQFP
CADP64LQFP-G	HT95R25, HT95R35	64LQFP
CADP64LQFP-H	HT56R62, HT56R64, HT56R65, HT56R66, HT56R67, HT56R642	64LQFP
CADP64LQFP-K	HT95R54, HT95R55, HT95R64, HT95R65	64LQFP
CADP64LQFP-Q	HT49R50A-1, HT49C50-1, HT49C50L, HT49R70A-1, HT49C70-1, HT49C70L, HT49RU80, HT49CU80	64LQFP
CADP80LQFP-A	HT82A836R	80LQFP
CADP80LQFP-C	HT95R64, HT95R65	80LQFP
CADP100QFP-K	HT82A836R	100QFP
CADP100QFP-L	HT56R644, HT56R654, HT56R656, HT56R666, HT56R668, HT56R678	100QFP
CADP128QFP-B	HT56R668, HT56R678	128QFP
CADP82821SN24A	HT82A821R	24SSOP
CADP82821SO24A	HT82A821R	24SOP
CADP82822SS48A	HT82A822R	48SSOP
CADP82832LQ48A	HT82A834R, HT82A850R	48LQFP
CADP82832SS48A	HT82A834R	48SSOP
CADP82J30DI28A	HT82J30R	28SKDIP
CADP82J30QF44A	HT82J30R	44QFP
CADP82J30SO28A	HT82J30R	28SOP
CADP82J97SO28A	HT82J97E	28SOP

OTP Adapter Card

CADP82K96SO28B	HT82K95E, HT82K95EE, HT82K96E	28SOP
CADP82K96SS48A	HT82K94E, HT82K95E, HT82K96E	48SSOP
CADP82M99DI20B	HT82M99E	18/20DIP
CADP82M99SO20B	HT82J97E	20SOP
CADP86R00QF44A	HT86B10, HT86B20, HT86B30, HT86B40, HT86B50, HT86B60, HT86B70, HT86B80, HT86BR10, HT86BR30	44QFP

MCU Tools Indexing Table

Located here is the information regarding Holtek's microcontroller-based development tools. These include the HT-IDE3000 Software, Holtek In-Circuit HT-ICE Emulator, HT-ICE Interface Card, OTP/Flash Programmer, OTP/Flash Adapter Card, Other Programmers, Accessories and Learning Kits. For the convenience of users whose computer is not equipped with an LPT port, Holtek provides an HT-ICE USB cable allowing customers to connect the HT-ICE LPT connector to the computer USB port. The part number of this USB cable is CUSBICECABLE4A. Please contact us for purchasing details.

Because Holtek provides a wide series of MCU devices, please refer to the Literature section for various user's manuals.

The following table allows the correct tools to be quickly located against a device part number. In instances where tools are not listed for specific devices, this may infer that such tools are not required.

MCU Tools Indexing Table

Cost-Effective I/O Type MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT48R05A-1 HT48C05 HT48R06A-1 HT48C06	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	16NSOP	CADP16NSOP-A
				16SSOP	CADP48R05SN16A
				18DIP	Included in writer
				18SOP	CADPSOP28A
HT48R062 HT48C062	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	16DIP	Included in writer
				16NSOP	CADP16NSOP-A

Enhanced I/O Type MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT48R063	CICE201A (HT-IDE3000)	CPCB4XR06X009A	e-Writer	16DIP	CADP40DIP-Y
				16NSOP	CADP16NSOP-F
HT48R064	CICE201A (HT-IDE3000)	CPCB4XR06X009A	e-Writer	16/20DIP, 24SKDIP	CADP40DIP-Y
				16NSOP	CADP16NSOP-F
				20/24SOP	CADP28SOP-AK
				20/24SSOP	CADP28SSOP-AB
HT48R065 HT48R066	CICE201A (HT-IDE3000)	CPCB4XR06X009A	e-Writer	16/20DIP, 24/28SKDIP	CADP40DIP-Y
				16NSOP	CADP16NSOP-F
				20/24/28SOP	CADP28SOP-AK
				20/24/28SSOP	CADP28SSOP-AB
HT48R0662 HT48R067	CICE201A (HT-IDE3000)	CPCB4XR06X009A	e-Writer	24/28SKDIP	CADP40DIP-Y
				24/28SOP	CADP28SOP-AK
				24/28SSOP	CADP28SSOP-AB
				44QFP	CADP44QFP-T

