

MOTOROLA

Microcontroller Selector Guide

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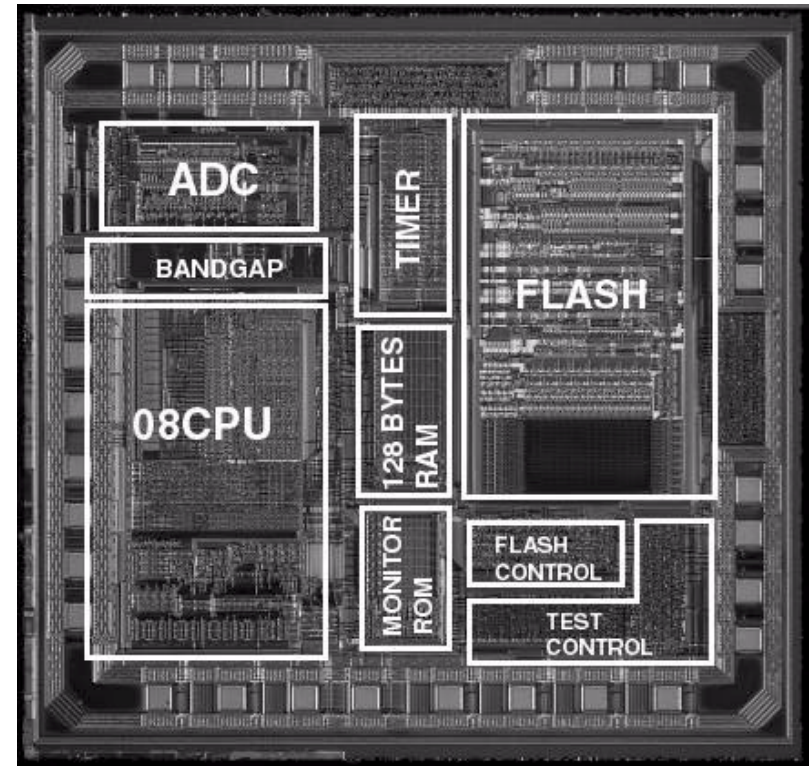
Product information for:

8-Bit	68HC05, 68HC08, and 68HC11
16-Bit	68HC12 and 68HC16
32-Bit	683XX and M•CORE

 **Digital DNA**[™]
from Motorola

As Motorola continues to add devices to its growing family of FLASH-based HC08 devices, we are pleased to announce the latest addition, the 68HC908JK1. This is Motorola's lowest-cost FLASH-based microcontroller thus far with 1.5 K of on-chip FLASH. The device comes in both 20-pin DIP and SOIC packaging.

68HC908JK1



- Visit <http://www.pemicro.com/ics08> for FREE windows-based development software, including simulators, assemblers, and debuggers for Motorola's HC08 Family of microcontrollers.
- Visit <http://www.mcu.motsp.com> to view Motorola's offering in technical support, including development tools, documentation, new searchable FAQs, and freeware.
- In addition to the web downloadable development software, the 68HC908JK1 uses the already available 68HC908JL/JK Family Development Kits:
 - M68ICS08JL Low-Cost Development Kit
 - KITMMEVS08JL Real-Time In-Circuit Emulator Kit
 - KITMMDS08JL High-Performance Emulator Kit

Device	ROM (Bytes)	RAM (Bytes)	FLASH or OTP (Bytes)	EEPROM (Bytes)	Timer	I/O	Serial	A/D	PWM	COP	Operating Voltage (V)	Max. Bus Freq. (MHz)	Temp.	Package Option	OTP or FLASH	Avail.	Comments	Documentation
MC68HC908JK1	—	128	1.5 K FLASH	—	2-CH 16-Bit IC, OC, or PWM	15	—	10-CH 8-Bit	See Timer	Y	3.0, 5.0	8.0	C	20 DIP (P) 20 SOIC (DW)	—	Now	RC oscillator option, LVR with selectable trip points, 6 pin LED drive	MC68HC08JL3/H

68HC05 Family (Sheet 1 of 4)

Device	ROM (Bytes)	RAM (Bytes)	EPROM/OTP (Bytes)	EEPROM (Bytes)	Timer	I/O	Serial	A/D	PWM	COP	Operating Voltage (V)	Max Bus Frequency (MHz)	Temp.	Package Option	OTP	Avail.	Comments	Documentation
MC68HC05B6	6K	176	—	256	16-Bit 2 IC, 2 OC	32	SCI See comment	8-CH 8-Bit	2-CH 8-Bit	Y	3.3, 5.0	4.0	C, V, M	56 SDIP (B) 52 PLCC (FN) 64 QFP (FU)	705B16 705B32	Now	SCI has synchronous master SPI-like capability	MC68HC05B6/D
MC68HC05B8	7K	176	—	256	16-Bit 2 IC, 2 OC	32	SCI See comment	8-CH 8-Bit	2-CH 8-Bit	Y	3.3, 5.0	4.0	C, V	56 SDIP (B) 52 PLCC (FN) 64 QFP (FU)	705B16 705B32	Now	SCI has synchronous master SPI-like capability	MC68HC05B6/D
MC68HC05B16	15K	352	—	256	16-Bit 2 IC, 2 OC	32	SCI See comment	8-CH 8-Bit	2-CH 8-Bit	Y	3.3, 5.0	4.0	C, V, M	56 SDIP (B) 52 PLCC (FN) 64 QFP (FU)	705B16 705B32	Now	SCI has synchronous master SPI-like capability	MC68HC05B6/D
MC68HC705B16	—	352	15K	256	16-Bit 2 IC, 2 OC	32	SCI See comment	8-CH 8-Bit	2-CH 8-Bit	Y	3.3, 5.0	2.1	C, V, M	52 PLCC (FN) 64 QFP (FU) 52 CLCC (FS)	—	Now	705B32 as OTP for SDIP. SCI has synchronous master SPI-like capability	MC68HC05B6/D
MC68HC05B32	32K	528	—	256	16-Bit 2 IC, 2 OC	32	SCI See comment	8-CH 8-Bit	2-CH 8-Bit	Y	3.3, 5.0	2.1	See comments	56 SDIP (B) 52 PLCC (FN) 64 QFP (FU)	705B32	Now	SCI has synchronous master SPI-like capability. 0 to 70 °C temperature only for SDIP; -40 to +85 °C for PLCC/QFP	MC68HC05B6/D
XC68HC705B32	—	528	32K	256	16-Bit 2 IC, 2 OC	32	SCI See comment	8-CH 8-Bit	2-CH 8-Bit	Y	3.3, 5.0	2.1	C	56 SDIP (B) 52 PLCC (FN) 64 QFP (FU) 52 CLCC (FS)	—	LTD	SCI has synchronous master SPI-like capability	MC68HC05B6/D
MC68HC05BD3	3.75K	128	—	—	MFT	24	I ² C	—	16-CH 8-Bit	Y	5.0	2.1	—	40 DIP (P) 42 SDIP (B)	705BD3	Now	Horizontal & vertical sync signal processor	MC68HC05BD3D/H
MC68HC705BD3	—	256	7.75K	—	MFT	24	I ² C	—	16-CH 8-Bit	Y	5.0	2.1	—	40 DIP (P) 42 SDIP (B)	—	Now	Horizontal & vertical sync signal processor	MC68HC05BD3D/H
MC68HC05BD5	7.75K	256	—	—	MFT	24	I ² C	—	16-CH 8-Bit	Y	5.0	2.1	—	40 DIP (P) 42 SDIP (B)	705BD3	Now	Horizontal & vertical sync signal processor	MC68HC05BD3D/H
MC68HC705BD7	—	384	11.5K	—	MFT	26	MBUS (DDC 1/2 B)	4-CH 8-Bit	16-CH 8-Bit	Y	5.0	2.1	—	40 DIP (P) 42 SDIP (B)	—	Now	Enhanced sync processor plus VESA DDC block	HC705BD7GRS/H
MC68HC05C8A	8K	176	—	—	16-Bit 1 IC, 1 OC	31	SCI SPI	—	—	Y	3.3, 5.0	4.0	C, V, M	40 DIP (P) 42 SDIP (B) 44 PLCC (FN) 44 QFP (FB)	705C8A	Now	KBI (8 pins), 1 high-current pin (20 mA)	HC05C8AGRS/D
MC68HC705C8A	—	304	8K	—	16-Bit 1 IC, 1 OC	31	SCI SPI	—	—	Y	3.3, 5.0	4.0	C, V, M	40 DIP (P) 40 CDIP (S) 42 SDIP (B) 44 PLCC (FN) 44 QFP (FB) 44 CLCC (FS)	—	Now	KBI (8 pins), 1 high-current pin (20 mA), high-speed option (4-MHz bus) available as MC68HSC705C8A	MC68HC705C8A/D
MC68HC05C9A	16K	352	—	—	16-Bit IC, 1 OC	31	SCI SPI	—	—	Y	3.3, 5.0	4.0	C, V, M	40 DIP (P) 42 SDIP (B) 44 PLCC (FN) 44 QFP (FB)	705C9A	Now	KBI (8 pins), 1 high-current pin (20 mA)	HC05C9AGRS/D
MC68HC705C9A	—	352	16K	—	16-Bit 1 IC, 1 OC	31	SCI SPI	—	—	Y	3.3, 5.0	2.1	C	40 DIP (P) 40 CDIP (S) 42 SDIP (B) 44 PLCC (FN) 44 CLCC (FS) 44 QFP (FB)	—	Now	KBI (8 pins), 1 high-current pin (20 mA)	HC705C9AGRS/D

