

Memory Type	ROM Bytes	Data Flash Bytes	RAM Bytes	A/D	D/A	Serial Communication	Timers 8/16/32	GPIO	Operating Frequency/Supply Voltage	Temperature	Package	Digi-Key Part No.	1	Price Each 25	100
Flash	8K	2K	500	12-ch. 10-bit	—	2 USART, 1 SSU*, 1 I ² C	3/1/—	28	20MHz/2.2 - 5.5V	-40°C - 85°C -20°C - 85°C	32-LQFP 32-LQFP	R5F21272SDFF#U0-ND R5F21272SNFP#U0-ND	5.24 4.95	4.20 3.96	3.27 3.08
Flash	16K	2K	1K	12-ch. 10-bit	—	2 USART, 1 SSU*, 1 I ² C	3/1/—	28	20MHz/2.2 - 5.5V	-40°C - 85°C -20°C - 85°C	32-LQFP 32-LQFP	R5F21274SDFF#U0-ND R5F21274SNFP#U0-ND	5.56 5.24	4.45 4.20	3.46 3.27
Flash	24K	2K	1.5K	12-ch. 10-bit	—	2 USART, 1 SSU*, 1 I ² C	3/1/—	28	20MHz/2.2 - 5.5V	-40°C - 85°C -20°C - 85°C	32-LQFP 32-LQFP	R5F21275SDFF#U0-ND R5F21275SNFP#U0-ND	5.20 5.56	4.16 4.45	3.51 3.46
Flash	32K	2K	1.5K	12-ch. 10-bit	—	2 USART, 1 SSU*, 1 I ² C	3/1/—	28	20MHz/2.2 - 5.5V	-40°C - 85°C -20°C - 85°C	32-LQFP 32-LQFP	R5F21276SDFF#U0-ND R5F21276SNFP#U0-ND	5.46 5.20	4.37 4.16	3.69 3.51
Flash	8K	—	500	4-ch. 10-bit	—	2 USART, 1 SSU*, 1 I ² C	3/1/—	16	20MHz/2.2 - 5.5V	-40°C - 85°C	20-LSSOP	R5F21282SDSP#U0-ND	4.21	3.37	2.62
Flash	16K	—	1K	4-ch. 10-bit	—	2 USART, 1 SSU*, 1 I ² C	3/1/—	16	20MHz/2.2 - 5.5V	-40°C - 85°C	20-LSSOP	R5F21284SDSP#U0-ND	4.50	3.60	2.80
Flash	16K	2K	1K	4-ch. 10-bit	—	2 USART, 1 SSU*, 1 I ² C	3/1/—	16	20MHz/2.2 - 5.5V	-40°C - 85°C	20-LSSOP	R5F21294SDSP#U0-ND	4.95	3.96	3.08

◆ RoHS Compliant *SSU = SPI[®]