I/O Type MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT48R10A-1 HT48C10-1	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	24SKDIP	Included in writer
				24SOP	CADPSOP28A
HT48R30A-1 HT48C30-1	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	24/28SKDIP	Included in writer
				24/28SOP	CADPSOP28A
HT48R50A-1 HT48C50-1	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SKDIP	Included in writer
				28SOP	CADPSOP28A
				48SSOP	CADP48R50SS48A
HT48R502 HT48R70A-1 HT48C70-1	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	48SSOP	CADP48R50SS48A
				64LQFP	CADP64LQFP-A
				48SSOP	CADP48R50SS48A
HT48RU80 HT48CU80	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	64LQFP	CADP64LQFP-A

MCU Tools Indexing Table

Small Package I/O Type MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT48R01B HT48R02B	CICE201A (HT-IDE3000)	CPCB4XR06X009A	e-Writer	10MSOP	CADP10MSOP-B
HT48R01N HT48R02N	CICE201A (HT-IDE3000)	CPCB4XR06X009A	e-Writer	16NSOP	CADP16NSOP-K

I/O Type MCU with 16×16 High Current LED Driver

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT48R52A HT48R54A	CICE48R52A006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	44QFP 52QFP	CADP44QFP-F CADP48R53QF52A

LCD Type MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT49R10A-1 HT49C10-1	CICE49U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	44QFP	CADP46R62QF44A
HT49R30A-1 HT49C30-1 HT49C30L	CICE49U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	48SSOP	CADP46R62SS56A
HT49R50A-1 HT49C50-1 HT49C50L	CICE49U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	48SSOP 64LQFP 100QFP	CADP46R62SS56A CADP64LQFP-Q CADP49R50QF10A
HT49R70A-1 HT49C70-1 HT49C70L	CICE49U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	64LQFP 100QFP	CADP64LQFP-Q CADP49R50QF10A
HT49RU80 HT49CU80	CICE49U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	64LQFP 100QFP	CADP64LQFP-Q CADP49R50QF10A

Cost-Effective A/D Type MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT46R46 HT46C46 HT46R47 HT46C47	CICE46F000007A or CICE46L000007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	16NSOP 18DIP 18SOP 20SSOP	CADP16NSOP-A Included in writer CADPSOP28A CADP48R05SN16A
HT46R48A HT46C48A	CICE46F000007A or CICE46L000007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	20DIP, 24SKDIP 20/24SOP 24SSOP	Included in writer CADPSOP28A CADPNSSOP28A

Enhanced A/D Type MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT46R064	CICE201A (HT-IDE3000)	CPCB4XR06X009A	e-Writer	16/20DIP 16NSOP 20SOP 20SSOP	CADP40DIP-Y CADP16NSOP-F CADP28SOP-AK CADP28SSOP-AB
HT46R065	CICE201A (HT-IDE3000)	CPCB4XR06X009A	e-Writer	16/20DIP, 24SKDIP 16NSOP 20/24SOP 20/24SSOP	CADP40DIP-Y CADP16NSOP-F CADP28SOP-AK CADP28SSOP-AB
HT46R066	CICE201A (HT-IDE3000)	CPCB4XR06X009A	e-Writer	16/20DIP, 24/28SKDIP 16NSOP 20/24/28SOP 20/24/28SSOP	CADP40DIP-Y CADP16NSOP-F CADP28SOP-AK CADP28SSOP-AB
HT46R0662 HT46R067	CICE201A (HT-IDE3000)	CPCB4XR06X009A	e-Writer	24/28SKDIP 24/28SOP 24/28SSOP 44QFP	CADP40DIP-Y CADP28SOP-AK CADP28SSOP-AB CADP44QFP-T