68HC05 Family

68HC05 Family (Sheet 2 of 4)

Device	ROM (Bytes)	RAM (Bytes)	EPROM/OTP (Bytes)	EEPROM (Bytes)	Timer	I/O	Serial	A/D	PWM	COP	Operating Voltage (V)	Max Bus Frequency (MHz)	Temp.	Package Option	OTP	Avail.	Comments	Documentation
MC68HC05D32	32K	352	—	—	16-Bit 1 IC, 1 OC	31	SCI	—	5-CH 6-Bit	Y	3.3, 5.0	2.1	C	40 DIP (P) 44 PLCC (FN)	705D32A	Now	24 mA port driver	MC68HC05D9/D
XC68HC705D32A	—	352	32K	—	16-Bit 1 IC, 1 OC	31	SCI	—	5-CH 6-Bit	Y	3.3, 5.0	2.1	C	40 DIP (P) 40 CDIP (S) 44 PLCC (FN) 44 CLCC (FS)	—	LTD	24 mA port driver	MC68HC05D9/D
XC68HC705F32	—	920	32K	256	16-Bit 4 IC, 4 OC, MFT, RTI	Up to 80	SCI SPI	8-CH 8-Bit	3-CH 8-Bit	Y	3.0, 5.0	2.1	—	100 LQFP (PU) 80 QFP (FU)	—	Now	DTMF, LCD (4 x 40), KBI (8 pins)	MC68HC05F32/D
MC68HC05J1A	1.2K	64	—	—	MFT, RTI	14	—	—	—	Y	2.0, 3.3, 5.0	4.0	C, V	20 DIP (P) 20 SOIC (DW)	705J1A	Now	KBI (4 pins), mask selectable pulldowns, 4 high-current pins (8 mA)	MC68HC05J1A/D MC68HC05J1AAD/D
MC68HC705J1A	—	64	1.2K	—	MFT, RTI	14	—	—	—	Y	3.3, 5.0	4.0	C, V	20 DIP (P) 20 CDIP (S) 20 SOIC (DW)	—	Now	KBI (4 pins), programmable pulldowns, 4 high-current pins (8 mA), RC option available as MC68HRC705J1A, high- speed option available as MC68HSC705J1A	MC68HC705J1A/D
MC68HC05J5A	2.5K	128	—	—	16-Bit 1 IC, MFT, RTI	14	—	—	—	Y	2.2, 5.0	2.1	—	20 DIP (P) 20 SOIC (DW) 16 DIP (JP) 16 SOIC (JDW)	705J5A	Now	2 high-current pins (25mA), LVR, RC option available	HC05J5AGRS/H
MC68HC705J5A	—	128	2.5K	—	16-Bit 1 IC, MFT, RTI	14	—	—	—	Y	5.0	2.1	—	20 DIP (P) 20 SOIC (DW) 16 DIP (JP)	—	Q2 '99	2 high-current pins (25mA), LVR, RC option available	HC05J5AGRS/H
MC68HC05JB3	2.5K	144	—	—	16-Bit 1 IC, 1 OC, MFT, RTI	19	USB	—	—	Y	5.0	3.0	—	20 DIP (JP) 20 SOIC (JDW) 28 DIP (P) 28 SOIC (DW)	705JB3	Q2 '99	1.5 mbs USB with 3 end- points, low-voltage reset, keyboard interrupt, 3.3 V bandgap reference	HC05JB3GRS/H
XC68HC705JB3	—	144	2.5K	—	16-Bit 1 IC, 1 OC, MFT, RTI	19	USB	—	—	Y	5.0	3.0	0–40 °C only	20 DIP (JP) 28 DIP (P) 28 SOIC (DW)	—	Q2 '99	1.5 mbs USB with 3 end- points, low-voltage reset, keyboard interrupt, 3.3 V bandgap reference	HC05JB3GRS/H
MC68HC05JB4	3.5K	176	—	—	16-Bit 1 IC, 1 OC, MFT, RTI	19	USB	6-CH 8-Bit	—	Y	5.0	3.0	—	28 DIP (P) 28 SOIC (DW)	705JB4	Now	1.5 mbs USB with 3 end- points, low-voltage reset, keyboard interrupt, 3.3 V bandgap reference	HC05JB4GRS/H
MC68HC705JB4	—	176	3.5K	—	16-Bit 1 IC, 1 OC, MFT, RTI	19	USB	6-CH 8-Bit	—	Y	5.0	3.0	0–40 °C only	28 DIP (P) 28 SOIC (DW) 28 CDIP (S)	—	Now	1.5 mbs USB with 3 end- points, low-voltage reset, keyboard interrupt, 3.3 V bandgap reference	HC05JB4GRS/H
MC68HC05JJ6	6K	224	—	—	16-Bit 1 IC, 1 OC, MFT, RTI	14	SIOP	4-CH 12-Bit	—	Y	3.3, 5.0	2.1	C	20 DIP (P) 20 SOIC (DW)	705JJ7	Now	2 voltage comparators used as single slope A/D, KBI (8 pins), 6 high-current pins (10 mA), mask selectable pulldowns, LVR	HC05JJ6GRS/D
XC68HC705JJ7	—	224	6K+ 64 Bit PEP	—	16-Bit 1 IC, 1 OC, MFT, RT	14	SIOP	4-CH 12-Bit	—	Y	3.3, 5.0	2.1	C	20 DIP (P) 20 SOIC (DW) 20 CDIP (S)	—	Now	2 voltage comparators used as single slope A/D, KBI (8 pins), 6 high-current pins (10 mA), programmable pulldowns, LVR	HC705JJ7GRS/D