740 Family

Memory Type	ROM Bytes	Data Flash Bytes	RAM Bytes	A/D	D/A	Serial Communication	Timers 8/16/32	GPIO	Operating Frequency/Supply Voltage	Temperature	Package	Digi-Key Part No.	1	Price Each 25	100
Flash	36K	—	1K	8-ch. 10-bit	—	2 USART	2/2/—	29	8MHz/2.2 - 5.5V	-20°C - 85°C	36-SSOP	M37542F8FP#U0-ND	8.64	6.92	5.84
Flash	32K	—	1K	—	—	3 USART, 1 USB	3/2/—	66	24MHz/3 - 5.25V	-20°C - 70°C	80-LQFP	M37641F8HP#U0-ND	10.80	9.72	8.62
OTP	24K	—	512	8-ch. 8-bit	—	1 USART	3/2/—	38	8MHz/1.8 - 5.5V	-20°C - 85°C	64-LQFP	M38C13E6HP#U0-ND	6.80	5.44	4.59
Flash	60K	—	2K	8-ch. 10-bit	—	2 USART	4/2/—	51	8MHz/1.8 - 5.5V	-20°C - 85°C	64-LQFP	M38C29FFAFP#U0-ND	9.90	7.92	6.69
QzROM	16K	—	625	8-ch. 10-bit	—	2 USART	4/6/—	51	12.5MHz/1.8 - 5.5V	-20°C - 85°C	64-LQFP 64-LQFP	M38D24G4FP#U0-ND M38D24G4HP#U0-ND	4.79 4.79	3.84 3.84	2.99 2.99
QzROM	24K	—	625	8-ch. 10-bit	—	2 USART	4/2/—	51	12.5MHz/1.8 - 5.5V	-20°C - 85°C	64-LQFP 64-LQFP	M38D24G6FP#U0-ND M38D24G6HP#U0-ND	5.11 5.11	4.09 4.09	3.18 3.18
QzROM	32K	—	1.5K	8-ch. 10-bit	—	2 USART	4/2/—	59	12.5MHz/1.8 - 5.5V	-20°C - 85°C	80-QFP 80-LQFP	M38D58G8FP#U0-ND M38D58G8HP#U0-ND	5.34 5.34	4.28 4.28	3.61 3.61
QzROM	48K	—	2K	8-ch. 10-bit	—	2 USART	4/2/—	59	12.5MHz/1.8 - 5.5V	-20°C - 85°C	80-QFP 80-LQFP	M38D59G8FP#U0-ND M38D59G8HP#U0-ND	5.60 5.60	4.48 4.48	3.78 3.78
QzROM	60K	—	2K	8-ch. 10-bit	—	2 USART	4/2/—	59	12.5MHz/1.8 - 5.5V	-20°C - 85°C	80-QFP 80-LQFP	M38D59G9FP#U0-ND M38D59G9HP#U0-ND	5.84 5.84	4.68 4.68	3.95 3.95
Flash	32K	—	2K	8-ch. 10-bit	—	1 USART	3/—/—	44	8MHz/3.0 - 5.2V	-20°C - 85°C	64-LQFP	M38K29F8LHP#U0-ND	9.80	8.81	7.81
QzROM	60K	—	2K	16-ch. 10-bit	2-ch. 8-bit	3 USART	4/1/—	56	16MHz/2.7 - 5.5V	-20°C - 85°C	64-QFP	M38039FFHP#U0-ND	9.86	7.89	6.66
QzROM	48K	—	2K	16-ch. 10-bit	2-ch. 8-bit	3 USART	4/1/—	56	16.8MHz/2 - 5.5V	-20°C - 85°C	64-LQFP	M38039GCHHP#U0-ND	5.40	4.32	3.36
QzROM	16K	—	2K	16-ch. 10-bit	2-ch. 8-bit	3 USART	4/1/—	56	16.8MHz/2 - 5.5V	-20°C - 85°C	64-LQFP 64-SDIP	M38039G4HHP#U0-ND M38039G4HSP#U0-ND	3.96 5.51	3.17 4.41	2.47 3.43
QzROM	24K	—	2K	16-ch. 10-bit	2-ch. 8-bit	3 USART	4/1/—	56	16.8MHz/2 - 5.5V	-20°C - 85°C	64-LQFP 64-LQFP 64-SDIP	M38039G6HHP#U0-ND M38039G6HP#U0-ND M38039G6HSP#U0-ND	4.21 4.32 5.14	3.37 3.46 4.12	2.62 2.69 3.47
QzROM	32K	—	2K	16-ch. 10-bit	2-ch. 8-bit	3 USART	4/1/—	56	16.8MHz/2 - 5.5V	-20°C - 85°C	64-LQFP 64-LQFP 64-SDIP	M38039G8HHP#U0-ND M38039G8HP#U0-ND M38039G8HSP#U0-ND	4.48 4.59 5.38	3.59 3.68 4.31	2.79 2.86 3.64
QzROM	48K	—	2K	16-ch. 10-bit	2-ch. 8-bit	3 USART	4/1/—	56	16.8MHz/2 - 5.5V	-20°C - 85°C	64-LQFP 64-SDIP	M38039GCHHP#U0-ND M38039GCHSP#U0-ND	5.56 6.40	4.45 5.12	3.46 4.32
QzROM	16K	—	512	9-ch. 10-bit	2-ch. 8-bit	2 UART	4/1/—	34	12.5MHz/1.8 - 5.5V	-20°C - 85°C	42-SSOP	M38503G4AFP#U1-ND	3.89	3.12	2.43
QzROM	16K	—	512	9-ch. 10-bit	2-ch. 8-bit	2 UART	4/—/—	34	12.5MHz/1.8 - 5.5V	-20°C - 85°C	42-DIP	M38503G4ASP#U1-ND	5.11	4.09	3.18
Flash	32K	—	1K	9-ch. 10-bit	—	2 USART	4/—/—	34	12.5MHz/2.7 - 5.5V	-20°C - 85°C	42-SSOP	M38507F8AFP#U1-ND	8.80	7.04	5.94
QzROM	48K	—	1.5K	—	—	2 USART	4/1/—	34	12.5MHz/2.7 - 5.5V	-20°C - 85°C	42-SSOP 42-SDIP	M38588GCFP#U0-ND M38588GCFP#U0-ND	5.34 6.10	4.28 4.88	3.61 4.12
Flash	60K	—	2K	8-ch. 10-bit	2-ch. 8-bit	2 USART	4/—/—	72	10MHz/2.7 - 5.5V	-20°C - 85°C	80-QFP 80-LQFP	M38869FFAFP#U0-ND M38869FFAFP#U0-ND	9.08 14.48	8.16 13.51	7.24 12.55
ROMless	—	—	148K	—	—	3 UART, 1 USART, 1 I ² C	—/4/4	132	266MHz/1.2V	-20°C - 70°C	449-BGA	R8A77220AC266BGV-ND	45.00	42.00	39.00

◆ RoHS Compliant *SSU = SPI[®]

SuperH™ Family

SuperH is an embedded RISC developed for high performance, miniaturization and performance per power consumption (MIPS/W). We are developing CPU cores for a wide range of applications and functions and have many products. Our product lines include the series with SH-2 as the CPU core with on-chip large capacity flash memory and peripheral functions such as timer, serial and AD converter, and the series with SH-3 and SH-4 as the CPU core which enable high-speed data processing and come equipped with cache and MMU. Additionally, there is lineup of series with SH2-DSP and SH3-DSP as the CPU core, which have full DSP functions and an emphasis on multimedia processing and communications processing. Currently available series (products) also have lots of features such as low power mode, contributing to low power consumption and miniaturization for application hardware. Various versatile operating systems and development tools have been improved and, crucially, more efficient development can be achieved.