MCU Tools Indexing Table

A/D Type MCU					
Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT46R22 HT46C22	CICE46F000007A or CICE46L000007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	24SKDIP	Included in writer
				24SOP	CADPSOP28A
HT46R23 HT46C23	CICE46F000007A or CICE46L000007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	24/28SKDIP	Included in writer
				24/28SOP	CADPSOP28A
HT46R232 HT46C232 HT46R24 HT46C24	CICE46F000007A or CICE46L000007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SKDIP	Included in writer
				28SOP	CADPSOP28A
				48SSOP	CADP48R50SS48A
HT46R51A HT46R52A	CICE46F000007A or CICE46L000007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	16NSOP	CADP16NSOP-A
				18DIP	Included in writer
				20SOP	CADPSOP28A
				20SSOP	CADP48R05SN16A
HT46R53A HT46R54A	CICE46F000007A or CICE46L000007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SKDIP	Included in writer
				28SOP	CADP46R54SO28A
Small Package A/D Type MCU					
Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT46R01B HT46R02B	CICE201A (HT-IDE3000)	CPCB4XR06X009A	e-Writer	10MSOP	CADP10MSOP-B
HT46R01N HT46R02N	CICE201A (HT-IDE3000)	CPCB4XR06X009A	e-Writer	16NSOP	CADP16NSOP-K
A/D Type MCU with 16×16 High Current LED Driver					
Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT46R92 HT46R94	CICE46R940007A	Included in HT-ICE	COTPWRITER00A	44QFP	CADP44QFP-F
				52QFP	CADP48R53QF52A
A/D Type MCU with LCD					
Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT46R62 HT46C62	CICE46L000007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	52QFP	CADP46R62QF52A
				56SSOP	CADP46R62SS56A
HT46R63 HT46C63	CICE46L000007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	56SSOP	CADP46R63SS56A
				100QFP	CADP46R63QF10A
HT46R64 HT46C64 HT46R65 HT46C65	CICE46L000007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	52QFP	CADP46R62QF52A
				56SSOP	CADP46R62SS56A
				100QFP	CADP46R64QF10A
HT46R652	CICE46L000007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	100QFP	CADP46R64QF10A
HT46RU66 HT46CU66	CICE46L000007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	52QFP	CADP46R62QF52A
				56SSOP	CADP46R62SS56A
				100QFP	CADP46R66QF10A
HT46RU67 HT46CU67	CICE46L000007A (HT-IDE3000)	Included in HT-ICE	EW-VMR	52QFP	CADP46R62QF52A
				56SSOP	CADP46R62SS56A
				100QFP	CADP46R66QF10A
TinyPower™ A/D Type MCU with LCD					
Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT56R62	CICE56R620008B	Included in HT-ICE	e-Writer	52QFP	CADP46R62QF52A
				64LQFP	CADP64LQFP-H
HT56R64	CICE56R640007B	Included in HT-ICE	e-Writer	52QFP	CADP46R62QF52A
				100QFP	CADP46R66QF10A
				64LQFP	CADP64LQFP-H
HT56R65	CICE56R650008B	Included in HT-ICE	e-Writer	52QFP	CADP46R62QF52A
				100QFP	CADP46R66QF10A
				64LQFP	CADP64LQFP-H
HT56R66 HT56R67	CICE56R670008B	Included in HT-ICE	e-Writer	52QFP	CADP46R62QF52A
				100QFP	CADP46R66QF10A
				64LQFP	CADP64LQFP-H
HT56R642	CICE56R642008B	Included in HT-ICE	e-Writer	64LQFP	CADP64LQFP-H
HT56R644 HT56R654	CICE56R654008B	Included in HT-ICE	e-Writer	100QFP	CADP100QFP-L
HT56R656 HT56R666	CICE56R666008B	Included in HT-ICE	e-Writer	100QFP	CADP100QFP-L
HT56R668 HT56C668 HT56R678 HT56C678	CICE56R678008B	Included in HT-ICE	e-Writer	100QFP	CADP100QFP-L
				128QFP	CADP128QFP-B