68HC05 Family (Sheet 3 of 4)

Device	ROM (Bytes)	RAM (Bytes)	EPROM/OTP (Bytes)	EEPROM (Bytes)	Timer	I/O	Serial	A/D	PWM	COP	Operating Voltage (V)	Max Bus Frequency (MHz)	Temp.	Package Option	OTP	Avail.	Comments	Documentation
MC68HC05JP6	6K	224	—	—	16-Bit 1 IC, 1 OC, MFT, RT	22	SIOP	4-CH 12-Bit	—	Y	3.3, 5.0	2.1	C	28 DIP (P) 28 SOIC (DW)	705JP7	Now	2 voltage comparators used as single slope A/D, KBI (8 pins), 6 high-current pins (10 mA), mask selectable pull-downs, LVR	HC05JJ6GRS/D
XC68HC705JP7	—	224	6K + 64 Bit PEP	—	16-Bit 1 IC, 1 OC, MFT, RTI	22	SIOP	4-CH 12-Bit	—	Y	3.3, 5.0	2.1	C	28 DIP (P) 28 SOIC (DW) 28 CDIP (S)	—	Now	2 voltage comparators used as single slope A/D, KBI (8 pins), 6 high-current pins (10 mA), programmable pull-downs, LVR	HC705JJ7GRS/D
MC68HC05K0	0.5K	32	—	—	MFT, RTI	10	—	—	—	Y	2.1, 3.0, 3.3, 5.0	4.0	C	16 DIP (P) 16 SOIC (DW)	705K1 805K3	Now		MC68HC05K1/D
MC68HC05K3	0.9K	64	—	16 PEEP	MFT, RTI	10	—	—	—	Y	3.3, 5.0	2.1	C	16 DIP (P) 16 SOIC (DW) 20 SSOP (SD)	805K3	Now	Personality EEPROM, RTI, KBI	MC68HC05K3/D
XC68HC805K3	—	64	—	920 + 16 PEEP	MFT, RTI	10	—	—	—	Y	3.3, 5.0	2.1	C	16 DIP (P) 16 SOIC (DW)	—	Now	KBI, programmable pull-downs, 4 high-current pins	HC805K3GRS/D
MC68HC705KJ1	—	64	1.2K	—	MFT, RTI	10	—	—	—	Y	3.3, 5.0	4.0	C	16 DIP (P) 16 SOIC (DW) 16 CDIP (S)	—	Now	KBI (4 pins), programmable pull-downs (10 pins), 4 high-current pins (10 mA). RC option available as MC68HRC705KJ1. High-speed standard. 32 kHz low-power version available as MC68HLC705KJ1.	MC68HC705KJ1/D
MC68HC05L5	8K	256	—	—	16-Bit 1 IC, 1 OC, 8-Bit 1 IC, 1 OC, RTI	39	SIOP	—	—	—	3.3, 5.0	2.1	C	80 QFP (FU)	705L16	Now	LCD with 4x39 segments, KBI (8 pins), dual oscillators, 8 high-current pins, programmable pullups, open drain	HC05L5GRS/D
MC68HC05L16	16K	512	—	—	16-Bit 1 IC, 1 OC, 8-Bit 1 IC, 1 OC, RTI	39	SIOP	—	—	—	2.2, 3.3, 5.0	2.1	C	80 QFP (FU)	705L16	Now	LCD with 4x39 segments, KBI (8 pins), dual oscillators, 8 high-current pins, programmable pullups, open drain	HC05L16GRS/D
MC68HC705L16	—	512	16K	—	16-Bit 1 IC, 1 OC, 8-Bit 1 IC, 1 OC, RTI	39	SIOP	—	—	—	3.3, 5.0	2.1	C	80 QFP (FU)	—	Now	LCD with 4x39 segments, KBI (8 pins), dual oscillators, 8 high-current pins, programmable pullups, open drain	HC05L16GRS/D
MC68HC05L25	6K	176	—	—	16-Bit Event, Timebase	20	SPI	2-CH 8-Bit	—	Y	3.3, 5.0	2.1	C	52 LQFP (FU)	705L26	Now	24x4 or 25x3 LCD	HC05L25GRS/D
MC68HC05LJ5	1.2K	64	—	—	MFT, RTI	14	—	—	—	Y	5.0	2.1	—	16 DIP (P)	705J5A	Q2 '99	RC option available	HC05LJ5GRS/H
MC68HC05P1A	2K	128	—	—	16-Bit 1 IC, 1 OC	21	—	—	—	Y	3.3, 5.0	2.1	C, V	28 DIP (P) 28 SOIC (DW)	705P6A	Now	KBI (8 pins), pullups, 2 high-current pins (15 mA)	HC05P1AGRS/D
MC68HC05P4A	4K	176	—	—	16-Bit 1 IC, 1 OC	21	SIOP	—	—	Y	3.3, 5.0	2.1	C, V	28 DIP (P) 28 SOIC (DW)	705P6A	Now	Keyboard interrupt, 2 high-current pins	HC05P4AGRS/D
MC68HC05P6	4.5K	176	—	—	16-Bit 1 IC, 1 OC	21	SIOP	4-CH 8-Bit	—	Y	3.3, 5.0	2.1	C, V, M	28 DIP (P) 28 SOIC (DW)	705P6A	Now		MC68HC05P6/D MC68HC05P6AD/D

68HC05 Family

68HC05 Family (Sheet 4 of 4)