SH Series

Memory Type	ROM Bytes	Data Flash Bytes	RAM Bytes	A/D	D/A	Serial Communication	Timers 8/16/32	GPIO	Operating Frequency/Supply Voltage	Temperature	Package	Digi-Key Part No.	1	Price Each 25	100
ROMless	—	—	4K	—	—	3 USART, IrDA	—/2/—	78	100MHz/1.4 - 1.6V	-20°C - 75°C	176-LFBGA	D17618RBG100V-ND	14.81	13.34	11.83
ROMless	—	—	16K	—	—	4 USART, IrDA	—/2/—	78	125MHz/1.71 - 1.89V	-20°C - 70°C	176-LFBGA 176-LFBGA	DS76190B125BGV-ND DS76190M125BGV-ND	18.09 19.01	16.89 17.74	15.68 16.48
ROMless	—	—	8K	8-ch. 10-bit	—	4 USART, IrDA, Smart Card, 1 I ² C	—/5/—	106	50MHz/3 - 3.6V	-20°C - 75°C	114-LQFP	HD6417145F50V-ND	11.02	9.90	8.78
ROMless	—	—	—	8-ch. 10-bit	2-ch. 10-bit	UART	—/1/3	96	100MHz/3.3V 137MHz/3.3V	-20°C - 75°C	208-QFP 208-QFP	D6417709SF100BV-ND D6417709SF133BV-ND	21.57 23.72	20.14 22.14	18.70 20.56
ROMless	—	—	16K	—	—	2 UART, 2 SSU,* 2 Ethernet	—/—/3	24	200MHz/1.5V	-20°C - 75°C	256-QFP	HD6417710FV-ND	23.93	22.33	20.74
ROMless	—	—	16K	6-ch. 10-bit	2-ch. 8-bit	3 UART, 2 USB, Smart Card	—/—/3	104	167MHz/1.9V	-20°C - 75°C	240-BGA 240-BGA	HD6417727BP160CV-ND	35.93	33.53	31.14
Flash	256K	—	12K	16-ch. 10-bit	—	3 USART, IrDA, 1 CAN	—/5/—	69	50MHz/4.5 - 5.5V	-20°C - 75°C	100-QFP	HD64F047F50V-ND	19.04	17.77	16.50

SH-2 Series

Memory Type	ROM Bytes	Data Flash Bytes	RAM Bytes	A/D	D/A	Serial Communication	Timers 8/16/32	GPIO	Operating Frequency/Supply Voltage	Temperature	Package	Digi-Key Part No.	1	Price Each 25	100
ROMless	—	—	3K	8-ch. 10-bit	—	2 USART, IrDA	—/3/—	43	28.7MHz/4.5 - 5.5V	-20°C - 75°C	112-QFP 112-QFP	HD6417014F28V-ND HD6417014RF28V-ND	12.59 12.59	11.75 11.75	10.91 10.91
ROMless	—	—	4K	8-ch. 10-bit	—	2 USART, IrDA	—/5/—	82	16.7MHz/3 - 3.6V 28.7MHz/4.5 - 5.5V	-20°C - 75°C	112-QFP 112-QFP	HD6417040AVCF16V-ND HD6417040ACF28V-ND	18.66 21.75	17.42 20.30	16.18 18.85
ROMless	—	—	4K	8-ch. 10-bit	—	2 USART, IrDA	—/5/—	82	28.7MHz/4.5 - 5.5V 28.7MHz/4.5 - 5.5V 16.7MHz/3 - 3.6V	-20°C - 75°C	144-QFP 144-QFP 144-QFP	HD6417041ACF28V-ND HD6417041AF28V-ND HD6417041AVF16V-ND	18.48 18.48 19.25	17.25 17.25 17.97	16.02 16.02 16.68

◆ RoHS Compliant *SSU = SPI[®]

(Continued)