MCU Tools Indexing Table

1.5V Battery Type MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT48R01M HT48R02M HT46R01M HT46R02M	CICE201A (HT-IDE3000)	CPCB4XR06X009A	e-Writer	16NSOP	CADP16NSOP-K

24V VFD MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	PEV Board	OTP Writer	Package Type	OTP Adapter
HT48R065V	CICE201A (HT-IDE3000)	CPCB4XR06X009A	EJ-QFP52E	e-Writer	52QFP	CADP52QFP-Q
HT46R065V	CICE201A (HT-IDE3000)	CPCB4XR06X009A	EJ-QFP52F	e-Writer	52QFP	CADP52QFP-T
HT45R35V	CICE46F000007A or CICE46L000007A (HT-IDE3000)	CPCB45R350007A	EJ-QFP52D	e-Writer	52QFP	CADP52QFP-G
HT45R37V	CICE45R370008A (HT-IDE3000)	Included in HT-ICE	EJ-QFP52G	e-Writer	52QFP	CADP52QFP-P

A/D Type MCU with UART

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT46RU22	CICE46F000007A or CICE46L000007A	Included in HT-ICE	COTPWRITER00A	24SKDIP	Included in writer
				24SOP	CADPSOP28A
				24SSOP	CADPNSSOP28A
HT46RU232 HT46RU24	CICE46F000007A or CICE46L000007A	Included in HT-ICE	COTPWRITER00A	28SKDIP	Included in writer
				28SOP	CADPSOP28A)
				48SSOP	CADP48R50SS48A
HT46RU25 HT46CU25	CICE46F000007A or CICE46L000007A	Included in HT-ICE	COTPWRITER00A	48/56SSOP	CADP48R50SS48A
HT46RU26 HT46CU26	CICE46F000007A or CICE46L000007A	Included in HT-ICE	EW-VMR	48/56SSOP	CADP48R50SS48A

A/D Type MCU & SPI Interface

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT82J30R HT82J30A	CICE82J300006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SKDIP	CADP82J30DI28A
				28SOP	CADP82J30SO28A
				44QFP	CADP82J30QF44A
HT82J31A	CICE82J300006A (HT-IDE3000)	Included in HT-ICE	—	28SKDIP/SOP	—

I/O Type USB MCU with SPI

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT82A520R	CICE82A620008A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A?	20SSOP	CADP28SSOP-V
				24SSOP	CADP28SSOP-W
				28SSOP	CADP28SSOP-X
				32QFN	CADP32QFN-F
HT82A523R	CICE82A523R07A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	32LQFP	CADP32LQFP-A
				48SSOP	CADP56SSOP-P
				52QFP	CADP52QFP-F
				64LQFP	CADP64LQFP

A/D Type USB MCU with SPI

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT46RB50 HT46RB70	CICE46RB70005B (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SKDIP	CADP46RB7DI28A
				28SOP	CADP46RB7SO28A
				48SSOP	CADP46RB7SS48A
HT82A620R	CICE82A620008A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	20SSOP	CADP28SSOP-V
				24SSOP	CADP28SSOP-W
				28SSOP	CADP28SSOP-X
				32QFN	CADP32QFN-F
HT82A623R	CICE82A620008A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SOP	CADP28SOP-AJ
				28SSOP	CADP28SSOP-Y
				48QFN	CADP48QFN-A
HT82A6208 HT82A6216	CICE82A620008A (HT-IDE3000)	Included in HT-ICE	e-Writer	44QFP	CADP44QFP-U
				52QFP	CADP52QFP-N