Device	ROM (Bytes)	RAM (Bytes)	EPROM/OTP (Bytes)	EEPROM (Bytes)	Timer	I/O	Serial	A/D	PWM	COP	Operating Voltage (V)	Max Bus Frequency (MHz)	Temp.	Package Option	OTP	Avail.	Comments	Documentation
MC68HC705P6A	—	176	4.5K	—	16-Bit 1 IC, 1 OC	21	SIOP	4-CH 8-Bit	—	Y	3.3, 5.0	2.1	C	28 DIP (P) 28 SOIC (DW) 28 CDIP (S)	—	Now	KBI (8 pins), 2 high-current pins (15 mA). Umbrella OTP for P1A, P4A, P6, and P9A	HC705P6AGRS/D
MC68HC05PL4/B	4K	256	—	—	16-Bit 1 IC, 1 OC, 8-Bit	23	—	—	—	Y	2.0, 4.0	2.5	—	28 DIP (P) 28 SOIC (DW)	705PL4/B	Now	DTMF, 6-bit D/A (true D/A not PWM) RC option, KBI	HC05PL4GRS/H
MC68HC705PL4/B	—	256	4K	—	16-Bit 1 IC, 1 OC, 8-Bit	23	—	—	—	Y	4.0	2.5	—	28 DIP (P) 28 SOIC (DW) 28 CDIP (S)	—	LTD	DTMF, 6-bit D/A (true D/A not PWM) RC option, KBI	HC05PL4GRS/H
MC68HC05RC9	8K	352	—	—	I. R. Timer	20	—	—	—	Y	2.2, 5.0	2.1	—	28 DIP (P) 28 SOIC (DW) 44 PLCC (FN)	705RC16	Now	Special timer for remote control, supports PLM, FSK protocol. 705RC16 has different pullups	HC05RC18GRS/D
MC68HC05RC18	16K	352	—	—	I. R. Timer	20	—	—	—	Y	2.2, 5.0	2.1	—	28 DIP (P) 28 SOIC (DW) 44 PLCC (FN)	705RC16	Now	Special timer for remote control, supports PLM, FSK protocol. 705RC16 has different pullups	HC05RC18GRS/D
XC68HC705RC16	—	350	16K	—	I. R. Timer	20	—	—	—	Y	3.3, 5.0	2.1	—	28 DIP (P) 28 SOIC (DW)	—	Now	Special timer for remote control, supports PLM, FSK protocol. 705RC16 has different pullups than 05RC9/18	HC705RC16GRS/D
MC68HC05SR3	3.75K	192	—	—	8-Bit	32	—	4-CH 8-Bit	—	—	3.3, 5.0	2.1	—	40 DIP (P) 44 QFP (FB) 42 SDIP (B)	705SR3	Now	LED drive, LVR, KBI	MC68HC05SR3D/H
MC68HC705SR3	—	192	3.75K	—	8-Bit	32	—	4-CH 8-Bit	—	—	3.3, 5.0	2.1	—	40 DIP (P) 40 CDIP (S) 44 QFP (FB) 42 SDIP (B)	—	Now	LED drive, KBI, LVR. OTP For Both HC05SU3A & HC05SR3	MC68HC05SR3D/H
MC68HC05SU3A	3.75K	192	—	—	8-Bit	32	—	—	—	—	5.0	2.1	—	40 DIP (P)	705SR3	Now	Keyboard interrupt LED drive	MC68HC05SU3A/H
MC68HC05X4	4K	176	—	—	16-Bit 1 IC, 1 OC, MFT, RTI	16	CAN	—	—	Y	5.0	2.1	C	28 SOIC (DW)	705X4 (limited)	Now	CAN 2.0A (not B)	MC68HC05X4/D
MC68HC05X32	32K	528	—	256	16-Bit 2 IC, 2 OC	32	SCI CAN	8-CH 8-Bit	2-CH 8-Bit	Y	5.0	2.1	C, M	64 QFP (FU)	705X32	Now	4 MHz bus speed available	MC68HC05X16/D
MC68HC705X32	—	528	32K	256	16-Bit 2 IC, 2 OC	32	SCI CAN	8-CH 8-Bit	2-CH 8-Bit	Y	5.0	4.0	C, V, M	64 QFP (FU)	—	Now	CAN 2.0A (not B)	MC68HC05X16/D

68HC05 Reference Manuals

M68HC05AG/AD

Applications Guide

M68HC05TB/D

Understanding Small Microcontrollers Text Book

68HC08 Family

Device	ROM (Bytes)	RAM (Bytes)	FLASH or OTP (Bytes)	EEPROM (Bytes)	Timer	I/O	Serial	A/D	PWM	COP	Operating Voltage (V)	Max. Bus Freq. (MHz)	Temp.	Package Option	OTP or FLASH	Avail.	Comments	Documentation
MC68HC908AS60	—	2K	60K FLASH	1K	6-CH + 2-CH 16-Bit IC, OC, or PWM	45/50	SCI SPI	15-CH 8-Bit	See Timer	Y	5.0	8.0	C, V, M	52 PLCC (FN) 64 QFP (FU)	—	Now	J1850 (BLDC-D) controller	MC68HC908AS60/D
XC68HC08AZ0	—	1K	—	512	4-CH + 2-CH 16-Bit IC, OC, or PWM	48	SCI SPI	8-CH 8-Bit	See Timer	Y	5.0	8.0	C	100 LQFP (PU)	—	LTD	CAN 2.0A & 2.0B, external address/data bus, chip selects	HC08AZ32TS/D
XC68HC08AZ32	32K	1K	—	512	4-CH + 2-CH 16-Bit IC, OC, or PWM	48	SCI SPI	8-CH 8-Bit	See Timer	Y	5.0	8.0	—	64 QFP (FU)	908AZ60 (limited)	LTD	CAN 2.0A & 2.0B	HC08AZ32TS/D
MC68HC908AZ60	—	2K	60K FLASH	1K	6-CH + 2-CH 16-Bit IC, OC, or PWM	48	SCI SPI	15-CH 8-Bit	See Timer	Y	5.0	8.0	C, V, M	64 QFP (FU)	—	Now	CAN 2.0A & 2.0B	HC908AZ60GRS/D
XC68HC908GP20	—	512	20K FLASH	—	Dual 2-CH 16-Bit IC, OC, or PWM	33	SCI SPI	8-CH 8-Bit	See Timer	Y	3.0, 5.0	8.0	C	40 DIP (P) 44 QFP (FB)	—	Now	32kHz PLL, timebase module, low-voltage inhibit w/ selectable trip points.	MC68HC908GP20/D
MC68HC908GP32	—	512	32K FLASH	—	Dual 2-CH 16-Bit IC, OC, or PWM	33	SCI SPI	8-CH 8-Bit	See Timer	Y	3.0, 5.0	8.0	C	40 DIP (P) 44 QFP (FB) 42 SDIP (B)	—	Now	32 kHz PLL, timebase module, low-voltage inhibit with selectable trip points Sample pack part numbers: KMC908GP32CFB, KMC908GP32CP	MC68HC908GP32/H
MC68HC908JL3	—	128	4K FLASH	—	2-CH 16-Bit IC, OC, or PWM	23	—	12-CH 8-Bit	See Timer	Y	3.0, 5.0	8.0	C, M	28 DIP (P) 28 SOIC (DW)	—	Now	RC oscillator option, LVR with selectable trip points, 6 pin LED drive Sample pack part numbers: KMC908JL3CP, KMC908JL3CDW, KMCR908JL3CP, KMCR908JL3CDW	MC68HC08JL3/H
MC68HC908JK1	—	128	1.5 K FLASH	—	2-CH 16-Bit IC, OC, or PWM	15	—	10-CH 8-Bit	See Timer	Y	3.0, 5.0	8.0	C	20 DIP (P) 20 SOIC (DW)	—	Now	RC oscillator option, LVR with selectable trip points, 6 pin LED drive	MC68HC08JL3/H
MC68HC908JK3	—	128	4K FLASH	—	2-CH 16-Bit IC, OC, or PWM	15	—	10-CH 8-Bit	See Timer	Y	3.0, 5.0	8.0	C, M	20 DIP (P) 20 SOIC (DW)	—	Now	RC oscillator option, LVR with selectable trip points, 6 pin LED drive Sample pack part numbers: KMC908JK3CP, KMC908JK3CDW, KMCR908JK3CP, KMCR908JK3CDW	MC68HC08JL3/H
XC68HC08LN56	56K	1280 + 160 LCD	—	—	4-CH 16-Bit IC, OC, or PWM	42	SCI SPI	4-CH 8-Bit	See Timer	Y	3.3, 5.0	8.0	—	144 LQFP (PV)	708LN56 (limited)	LTD	LCD 40 x 32, LVR, 32kHz PLL, timebase module	HC08LN56GRS/D
XC68HC708MP16	—	512	16K OTP	—	4-CH + 2-CH 16-Bit IC, OC, or PWM	44	SCI SPI	10-CH 8-Bit	See Timer + 6-CH 12-Bit	Y	5.0	8.0	C, V, M	64 QFP (FU)	—	See comments	Limited availability. Will be replaced by 68HC908MR24	HC708MP16GRS/D
XC68HC908MR24	—	768	24K FLASH	—	4-CH + 2-CH 16-Bit IC, OC, or PWM	44	SCI SPI	10-CH 10 Bit	See Timer + 6-CH 12-Bit	Y	5.0	8.0	C, V	64 QFP (FU)	—	LTD	PWM for 3 phase motor control. Will replace 68HC708MP16.	HC908MR24GRS/D