More Product Available Online: www.digkey.com

Memory Type	ROM Bytes	Data Flash Bytes	RAM Bytes	A/D	D/A	Serial Communication	Timers 8/16/32	GPIO	Operating Frequency/Supply Voltage	Temperature	Package	Digi-Key Part No.	Price Each		
													1	25	100
ROMless	—	—	8K	8-ch. 10-bit	—	4 USART, IrDA, Smart Card, 1 I ² C	—/5/—	82	50MHz/3 - 3.6V	-20°C - 75°C -40°C - 85°C	112-QFP 112-QFP	HD6417144F50V-ND HD6417144FW50V-ND	10.40 11.02	9.35 9.90	8.29 8.78
ROMless	—	—	8K	8-ch. 10-bit	—	4 USART, IrDA, Smart Card, 1 I ² C	—/5/—	106	50MHz/3 - 3.6V	-40°C - 85°C	114-LQFP	HD6417145F50V-ND	11.67	10.49	9.30
ROMless	—	—	4K	—	—	3 USART, IrDA	—/—/—	78	100MHz/3 - 3.6V	-20°C - 75°C -20°C - 75°C -40°C - 85°C	176-LFBGA 176-LFBGA 176-LFBGA	D17606BG100V-ND D17606BGN100V-ND D17606BGW100V-ND	14.85 14.85 14.66	13.34 13.34 13.68	11.83 11.83 12.71
ROMless	—	—	8K	—	—	5 USART, IrDA	—/4/—	30	62.5MHz/3 - 3.6V	-20°C - 75°C -20°C - 75°C	240-LFBGA 208-LQFP	HD6417615ARBPV-ND HD6417615ARFV-ND	24.77 21.90	23.12 20.44	21.47 18.98
ROMless	—	—	8K	—	—	5 USART, IrDA	—/4/—	30	62.5MHz/3 - 3.6V	-20°C - 75°C	208-LQFP	HD6417616SFV-ND	24.77	23.12	21.47
ROMless	—	—	4K	—	—	3 USART IrDA	—/2/—	78	100MHz/1.4 - 1.6V	-20°C - 75°C -20°C - 75°C -40°C - 85°C -40°C - 85°C	176-LFBGA 176-LFBGA 176-LFBGA 176-LFBGA	D17618ABG100V-ND D17618ABGN100V-ND D17618ABGW100V-ND D17618RBGW100V-ND	14.28 15.24 15.24 14.66	13.33 14.23 14.23 13.68	12.98 13.21 13.21 12.71
ROMless	—	—	4K	—	—	3 USART, IrDA	—/2/—	71	100MHz/3 - 3.6V	-20°C - 75°C	176-LFBGA 176-LFBGA	D17618RBG100V-ND D17618RBGN100V-ND	14.81 14.81	13.34 13.34	11.83 11.83
Flash	128K	—	4K	8-ch. 10-bit	—	2 USART, IrDA	WDT, MTU, CMT	82	28.7MHz/4.5 - 5.5V	-20°C - 75°C	112-QFP	HD64F7017F28V-ND	24.00	22.40	20.80
Flash	256K	—	4K	8-ch. 10-bit	—	2 USART, IrDA	WDT, MTU, CMT	82	28.7MHz/4.5 - 5.5V	-20°C - 75°C	112-QFP	HD64F7044F28V-ND	39.42	36.80	34.17
Flash	256K	—	4K	8-ch. 10-bit	—	2 USART	WDT, MTU, CMT	106	28.7MHz/4.5 - 5.5V	-20°C - 75°C	144-QFP	HD64F7045F28V-ND	41.52	38.76	35.99
Flash	256K	—	12K	12-ch. 10-bit	—	2 USART, IrDA	WDT, MTU, CMT	54	50MHz/4 - 5.5V	-20°C - 75°C	80-QFP	HD64F7046F50V-ND	18.11	16.90	15.70
Flash	256K	—	16K	8-ch. 10-bit	—	4 USART, 1 SSU*, 1 I ² C	WDT, MTU2, MTU2S, CMT	73	80MHz/3 - 5.5V	-40°C - 85°C -20°C - 85°C	100-TQFP 100-TQFP	DF70834AD80FPV-ND DF70834AN80FPV-ND	17.15 16.37	16.01 15.28	14.86 14.19
Flash	512K	—	32K	8-ch. 10-bit	—	4 USART, 1 SSU, 1 I ² C	WDT, MTU2, MTU2S, CMT	73	80MHz/3 - 5.5V	0°C - 50°C	100-TQFP	DE70835RN80FPV-ND	115.11	107.44	99.77
Flash	512K	—	32K	8-ch. 10-bit	—	4 USART, 1 SSU*, 1 I ² C	WDT, MTU2, MTU2S, CMT	73	80MHz/3 - 5.5V	-40°C - 85°C -20°C - 85°C	100-TQFP 100-TQFP	DF70835AD80FPV-ND DF70835AN80FPV-ND	22.01 20.00	20.54 18.67	19.08 17.33
Flash	256K	—	16K	8-ch. 10-bit	—	4 USART, 1 SSU*, 1 I ² C	WDT, MTU2, MTU2S, CMT	84	80MHz/3 - 5.5V	-40°C - 85°C -20°C - 85°C	112-LQFP 112-LQFP	DF70844AD80FPV-ND DF70844AN80FPV-ND	18.60 16.91	17.36 15.78	16.12 14.66
Flash	512K	—	32K	8-ch. 10-bit	—	4 USART, 1 SSU, 1 I ² C	WDT, MTU2, MTU2S, CMT	84	80MHz/3 - 5.5V	0°C - 50°C	112-LQFP	DE70845RN80FPV-ND	115.11	107.44	99.77
Flash	512K	—	32K	8-ch. 10-bit	—	4 USART, 1 SSU*, 1 I ² C	WDT, MTU2, MTU2S, CMT	84	80MHz/3 - 5.5V	-40°C - 85°C -20°C - 85°C	112-LQFP 112-LQFP	DF70845AD80FPV-ND DF70845AN80FPV-ND	22.61 20.54	21.10 19.17	19.60 17.80