MCU Tools Indexing Table

I/O Type MCU with USB Interface

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT82K94E HT82K94A	CICE82K960004A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	32QFN	CADP32QFN-D
				48SSOP	CADP82K96SS48A
HT82K95E HT82K95A	CICE82K960004A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SOP	CADP82K96SO28B
				32QFN	CADP32QFN-D
HT82K95EE HT82K95AE	CICE82K960004A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	48SSOP	CADP82K96SS48A
				28SOP	CADP82K96SO28B
HT82B40R HT82B40A	CICE82K960004A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	20SSOP	CADP28SSOP-V
				28SSOP	CADP28SSOP-X
				48SSOP	CADP56SSOP-S
				20QFN	CADP20QFN-B
				32QFN	CADP32QFN-E
HT82M99E HT82M99A	CICE82M990004B (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	18/20DIP	CADP82M99DI20A
				18/20SOP	CADP28SOP-D
				20SSOP	CADP28SSOP-M
HT82M99EE HT82M99AE	CICE82M990004B (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	20SSOP	CADP28SSOP-M
				20SOP	CADP28SOP-D
				20/24SSOP	CADP28SSOP-M
HT82M9AE HT82M9AA	CICE82M990004B (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	32QFN	CADP32QFN-C
				20/24SSOP	CADP28SSOP-M
HT82M9AEE HT82M9AAE	CICE82M990004B (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	20/24SSOP	CADP28SSOP-M
				24/28SSOP	CADP28SSOP-M
HT82M9BE HT82M9BA	CICE82M990004B (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	32QFN	CADP32QFN-C
				28SOP	CADP28SOP-D
HT82M9BEE HT82M9BAE	CICE82M990004B (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SOP	CADP28SOP-D

A/D Type MCU with USB Interface

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT82K96E HT82K96A	CICE82K960004A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SOP	CADP82K96SO28B
				48SSOP	CADP82K96SS48A
HT82J97E HT82J97A	CICE82M990004B (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	20SOP	CADP82M99SO20B
				28SOP	CADP82J97SO28A

I/O Type MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT82K68E-L HT82K68A-L	CICE82K680004A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A?	20/28SOP	CADPSOP28A
				32QFN	CADP32QFN-B
				48SSOP	CADP48R50SS48A
HT82K70E-L HT82K76E-L	CICE82K760008B (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SSOP	CADPNSSOP28A
				32QFN	CADP32QFN-B
				48SSOP	CADP48R50SS48A

27MHz Keyboard/Mouse TX MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT82K74E	CICE82K760008B (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SSOP	CADP28SSOP-AE
				32QFN	CADP32QFN-H
				48SSOP	CADP56SSOP-T
				48LQFP	CADP48LQFP-D
HT82K74EE	CICE82K760008B (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SSOP	CADP28SSOP-AE
				48SSOP	CADP56SSOP-T
				48LQFP	CADP48LQFP-D

27MHz Keyboard/Mouse RX MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT82D20R	CICE82M990004B (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SSOP	CADP28SSOP-AD
HT82D22R	CICE82K960004A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	48QFN	CADP48QFN-B

MCU Tools Indexing Table

R-F Type MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT47C06L	CICE47C10L006A (HT-IDE3000)	Included in HT-ICE	—	44QFP	—
HT47R10A-1 HT47C10-1	CICE47R200005A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	44QFP	CADP47R10QF44A
HT47C10L	CICE47C10L006A (HT-IDE3000)	Included in HT-ICE	—	44QFP	—
HT47R20A-1 HT47C20-1 HT47C20L	CICE47R200005A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	64LQFP	CADP64LQFP-B

C/R-F Type MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT45R35	CICE46F000007A CICE46L000007A (HT-IDE3000)	CPCB45R350007A	COTPWRITER00A	16NSOP	CADP16NSOP-D
				16DIP, 24/28SKDIP	CADP40DIP-T
				20DIP	CADP40DIP-X
				20SOP	CADP28SOP-AD
				24/28SOP	CADP28SOP-AA
				20SSOP	CADP28SSOP-U
HT45R36	CICE46F000007A CICE46L000007A (HT-IDE3000)	CPCB45R380006B	COTPWRITER00A	24/28SSOP	CADP28SSOP-N
				44QFP	CADP46R62QF44A
HT45R37	CICE45R370008A (HT-IDE3000)	Included in HT-ICE	e-Writer	52QFP	CADP46R62QF52A
				20DIP, 24/28SKDIP-A	CADP40DIP-T
				28SKDIP-B	CADP40DIP-AC
				20/24/28SOP-A	CADP28SOP-AA
				28SOP-B	CADP28SOP-AL
				28SSOP-A	CADP28SSOP-N
				28SSOP-B	CADP28SSOP-AC
HT45R38	CICE46F000007A CICE46L000007A (HT-IDE3000)	CPCB45R380006B	COTPWRITER00A	32QFN	CADP32QFN-G
				44QFP	CADP44QFP-AD
HT45R38	CICE46F000007A CICE46L000007A (HT-IDE3000)	CPCB45R380006B	COTPWRITER00A	52QFP	CADP46R62QF52A