68HC08 Reference Manuals

CPU08RM/AD
TIM08RM/AD

CPU Reference Manual
Timer Reference Manual

68HC11 Family (Sheet 1 of 2)

Device	ROM (Bytes)	RAM (Bytes)	EPROM/OTP (Bytes)	EEPROM (Bytes)	Timer ¹	I/O S.C.	I/O EXP	Serial	A/D	PWM	Operating Voltage (V)	Max Bus Frequency (MHz)	Temp.	Package Options	OTP	Avail.	Comments	Documentation
MC68HC11D0	—	192	—	—	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	—	16	SCI SPI	—	—	3.0, 5.0	3	C, V, M	40 PDIP (P) 44 QFP (FB) 44 PLCC (FN)	—	Now	64K external address bus, 3V 2MHz version (MC68L11D0)	MC68HC11D3/D
MC68HC11D3	4K	192	—	—	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	32	16	SCI SPI	—	—	3.0, 5.0	3	C, V, M	40 PDIP (P) 44 QFP (FB) 44 PLCC (FN)	711D3	Now	64K external address bus, 3V 2MHz version (MC68L11D3)	MC68HC11D3/D
MC68HC711D3	—	192	4K	—	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	32	16	SCI SPI	—	—	5	3	C, V, M	40 PDIP (P) 44 QFP (FB) 44 PLCC (FN) 44 CLCC (FS) 40 CDIP (S)	—	Now	64K external address bus, 3MHz available in C temperature range only	MC68HC711D3/D
MC68HC11E0	—	512	—	—	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	—	22	SCI SPI	8-CH 8-Bit	—	3.0, 5.0	3	C, V, M	52 PLCC (FN) 64 QFP (FU) 52 LQFP (PB) 48 DIP (P)	711E9	Now	3V 2MHz version (MC68L11E0)	MC68HC11E/D
MC68HC11E1	—	512	—	512	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	—	22	SCI SPI	8-CH 8-Bit	—	3.0, 5.0	3	C, V, M	52 PLCC (FN) 64 QFP (FU) 52 LQFP (PB) 48 DIP (P)	711E9	Now	3V 2MHz version (MC68L11E1)	MC68HC11E/D
MC68HC811E2	—	256	—	2048	16-Bit, 3IC, 4OC, RTI, pulse accumulator	38	22	SCI SPI	8-CH 8-Bit	—	5	2	C, V, M	52 PLCC (FN) 48 DIP (P)	—	Now	Secure device available (MC68SEC811E2FN), EEPROM block protect	MC68HC11E/D
MC68HC11E20	20K	768	—	512	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	38	22	SCI SPI	8-CH 8-Bit	—	5	3	C, V, M	52 PLCC (FN) 64 QFP (FU)	711E20	Now	Enhanced baud rate for 3MHz operation	MC68HC11E/D
MC68HC711E20	—	768	20K	512	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	38	22	SCI SPI	8-CH 8-Bit	—	5	4	C, V, M	52 PLCC (FN) 52 CLCC (FS) 64 QFP (FU)	—	Now	Enhanced baud rate for 3MHz operation.	MC68HC11E/D
MC68HC11E9	12K	512	—	512	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	38	22	SCI SPI	8-CH 8-Bit	—	3.0, 5.0	3	C, V, M	52 PLCC (FN) 64 QFP (FU) 52 LQFP (FB) 48 DIP (P)	711E9	Now	3V 2MHz version (MC68L11E9).	MC68HC11E/D
MC68HC711E9	—	512	12K	512	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	38	22	SCI SPI	8-CH 8-Bit	—	5.0	3	C, V, M	52 PLCC (FN) 52 CLCC (FS) 64 QFP (FU)	—	Now	EEPROM block protect Secure version (MC68S711E9).	MC68HC11E/D
MC68HC11F1	—	1K	—	512	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	—	30	SCI SPI	8-CH 8-Bit	—	3.0, 5.0	5	C, V, M	68 PLCC (FN) 80 LQFP (PU)	—	Now	64K ext.addr.bus, 4 prog.chip sel, Non-mux address/data bus, 3V 3MHz version (MC68L11F1)	MC68HC11F1/D

1. All 68HC11 MCUs incorporate a COP watchdog timer

68HC11 Family (Sheet 2 of 2)