Flash	256K	—	16K	8-ch. 10-bit	—	4 USART, 1 SSU*, 1 I ² C	WDT, MTU2, MTU2S, CMT	108	80MHz/3 - 5.5V	-40°C - 85°C -20°C - 85°C	144-LQFP 144-LQFP	DF70854AD80FPV-ND DF70854AN80FPV-ND	20.00 18.18	18.67 16.97	17.33 15.76
Flash	512K	—	32K	8-ch. 10-bit	—	4 USART, 1 SSU, 1 I ² C	WDT, MTU2, MTU2S, CMT	108	80MHz/3 - 5.5V	0°C - 50°C	144-LQFP	DE70855RN80FPV-ND	114.21	106.60	98.99
Flash	512K	—	32K	8-ch. 10-bit	—	4 USART, 1 SSU*, 1 I ² C	WDT, MTU2, MTU2S, CMT	108	80MHz/3 - 5.5V	-40°C - 85°C -20°C - 85°C -20°C - 85°C	144-LQFP 144-LQFP 144-LQFP	DF70855AD80FPV-ND DF70855AN80FPV-ND DF70855RN80FPV-ND	22.86 21.75 82.50	21.34 20.30 77.00	19.82 18.85 71.50
Flash	512K	—	32K	16-ch. 10-bit	—	4 USART, 1 SSU, 1 I ² C	WDT, MTU2, MTU2S, CMT	134	80MHz/3 - 5.5V	0°C - 50°C	176-LQFP	DE70865RN80FPV-ND	115.11	107.44	99.77
Flash	512K	—	32K	16-ch. 10-bit	—	4 USART, 1 SSU*, 1 I ² C	WDT, MTU2, MTU2S, CMT	134	80MHz/3 - 5.5V	-40°C - 85°C -20°C - 85°C	176-LQFP 176-LQFP	DF70865AD80FPV-ND DF70865AN80FPV-ND	24.77 23.64	23.12 22.07	21.47 20.49
Flash	64K	—	8K	8-ch. 10-bit	—	3 USART	WDT, MTU2, CMT	31	50MHz/4.5 - 5.5V	-40°C - 85°C -20°C - 85°C	48-LQFP 48-LQFP	DF71242D50FPV-ND DF71242N50FPV-ND	12.42 12.21	11.16 10.97	9.90 9.73
Flash	128K	—	8K	8-ch. 10-bit	—	3 USART	WDT, MTU2, CMT	31	50MHz/4.5 - 5.5V	-40°C - 85°C -20°C - 85°C	48-LQFP 48-LQFP	DF71243D50FPV-ND DF71243N50FPV-ND	13.48 13.24	12.11 11.90	10.74 10.55
Flash	64K	—	8K	8-ch. 10-bit	—	3 USART	WDT, MTU2, CMT	45	50MHz/4.5 - 5.5V	-40°C - 85°C -40°C - 85°C -20°C - 85°C -20°C - 85°C	64-QFP 64-LQFP 64-QFP 64-LQFP	DF71252D50FV-ND DF71252D50FPV-ND DF71252N50FV-ND DF71252N50FPV-ND	13.36 12.94 12.71 12.71	12.00 11.63 11.42 11.42	10.64 10.31 10.13 10.13
Flash	128K	—	8K	8-ch. 10-bit	—	3 USART	WDT, MTU2, CMT	45	50MHz/4.5 - 5.5V	-40°C - 85°C -40°C - 85°C -20°C - 85°C -20°C - 85°C	64-QFP 64-LQFP 64-QFP 64-LQFP	DF71253D50FV-ND DF71253D50FPV-ND DF71253N50FV-ND DF71253N50FPV-ND	14.01 14.01 13.78 13.78	12.59 12.59 12.38 12.38	11.16 11.16 10.98 10.98
Flash	256K	—	8K	8-ch. 10-bit	—	4 USART, Smart Card, 1 I ² C	WDT, MTU, CMT	82	50MHz/3 - 3.6V	-20°C - 75°C -40°C - 85°C	112-QFP 112-QFP	HD64F7144F50V-ND HD64F7144FW50V-ND	18.11 19.43	16.90 18.13	15.70 16.84
Flash	256K	—	8K	8-ch. 10-bit	—	4 USART, Smart Card, 1 I ² C	WDT, MTU, CMT	106	50MHz/3 - 3.6V	-20°C - 75°C	144-QFP	HD64F7145F50V-ND	18.66	17.42	16.18
Flash	256K	—	8K	8-ch. 10-bit	—	4 USART, Smart Card, 1 I ² C	WDT, MTU, CMT	106	50MHz/3 - 3.6V	-40°C - 85°C	114-LQFP	HD64F7145F50V-ND	19.62	18.32	17.01
Flash	256K	—	8K	12-ch. 10-bit	—	3 USART	WDT, MTU2, MTU2S, CMT	57	80MHz/4 - 5.5V	-40°C - 85°C -20°C - 85°C	80-LQFP 80-LQFP	DF71464RD80FPV-ND DF71464RN80FPV-ND	18.00 18.00	16.80 16.80	15.60 15.60
Flash	256K	—	12K	—	—	3 USART, 1 SSU*, 1 CAN	WDT, MTU2, MTU2S, CMT	73	64MHz/3 - 3.6V	-40°C - 125°C	100-LQFP	DF71474AK64FPV-ND	58.35	54.46	50.57
Flash	256K	—	8K	12-ch. 10-bit	—	3 USART	WDT, MTU2, MTU2S, CMT	75	80MHz/4 - 5.5V	-20°C - 85°C	100-QFP	DF71491RN80FV-ND	20.63	19.25	17.88
Flash	256K	—	8K	12-ch. 10-bit	—	3 USART	WDT, MTU2, MTU2S, CMT	75	80MHz/4 - 5.5V	-40°C - 85°C -20°C - 85°C	100-LQFP 100-LQFP	DF71494RD80FPV-ND DF71494RN80FPV-ND	17.00 16.20	15.87 15.12	14.73 14.04
ROMless	—	—	16K	—	—	4 USART	—/2/—	78	125MHz/1.71 - 1.89V	-20°C - 85°C	176-LFBGA	DS76190W125BGV-ND	19.91	18.58	17.26