Remote Type MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT48RA0-3 HT48CA0-3	CICE48A030005A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	20SSOP	CADP28SSOP-B
HT48RA0-2 HT48CA0-2	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	20SSOP	CADP48RA0SN28A
HT48RA0-1 HT48CA0-1	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	24SOP	CADP48RA0SO28A
				24SSOP	CADP48RA0SN28A
HT48RA1 HT48CA1 HT48RA3 HT48CA3	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SOP	CADPSOP28A
				28SSOP	CADPMSSOP28A
HT48RA5 HT48CA5	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SOP	CADPSOP28A
				28SSOP	CADPMSSOP28A

Remote Type MCU with LCD

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT49RA0 HT49CA0	CICE49RA00006A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	52QFP	CADP52QFP-E
HT49RA1 HT49CA1	CICE49RA10007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	52QFP	CADP52QFP-E
				64LQFP	CADP64LQFP-E

USB Audio MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT82A821R	CICE82A822005A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	24SOP	CADP82821SO24A
				24SSOP	CADP82821SN24A
HT82A822R	CICE82A822005A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	48SSOP	CADP82822SS48A
HT82A834R	CICE82A832005A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	48SSOP	CADP82822SS48A
				48LQFP	CADP82832LQ48A
HT82A836R	CICE82A836007A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	80LQFP	CADP80LQFP-A
				100QFP	CADP100QFP-K
HT82A850R	CICE82A832005A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	48LQFP	CADP82832LQ48A
HT82A851R	CICE82A832005A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	24SSOP	CADP30SSOP-F

MCU Tools Indexing Table

Phone MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT95R22	CICE95R3X0008A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	28SOP	CADP28SOP-AE
HT95R23 HT95R24	CICE95R3X0008A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	48SSOP	CADP56SSOP-R
HT95R25	CICE95R350008A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	64LQFP	CADP64LQFP-G
HT95R33 HT95R34	CICE95R3X0008A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	48SSOP	CADP56SSOP-R
HT95R35	CICE95R350008A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	64LQFP	CADP64LQFP-G

Phone MCU with CID

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT95R54 HT95R55	CICE95R550009A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	64LQFP	CADP64LQFP-K

Phone MCU with CPT & CID

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT95R64 HT95R65	CICE95R550009A (HT-IDE3000)	Included in HT-ICE	COTPWRITER00A	64LQFP	CADP64LQFP-K
				80LQFP	CADP80LQFP-C

Enhanced Voice MCU

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter	Demo Board
HT86B10, HT86BR10	CICE86B000008A (HT-IDE3000)	Included in HT-ICE	EW-VMR	24SSOP(150mil) 24SSOP(209mil)	—	VMF03A
HT86B20, HT86B40, HT86B50	CICE86B000008A (HT-IDE3000)	Included in HT-ICE	EW-VMR	28SOP	—	VMF03A
HT86B10, HT86B30, HT86BR10, HT86BR30	CICE86B000008A (HT-IDE3000)	Included in HT-ICE	EW-VMR	28SOP	CADP28SOP-AG	VMF03A
HT86B60, HT86BR60	CICE86B000008A (HT-IDE3000)	Included in HT-ICE	EW-VMR	28SOP	CADP28SOP-AH	VMF03A
HT86B10, HT86B20, HT86B30, HT86B40, HT86B50, HT86B60, HT86B70, HT86B80, HT86BR10, HT86BR30	CICE86B000008A (HT-IDE3000)	Included in HT-ICE	EW-VMR	44QFP	CADP86R00QF44A	VMF03A
HT86B70, HT86B80, HT86B90	CICE86B000008A (HT-IDE3000)	Included in HT-ICE	EW-VMR	100QFP	—	VMF03A