Device	ROM (Bytes)	RAM (Bytes)	EPROM/OTP (Bytes)	EEPROM (Bytes)	Timer ¹	I/O S.C.	I/O EXP	Serial	A/D	PWM	Operating Voltage (V)	Max Bus Frequency (MHz)	Temp.	Package Options	OTP	Avail.	Comments	Documentation
MC68HC11K0	—	768	—	—	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	—	37	SCI+ SPI	8-CH 8-Bit	4-CH 8-Bit or 2-CH 16-Bit	3.0, 5.0	3, 5	C, V, M	84 PLCC (FN) 80 QFP (FU)	—	Now	Non-mux bus, extended memory map, 4 chip selects, 3V 3MHz version (MC68L11K0)	MC68HC11K4/D
MC68HC11K1	—	768	—	640	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	—	37	SCI+ SPI	8-CH 8-Bit	4-CH 8-Bit or 2-CH 16-Bit	3.0, 5.0	5	C, V, M	84 PLCC (FN) 80 QFP (FU)	—	Now	Non-mux bus, extended memory map, 4 chip selects, 3V 3MHz version (MC68L11K1)	MC68HC11K4/D
MC68HC11K4	24K	768	—	640	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	62	37	SCI+ SPI	8-CH 8-Bit	4-CH 8-Bit or 2-CH 16-Bit	3.0, 5.0	5	C, V, M	84 PLCC (FN) 80 QFP (FU)	711K4 (limited)	Now	Non-mux bus, extended memory map, 4 chip selects, 3V 3MHz version (MC68L11K4)	MC68HC11K4/D
MC68HC11KS2	32K	1K	—	640	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	51	26	SCI+ SPI	8-CH 8-Bit	4-CH 8-Bit or 2-CH 16-Bit	5	4	C, V, M	68 PLCC (FN) 80 LQFP (PU)	711KS2	Now	4MHz non-mux bus, slow mode feature, security option available	MC68HC11K/D
MC68HC711KS2	—	1K	32K	640	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	51	26	SCI+ SPI	8-CH 8-Bit	4-CH 8-Bit or 2-CH 16-Bit	5	4	C, V, M	68 PLCC (FN) 80 LQFP (PU) 68 CLCC (FS)	—	Now	4MHz non-mux bus, slow mode feature, security option available	MC68HC11K/D
MC68HC11KW1	—	768	—	640	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	—	55	SCI+ SPI	10-CH 10-Bit	4-CH 8-Bit or 2-CH 16-Bit	5	4	C	100 LQFP (PU)	—	Now	4MHz non-mux bus, 2 extra timers, 4 chip selects extended, memory map up to 1Mbyte	MC68HC11KW1/D
MC68HC11P1	—	1K	—	640	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	62	37	Triple SCI SPI	8-CH 8-Bit	4-CH 8-Bit or 2-CH 16-Bit	5	4	C	84 PLCC (FN)	711P2 (limited)	Now	64K external address bus, MI-bus interface, PLL clock circuitry	MC68HC11P2/D
MC68HC11P2	32K	1K	—	640	16-Bit, 3/4IC, 4/5OC, RTI, pulse accumulator	62	37	Triple SCI SPI	8-CH 8-Bit	4-CH 8-Bit or 2-CH 16-Bit	5	4	C	84 PLCC (FN)	711P2 (limited)	Now	64K external address bus, MI-bus interface, PLL clock circuitry	MC68HC11P2/D

1. All 68HC11 MCUs incorporate a COP watchdog timer

68HC11 Reference Manual

68HC11 Reference Manual M68HC11RM/AD

68HC12 Family

68HC12 Family

Device	ROM (Bytes)	RAM (Bytes)	EEPROM (Bytes)	FLASH (Bytes)	Timer ¹	I/O	Serial	A/D	PWM	Operating Voltage (V)	Max Bus Frequency (MHz)	Temp.	Package Options	Avail.	Comments	Documentation
XC68HC12A0	—	1K	—	—	8-CH 16-Bit IC or OC RTI, pulse accumulator	Up to 61	Dual SCI SPI	8-CH 8-Bit	—	3.3, 5	8	C	112 LQFP (PV)	Now	Same as 68HC812A4 without EEPROM. Non-muxed bus, 7 programmable chip selects, KBI (24 pins), PLL, BDM, 5Mbyte external memory, 3.0–3.6V 5MHz version (XC68C12A0)	MC68HC812A4/D
XC68HC812A4	—	1K	4K	—	8-CH 16-Bit IC or OC RTI, pulse accumulator	Up to 91	Dual SCI SPI	8-CH 8-Bit	—	3.3, 5	8 5	C	112 LQFP (PV)	Now	Non-muxed bus, 7 programmable chip selects, KBI (24 pins), PLL, BDM, 5Mbyte external memory, 3.0–3.6V 5MHz version (XC68C812A4).	MC68HC812A4/D
XC68HC912B32	—	1K	768	32K	8-CH 16-Bit IC or OC RTI, pulse accumulator	Up to 63	SCI, SPI J1850	8-CH 8-Bit	4-CH 8-Bit or 2-CH 16-Bit	5	8	C	80 QFP (FU)	Now	J1850, muxed bus, BDM	MC68HC912B32/D
PC68HC912BC32	—	1K	768	32K	8-CH 16-Bit IC or OC RTI, pulse accumulator	Up to 63	SCI, SPI CAN	8-CH 10-Bit	4-CH 8-Bit or 2-CH 16-Bit	5	8	C	80 QFP (FU)	LTD	Limited availability until 1Q 2000, MSCAN CAN 2.0A and 2.0B, BDM	MC68HC912BC32TS/D
XC68HC12BE32	32K	1K	768	—	8-CH 16-Bit IC or OC RTI, pulse accumulator	Up to 63	SCI, SPI J1850	8-CH 8-Bit	4-CH 8-Bit or 2-CH 16-Bit	5	8	C	80 QFP (FU)	Now	BDM, enhanced timer	MC68HC912B32/D