SH-2A Series

Memory Type	ROM Bytes	Data Flash Bytes	RAM Bytes	A/D	D/A	Serial Communication	Timers 8/16/32	GPIO	Operating Frequency/Supply Voltage	Temperature	Package	Digi-Key Part No.	Price Each		
													1	25	100
Flash	512K	—	32K	8-ch. 12-bit	2-ch. 8-bit	4 USART, 1 I ² C	WDT/MTU2/MTU2S/CMT	75	160MHz/1.4 - 1.6V	-40°C - 85°C	144-LQFP	DF72115D160FPV-ND	32.21	30.06	27.92
ROMless	—	—	128K	8-ch. 10-bit	2-ch. 8-bit	4 USART, IrDA, 1 I ² C	—/11/—	79	200MHz/1.15 - 1.35V	-20°C - 85°C	176-LQFP	DS72060W200FPV-ND	25.50	23.80	22.10
ROMless	—	—	32K	8-ch. 10-bit	2-ch. 8-bit	8 USART, 3 I ² C, 2CAN	2/6/—	123	100MHz/3 - 3.6V	-40°C - 85°C	176-LQFP	DS72611R100FPV-ND	31.43	29.33	27.24
ROMless	—	—	32K	8-ch. 10-bit	2-ch. 8-bit	8 USART, 3 I ² C	2/6/—	123	120MHz/3 - 3.6V	-20°C - 70°C	176-LQFP	DS72612R120FPV-ND	26.03	24.29	22.56
ROMless	—	—	32K	8-ch. 10-bit	2-ch. 8-bit	8 USART, 3 I ² C, 2CAN	2/6/—	123	120MHz/3 - 3.6V	-20°C - 70°C	176-LQFP	DS72613R120FPV-ND	28.20	26.32	24.44

SH-3/SH-4/SH-4A Series

Memory Type	ROM Bytes	Data Flash Bytes	RAM Bytes	A/D	D/A	Serial Communication	Timers 8/16/32	GPIO	Operating Frequency/Supply Voltage	Temperature	Package	Digi-Key Part No.	Price Each		
													1	25	100
ROMless	—	—	16K	8-ch. 10-bit	2-ch. 8-bit	2 USART, Smart Card, IrDA	—/1/3	96	167MHz/1.9 - 3.3V	-20°C - 75°C	240-BGA 208-LQFP	D6417709SBP167BV-ND D6417709SF167BV-ND	29.54 26.82	27.57 25.04	25.60 23.25
ROMless	—	—	16K	8-ch. 10-bit	2-ch. 8-bit	2 USART, Smart Card, IrDA	—/1/3	96	133MHz/1.8 - 3.3V	-20°C - 75°C	208-QFP 208-QFP	HD6417709AF133B-ND HD6417709AF133BV-ND	30.23 25.43	28.21 23.73	26.20 22.04
ROMless	—	—	16K	8-ch. 10-bit	2-ch. 8-bit	2 USART, Smart Card, IrDA	—/1/3	96	200MHz/2.0 - 3.3V	-20°C - 75°C	208-LQFP	D6417709SHF200BV-ND	31.32	29.24	27.15

• RoHS Compliant *SSU = SPI

(Continued)