Q-Voice™

Device Part No.	HT-ICE (& Software)	I/O Interface Card	OTP Writer	Package Type	OTP Adapter	Demo Board
HT83004, HT83007, HT83010, HT83020, HT83038, HT83050 HT83R074, HT83074	CICE860000004A (HT-IDE3000)	Included in HT-ICE	EW-VMR	28SOP	CADP28SOP-X	VMF02A

Enhanced Music MCU

Device Part No.	Software	SRAM Download Board	Demo Board
HT37Q20, HT37Q30, HT37Q40, HT37Q50, HT37Q60, HT37Q70	HT-MDS	HT-VMS-MB	HT37P06
HT37A20, HT37A30, HT37A40, HT37A50, HT37A60, HT37A70	HT-MDS	HT-VMS-MB	HT37P06
HT37B30, HT37B50, HT37B70	HT-MDS	HT-VMS-MB	HT37P06

MCU Tools Indexing Table

I/O Flash Type MCU with EEPROM

Device Part No.	HT-ICE	I/O Interface Card	OTP Writer (ISP Cable)	Package Type	OTP Adapter
HT48F06E	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	EW-M1 (ESTD-201)	16NSOP	CADP16NSOP-A
				18DIP	Included in writer
				18SOP	CADPSOP28A
				20SSOP	CADP48R05SN16A
HT48F10E	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	EW-M1 (ESTD-201)	24SKDIP	Included in writer
				24SOP	CADPSOP28A
				24SSOP	CADPNSSOP28A
HT48F30E	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	EW-M1 (ESTD-201)	24/28SKDIP	Included in writer
				24/28SOP	CADPSOP28A
				24/28SSOP	CADPNSSOP28A
HT48F50E	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	EW-M1 (ESTD-201)	28SKDIP	Included in writer
				28SOP	CADPSOP28A
				28SSOP	CADPNSSOP28A
				48SSOP	CADP48R50SS48A
HT48F70E	CICE48U000006A (HT-IDE3000)	Included in HT-ICE	EW-M1 (ESTD-201)	48SSOP	CADP48R50SS48A
				64LQFP	CADP64LQFP-A

Enhanced I/O Flash Type MCU with EEPROM

Device Part No.	MEV Board	DEV Board	PEV Board	OTP Writer (ISP Cable)	Package Type	OTP Adapter
HT68F30	M1001B (HT-IDE3000)	D1001B	—	e-Writer (ESTD-205)	16/20DIP, 24SKDIP	CADP40DIP-AD
					16NSOP	CADP16NSOP-H
					20/24SOP	CADP28SOP-AN
					16/20/24SSOP	CADP28SSOP-AH
HT68FU30	M1001B (HT-IDE3000)	D1001B	P1001B	e-Writer (ESTD-205)	24SKDIP	CADP40DIP-AD
HT68F40	M1001B (HT-IDE3000)	D1002B	—	e-Writer (ESTD-205)	24SOP	CADP28SOP-AN
					24/28SKDIP	CADP40DIP-AD
					24/28SOP	CADP28SOP-AN
					24/28SSOP	CADP28SSOP-AH
					32QFN	CADP32QFN-K
					40QFN	CADP40QFN6-A
					44QFP	CADP44QFP-V
HT68FU40	M1001B (HT-IDE3000)	D1002B	P1001B	e-Writer (ESTD-205)	48QFN	CADP48QFN-C
					48SSOP	CADP56SSOP-W
					40QFN	CADP40QFN6-A
					44QFP	CADP44QFP-V
HT68F50	M1001B (HT-IDE3000)	D1003B	—	e-Writer (ESTD-205)	48QFN	CADP48QFN-C
					48SSOP	CADP56SSOP-W
					28SKDIP	CADP40DIP-AD
					28SOP	CADP28SOP-AN
					28SSOP	CADP28SSOP-AH
					40QFN	CADP40QFN6-A
					44QFP	CADP44QFP-V
HT68FU50	M1001B (HT-IDE3000)	D1003B	P1001B	e-Writer (ESTD-205)	48QFN	CADP48QFN-C
					44QFP	CADP44QFP-V
					48QFN	CADP48QFN-C