1. All 68HC12 MCUs incorporate a COP watchdog timer

68HC12 Reference Manual

68HC12 Reference Manual

CPU12RM/AD

68HC16 Family

Device	ROM (Bytes)	RAM (Bytes)	FLASH (Bytes)	Device Integration	Timer	Serial	Analog	Operating Voltage (V)	Operating Frequency (MHz)	Temp.	Package Options	FLASH	Avail.	Comments	Documentation
MC68HC16R1	48K	2K	—	SCIM2	CTM7	Dual SCI, SPI	8-CH 10-Bit	5.0	16	C,V,M	132 PQFP(FC)	HC916R1	Now		MC68HC16R1PP/D (MC68HC16R1/916R1UM/AD on web only)
MC68HC916R1	—	2K	48K+2K	SCIM2	CTM7	Dual SCI, SPI	8-CH 10-Bit	5.0	16	C	132 PQFP(FC)	—	Now		MC68HC16R1PP/D (MC68HC16R1/916R1UM/AD on web only)
68HC916X1 (XCM916X1)	—	2K	48K+2K	SCIM	GPT	SCI, queued SPI	6-CH 10-Bit	5.0	16	C	120 QFP(TH)	—	Now		MC68HC916X1TS/D
MC68HC16Y1	48K	2K	—	SCIM	GPT, TPU	Dual SCI, SPI	8-CH 10-Bit	5.0	16	C,V,M	160 QFP(FT)	HC916Y1	Now		MC68HC16Y1UM/AD
68HC916Y1 (XCM916Y1)	—	2K+2K	48K+2K	SCIM	GPT, TPU	Dual SCI, SPI	8-CH 10-Bit	5.0	16	C	160 QFP(FT)	—	Now		MC68HC16Y1UM/AD
MC68HC16Y3	96K	4K	—	SCIM2	GPT, TPU2	Dual SCI, queued SPI	8-CH 10-Bit	5.0	16	C,V,M	160 QFP(FT)	HC916Y3	Now		MC68HC16Y3PP/D (MC68HC16Y3/916Y3UM/AD on web only)
MC68HC916Y3	—	4K	96K+4K	SCIM2	GPT, TPU2	Dual SCI, queued SPI	8-CH 10-Bit	5.0	16	C	160 QFP(FT)	—	Now		MC68HC916Y3PP/D (MC68HC16Y3/916Y3UM/AD on web only)
MC68HC16Z1	—	1K	—	SIM	GPT	SCI, queued SPI	8-CH 10-Bit	5.0	16, 20, 25	C,V,M	132 PQFP(FC) 144 LQFP(PV)	—	Now	2.7V–3.6V 16MHz version (MC68CK16Z1)	MC68HC16ZUM/AD
MC68HC16Z3	8K	4K	—	SIM	GPT	SCI, queued SPI	8-CH 10-Bit	5.0	16, 20, 25	C,V,M	132 PQFP(FC)	—	Now		MC68HC16ZUM/AD
MC68HC16Z4	—	1K	—	SIML	GPT	Dual SCI, SPI	8-CH 10-Bit	5.0	16	C	144 LQFP(PV)	—	Now	2.7V–3.6V 16MHz version (MC68CK16Z4)	MC68HC16ZUM/AD

68HC16 Reference Manuals

CPU16RM/AD	68HC16 CPU Reference Manual
SIMRM/AD	System Integration Module Reference Manual
TPURM/AD	TPU Reference Manual
GPTRM/AD	General-Purpose Timer Reference Manual
QSMRM/AD	Queued Serial Module Reference Manual
ADCRM/AD	Analog-to-Digital Reference Manual
CTMRM/D	Configurable Timer Reference Manual
MCCIRM/AD	Multi-Channel Communication Interface Reference Manual
SCIMRM/AD	Single-Chip Integration Module Reference Manual

683XX Family

Device	ROM (Bytes)	RAM (Bytes)	FLASH (Bytes)	Device Integration	Timer	Serial	A/D	Operating Voltage (V)	Operating Frequency (MHz)	Temp.	Package Options	Avail.	Comments	Documentation
MC68331	—	—	—	SIM	GPT	SCI, queued SPI	—	5.0	16, 20, 25	C,V,M	132 PQFP 144 LQFP	Now	2.7V–3.6V 16MHz version (MC68CK331)	MC68331UM/AD MC68CK331EC16/D
MC68332	—	2K	—	SIM	TPU	SCI, queued SPI	—	5.0	16, 20, 25	C,V,M	132 PQFP 144 LQFP	Now	3.0V–3.6V 16MHz version (MC68LK332)	MC68332UM/AD MC68LK332EC16/D
MC68336	—	4K+3.5K	—	SIM	TPU CTM4	SCI, queued SPI	Queued 16-CH 10-Bit	5.0	20, 25	V,M	160 QFP	Now		MC68336/376PP/D MC68336/376UM/AD
MC68376	8K	4K+3.5K	—	SIM	TPU CTM4	TOUCAN, SCI, queued SPI	Queued 16-CH 10-Bit	5.0	20, 25	V,M	160 QFP	Now		MC68336/376PP/D MC68336/376UM/AD

683xx Reference Manuals

CPU32RM/AD	683xx CPU32 Reference Manual
SIMRM/AD	System Integration Module Reference Manual
TPURM/AD	TPU Reference Manual
GPTRM/AD	General-Purpose Timer Reference Manual
QSMRM/AD	Queued Serial Module Reference Manual
ADCRM/AD	Analog-to-Digital Reference Manual
CTMRM/D	Configurable Timer Reference Manual

M•CORE Family

Device	ROM (Bytes)	RAM (Bytes)	FLASH (Bytes)	Timer	PWM	Serial	A/D	Operating Voltage (V)	Operating Frequency (MHz)	Temp.	Package Options	Avail.	Comments	Documentation
MMC2001 (XMC2001)	256K	32K	—	Time-of-day, periodic interrupt timer, COP	6-CH 10-BIT	Dual UART Interval SPI	—	1.8–3.6	33	C	144 LQFP	Samples Now	ROM includes debugger, peripheral device drivers, and a monitor; external bus interface with 22 address/16 data and 4 chip selects, OnCE debug module, KBI (16 pins) Sample part number: SPXMC2001HDCPV16	MMC2001RM/D MCORERM/AD

— Definitions —

ADC — Analog-to-Digital Converter
BDM — Background Debug Mode
C — -40°C to +85°C Operating Temperature Range
CAN — Controller Area Network
CDIP — Ceramic Dual In-Line Package
CLCC — Ceramic Leaded Chip Carrier
COP — Computer Operating Properly (Watchdog Timer)
CTM — Configurable Timer Module (Various Hardware Options)
DIP — Dual In-line Package
DTMF — Dual-Tone Multi-Frequency
EBI — External Bus Interface
GPT — General-Purpose Timer Module (4 IC, 5 OC, 2 PWM)
IC — Input Capture
I²C — Inter-Integrated Circuit
i/o — Bidirectional Input and Output Port Pins
i — Input-Only Port Pins
ICG — Internal Clock Generator
ISPI — Interval Serial Peripheral Interface
KBI — Keyboard Interrupt
LCD — Liquid Crystal Display
LTD — Limited Availability
LQFP — Low-Profile Quad Flat Pack
LVI — Low-Voltage Inhibit
LVR — Low-Voltage Reset
M — -40°C to +125°C Operating Temperature Range
MC — Fully Qualified Production
MCCI — Multi-Channel Communication Interface (2 SCI, SPI)
MFT — Multi Function Timer
MUX — Multiplexed
o — Output-Only Port Pins
OC — Output Compare
PBGA — Plastic Ball Grid Array
PC — Pre-Qualification, Engineering Samples Only
PEEP — Personality EEPROM
PEP — Personality EPROM
PLCC — Plastic Leaded Chip Carrier
PLL — Phase-Locked Loop
PQFP — Plastic Quad Flat Pack