More Product Available Online: www.digkey.com

Toll-Free: 1-800-344-4539 • Phone 218-681-6674 • Fax: 218-681-3380

Memory Type	ROM Bytes	Data Flash Bytes	RAM Bytes	A/D	D/A	Serial Communication	Timers 8/16/32	GPIO	Operating Frequency/Supply Voltage	Temperature	Package	Digi-Key Part No.	Price Each		
													1	25	100
ROMless	—	—	148K	—	—	4 USART, 1 I ² C, Smart Card, 2 SSU, USB, IrDA	—/4/3	99	266MHz/1.2 - 3.3V	-20°C - 75°C	417-BGA	R8A77220AC266BAV-ND NEW!	36.75	34.30	31.85
ROMless	—	—	16K	4-ch. 10-bit	2-ch. 8-bit	I ² C, Smart Card, USB, 2 USART	—/9/3	110	133MHz/1.5 - 3.3V	-20°C - 70°C	256-BGA	HD6417720BP133CV-ND	32.55	30.38	28.21
ROMless	—	—	16K	6-ch. 10-bit	2-ch. 8-bit	2 USART, 1 USART, Smart Card, USB	—/1/3	104	160MHz/1.9 - 3.3V	-20°C - 75°C	240-BGA	HD6417727BP100CV-ND NEW!	39.30	36.68	34.06
ROMless	—	—	16K	8-ch. 10-bit	2-ch. 8-bit	1 USART, Smart Card, IrDA	—/1/3	96	133MHz/1.8 - 3.3V 133MHz/1.8 - 3.3V 200MHz/2.0 - 3.3V	-20°C - 75°C	208-LQFP 208-QFP 208-QFP	D6417729RF133BV-ND HD6417729RF133B-ND D6417729RH200BV-ND	26.82 26.82 34.41	25.04 25.04 32.12	23.25 23.25 29.83
ROMless	—	—	—	—	—	1 USART, Smart Card	—/—/5	39	167MHz/1.9 - 3.3V 240MHz/1.5 - 3.3V	-20°C - 75°C	208-QFP 256-BGA	HD6417750F167-ND D6417750RBP240V-ND	45.30 46.35	42.28 43.26	39.26 40.17
ROMless	—	—	—	—	—	1 USART, Smart Card	—/—/5	29	240MHz/1.5 - 3.3V 240MHz/1.5 - 3.3V	-20°C - 75°C	256-BGA 208-QFP	HD6417750RBP240-ND HD6417750RF240-ND	38.63 34.86	36.05 32.54	33.48 30.22
ROMless	—	—	—	—	—	1 USART, Smart Card	—/—/5	39	200MHz/2.0 - 3.3V	-20°C - 75°C	256-BGA	D6417751RBP200DV-ND	49.22	45.94	42.66
ROMless	—	—	—	4-ch. 10-bit	—	3 USART, 2 I ² C, Smart Card, 2 CAN, USB	—/—/3	69	200MHz/2.0 - 3.3V	-20°C - 75°C	256-BGA	D6417760BP200ADV-ND	49.88	46.55	43.23
ROMless	—	—	16K	—	—	I ² C, SSU*, Ethernet/USB	—/—/6	77	32MHz/3.3V	-20°C - 85°C	404-BGA	R5S77640N3008G-ND	49.13	45.85	42.58
ROMless	—	—	16K	—	—	2 USART	—/4/6	75	400MHz/1.25 - 3.3V	-20°C - 75°C	449-BGA	R8A77800ANBGAV-ND NEW!	75.00	70.00	65.00
ROMless	—	—	128K	—	—	6 USART	—/—/6	108	600MHz/1.1 - 3.3V	-20°C - 75°C	436-BGA	R8A77850ADBGV-ND NEW!	66.68	62.23	57.79
ROMless	—	—	128K	—	—	7 USART	—/—/7	109	600MHz/1.1 - 3.3V	-20°C - 75°C	436-BGA	R8A77850ADBGVFRD0Z-ND NEW!	68.75	64.17	59.58