A/D Flash Type MCU with EEPROM

Device Part No.	HT-ICE	I/O Interface Card	OTP Writer	Package Type	OTP Adapter
HT46F46E	CICE46F000007A (HT-IDE3000)	Included in HT-ICE	EW-M1 (ESTD-201)	16NSOP	CADP16NSOP-A
				18DIP	Included in writer
				18SOP	CADPSOP28A
HT46F47E	CICE46F000007A (HT-IDE3000)	Included in HT-ICE	EW-M1 (ESTD-201)	16NSOP	CADP16NSOP-A
				18DIP	Included in writer
				18SOP	CADPSOP28A
				20SSOP	CADP48R05SN16A
HT46F48E	CICE46F000007A (HT-IDE3000)	Included in HT-ICE	EW-M1 (ESTD-201)	24SKDIP	Included in writer
				24SOP	CADPSOP28A
				24SSOP	CADPNSSOP28A
HT46F49E	CICE46F000007A (HT-IDE3000)	Included in HT-ICE	EW-M1 (ESTD-201)	24/28SKDIP	Included in writer
				24/28SOP	CADPSOP28A
				24/28SSOP	CADPNSSOP28A

MCU Tools Indexing Table

Enhanced A/D Flash Type MCU with EEPROM

Device Part No.	MEV Board	DEV Board	PEV Board	OTP Writer (ISP Cable)	Package Type	OTP Adapter
HT66F30	M1001B (HT-IDE3000)	D1001B	—	e-Writer (ESTD-205)	16/20DIP, 24SKDIP	CADP40DIP-AD
					16NSOP	CADP16NSOP-H
					20/24SOP	CADP28SOP-AN
					16/20/24SSOP	CADP28SSOP-AH
HT66FU30	M1001B (HT-IDE3000)	D1001B	P1001B	e-Writer (ESTD-205)	24SKDIP	CADP40DIP-AD
					24SOP	CADP28SOP-AN
HT66F40	M1001B (HT-IDE3000)	D1002B	—	e-Writer (ESTD-205)	24/28SKDIP	CADP40DIP-AD
					24/28SOP	CADP28SOP-AN
					24/28SSOP	CADP28SSOP-AH
					32QFN	CADP32QFN-K
					40QFN	CADP40QFN6-A
					44QFP	CADP44QFP-V
HT66FU40	M1001B (HT-IDE3000)	D1002B	P1001B	e-Writer (ESTD-205)	48QFN	CADP48QFN-C
					48SSOP	CADP56SSOP-W
					40QFN	CADP40QFN6-A
					44QFP	CADP44QFP-V
HT66F50	M1001B (HT-IDE3000)	D1003B	—	e-Writer (ESTD-205)	48QFN	CADP48QFN-C
					48SSOP	CADP56SSOP-W
					28SKDIP	CADP40DIP-AD
					28SOP	CADP28SOP-AN
					28SSOP	CADP28SSOP-AH
					40QFN	CADP40QFN6-A
HT66FU50	M1001B (HT-IDE3000)	D1003B	P1001B	e-Writer (ESTD-205)	44QFP	CADP44QFP-V
					48QFN	CADP48QFN-C

Brushless DC Motor Flash Type MCU

Device Part No.	HT-ICE	I/O Interface Card	OTP Writer	Package Type	OTP Adapter	
HT45FM03B	CICE45FM03B08A (HT-IDE3000)	Included in HT-ICE	e-Writer	28SOP	CADP28SOP-AS	

Flash Type Voice MCU

Device Part No.	HT-ICE (& Software)	OTP Writer	Package Type	OTP Adapter	Demo Board
HT83F10, HT83F10P, HT83F20, HT83F20P, HT83F40, HT83F40P, HT83F60, HT83F60P, HT83F80, HT83F80P	CICE83F000008B (HT-IDE3000)	e-Writer	44QFP	CADP44QFP-R	Easy Play

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