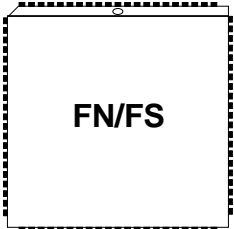
PWM — Pulse-Width Modulation
QADC — Queued Analog-to-Digital Converter (10-Bit)
QFP — Quad Flat Pack
QSM — Queued Serial Module (SCI + QSPI)
QSPI — Queued SPI
RTI — Real-Time Interrupt
SCI — Serial Communication Interface
SCI+ — Enhanced SCI
SCIM — Single-Chip Integration Module
SDIP — Shrink Dual In-line Package
SIM — System Integration Module
SIML — Low-Power System Integration Module
SIOP — Simple Serial I/O Port
SPI — Serial Peripheral Interface
SPI+ — Enhanced SPI
SRAM — Standby RAM Module
TPU — Time processor Unit (16 Programmable Channels)
TPURAM — Standby RAM Module with TPU Emulation Capability
UART — Universal Asynchronous Receiver/Transmitter
USB — Universal Serial Bus
V — -40°C to +105°C Operating Temperature Range
XC — Initial Production Qualification, Not Fully Characterized

— Package Designators —

B — Shrink DIP (70 mil spacing)
DW — Small Outline (Wide-Body SOIC)
FA — 7 x 7 mm Quad Flat Pack (QFP)
FB — 10 x 10 mm Quad Flat Pack (QFP)
FE — CQFP (windowed) — Samples Only
FN — Plastic Quad (PLCC)
FS — CLCC (windowed) — Samples Only
FT — 28 x 28 mm Quad Flat Pack (QFP)
FU — 14 x 14 mm Quad Flat Pack (QFP)
FZ — CQFP (windowed) — Samples Only
K — Cersdip (windowed) — Samples Only
L — Ceramic Sidebrazed
P — Dual in-Line Plastic
PU — 14 x 14 mm Low-Profile Quad Flat Pack (LQFP)
PV — 20 x 20 mm Low-Profile Quad Flat Pack (LQFP)
S — Cerdip (windowed) — Samples Only
ZP — Plastic Ball Grid Array (PBGA)

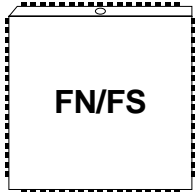
Package Options (Actual Size) Sheet 1 of 2

84-Lead PLCC/CLCC



50 mil/1.27 mm Pitch
1.15 in x 1.15 in Body

68-Lead PLCC/CLCC



50 mil/1.27 mm Pitch
0.950 in x 0.950 in Body

52-Lead PLCC/CLCC



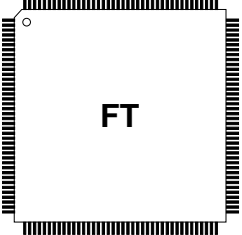
50 mil/1.27 mm Pitch
0.750 in x 0.750 in Body

44-Lead PLCC/CLCC



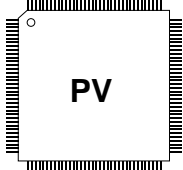
50 mil/1.27 mm Pitch
0.650 in x 0.650 in Body

160-Lead QFP



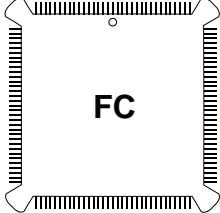
.65 mm Pitch
28 mm x 28 mm Body

144-Lead LQFP



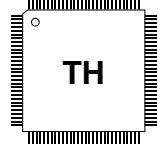
.5 mm Pitch
20 mm x 20 mm Body

132-Lead PQFP



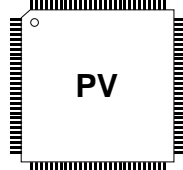
25 mil/06.35 mm Pitch
0.950 in x 0.950 in Body
(Nominal, w.o. Bumpers)

120-Lead QFP/LQFP



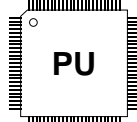
.5 mm Pitch
16 mm x 16 mm Body

112-Lead LQFP



.65 mm Pitch
20 mm x 20 mm Body

100-Lead LQFP



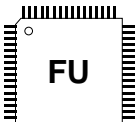
.5 mm Pitch
14 mm x 14 mm Body

80-Lead QFP/LQFP



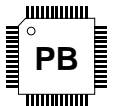
.65 mm Pitch
14 mm x 14 mm Body

64-Lead QFP



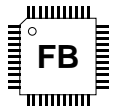
.8 mm Pitch
14 mm x 14 mm Body

52-Lead QFP



.65 mm Pitch
10 mm x 10 mm Body

44-Lead QFP



.8 mm Pitch
10 mm x 10 mm Body

32-Lead QFP



.8 mm Pitch
7 mm x 7 mm Body

28-Lead SOIC



50 mil/1.27 mm Pitch
18.0 mm x 7.5 mm Body

20-Lead SOIC



50 mil/1.27 mm Pitch
12.8 mm x 7.5 mm Body

16-Lead SOIC

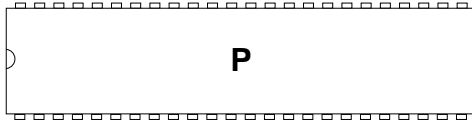


50 mil/1.27 mm Pitch
10.35 mm x 7.5 mm Body

Package Options (Actual Size)

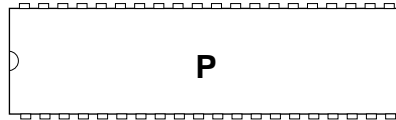
Sheet 2 of 2

48-Pin Plastic DIP



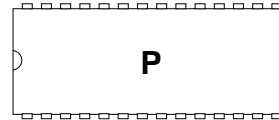
100 mil/2.54 mm Pitch
2.45 in x .55 in Body
(100 mil x 600 mil pin centers)

40-Pin Plastic DIP



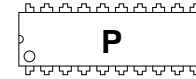
100 mil/2.54 mm Pitch
2.05 in x .55 in Body
(100 mil x 600 mil pin centers)

28-Pin DIP



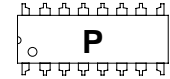
100 mil/2.54 mm Pitch
1.45 in x .55 in Body
(100 mil x 600 mil pin centers)

20-Pin Plastic DIP



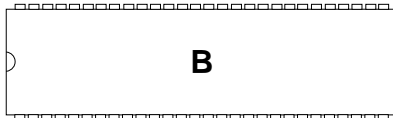
100 mil/2.54 mm Pitch
.97 in x .29 in Body
(100 mil x 300 mil pin centers)

16-Pin Plastic DIP



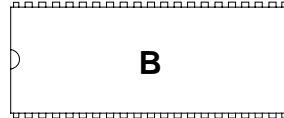
100 mil/2.54 mm Pitch
.75 in x .25 in Body
(100 mil x 300 mil pin centers)

56-Pin Plastic SDIP




70 mil/1.778 mm Pitch
2.05 in x .55 in Body
(70 mil x 600 mil pin centers)

42-Pin Plastic SDIP



70 mil/1.778 mm Pitch
1.45 in x .55 in Body
(70 mil x 600 mil pin centers)

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