◆ RoHS Compliant *SSU = SPI®

Tools

Description	Digi-Key Part No.	Price Each
Keys — Evaluation, Development, and Starter		
Development Evaluation Kit H8SX/1657	3DK1657-ND	270.00
Development Evaluation Kit H8S/2218	3DK2218-ND	418.25
Development Evaluation Kit H8S/2218	3DK2218-SS-ND	1020.00
Development Evaluation Kit H8/38076R	3DK38076-ND	267.68
Development Evaluation Kit H8/38086R	3DK38086R-ND	235.20
Development Evaluation Kit H8S/2215	EDK2215-ND	366.24
Development Evaluation Kit H8S/2215	EDK2215R-ND	403.20
Development Evaluation Kit H8S/2239	EDK2239-ND	366.24
Development Evaluation Kit H8S/2282	EDK2282-ND	366.24
Development Evaluation Kit H8S/2329	EDK2329-ND	319.20
Development Evaluation Kit H8S/2378	EDK2378-ND	504.00
Development Evaluation Kit H8S/2398	EDK2398-ND	504.00
Development Evaluation Kit H8S/2638	EDK2638-ND	504.00
Development Evaluation Kit H8/3069	EDK3069-ND	588.00
Development Evaluation Kit H8/3687	EDK3687-ND	341.04
Development Evaluation Kit SH7145	EDK7145-ND	403.20
Development Evaluation Kit H8S/2674	EDOSK2674-ND	261.80
Flash Programmer	FDM-ND	504.00
Development H8 HEW and E10A	HEWH8E10A-ND	1434.71
Development E10A-USB 14-pin Cable	HS0005PUU01H-ND	147.36
Development Evaluation Kit M16C/26A	QSK26A-ND	54.81
Development Evaluation Kit for M16C/62P	QSK62P-ND	54.81
Development Add-On Board RSK38347	ROK0APBDB010BE-ND	252.00
Development RSK Add-On Board Ethernet and USB	ROK0APBDB020BE-ND	546.00
Development Evaluation Kit M16C/26A	ROK3026AS000BE-ND	270.00
Development Evaluation Kit M16C/29	ROK3029OS000BE-ND	270.00
Development Evaluation Kit M16C/6NK	ROK306NK001BE-ND NEW!	252.00
Development Evaluation Kit M16C/62P	ROK3062PS000BE-ND	270.00
Development Evaluation Kit M32C/67	ROK30879S000BE-ND	270.00
Development Evaluation Kit M37542	ROK337542S000BRES-ND	252.00
Development Evaluation Kit H8S/2215R	ROK42215RS000BE-ND	252.00
Development Evaluation Kit H8/38099	ROK438099S000BE-ND	252.00
Development Evaluation Kit H8/38347	ROK438347S000BE-ND	252.00
Development Evaluation Kit R8C/1B	ROK5211B4S000BE-ND	252.00
Development Evaluation Kit R8C/13	ROK521134S000BE-ND	270.00
Development Evaluation Kit R8C/23	ROK521237S000BE-ND	270.00
Development Evaluation Kit R8C/25	ROK521256S000BE-ND	270.00
Development Evaluation Kit R8C/26-29	ROK521276S000BE-ND	252.00
Development Evaluation Kit H8SX/1582F	ROK561582S000BE-ND	270.00
Development Evaluation Kit H8S/1664F	ROK561664S000BE-ND	252.00
Development Evaluation Kit R8C/2D	ROK5212D8S000BE-ND	252.00
Development Evaluation Kit SH7086	ROK570865S000BE-ND	336.00
Development Evaluation Kit SH7124	ROK571242S000BE-ND	270.00
Development Evaluation Kit SH7203	ROK572030S000BE-ND	1554.00
Development Evaluation Kit CAN R8C/23	RCDK8C-ND	588.00
Demo Kit ZigBee 2.4GHz	RZB-CC16C-ZDK-ND	1275.00
Development Evaluation Kit ZigBee 2.4GHz	RZB-CC28FC-BRD-ND	286.88
Demo Kit ZigBee ZMD 900MHz	RZB-ZMD16C-ZDK-ND	1190.00
Development Evaluation Kit H8/38024	SKP38024-ND	127.50
Development Evaluation Kit H8/38602R	SKP38602-ND	127.50
Development Evaluation Kit H8/36077	SKP36077-ND	154.56
Development Evaluation Kit H8S/2612	US2612EDK1-ND	366.24
Development Evaluation Kit H8S/2623	US2623EDK1-ND	613.94
Development Evaluation Kit H8/3068	US3068EDK1-ND	613.20
Development Evaluation Kit R8C/SPB	YR8CSPB-ND NEW!	94.53
Software		
C Compiler H8 1 User	RTA-HEWH8-1U-ND	1363.25
C Compiler H8 1 User LAN	RTA-HEWH8-1UL-ND	1375.69
C Compiler M16C 1 User	RTA-HEWNC30-1U-ND	1363.25
C Compiler M16C 1 User LAN	RTA-HEWNC30-1UL-ND	1734.79
C Compiler M32C 1 User	RTA-HEWNC308-1U-ND	1363.25
C Compiler M32C 1 User LAN	RTA-HEWNC308-1UL-ND	1734.79
C Compiler SH 1 User	RTA-HEWSH-1U-ND	2693.25
C Compiler SH 1 User LAN	RTA-HEWSH-1UL-ND	2891.30
Emulators		
Development Emulator Base Unit H8S/2100	E62140-ND	8658.30
Development Emulator Base Unit H8S/2300	E62339-ND	9904.50
Development Emulator Base Unit H8S/2633	E62633R-ND	9336.60
Development Emulator Base Unit H8S/2678	E62678R-ND	11299.50
Development Emulator Base Unit H8/3064	E63064B-ND	9647.82

Description	Digi-Key Part No.	Price Each
Development Emulator Base Unit H8/300L	E63800-ND	7734.22
On Chip Debug Emulator	HS0005KCU01H-ND	1470.00
On Chip Debug Emulator with Trace	HS0005KCU02H-ND	2430.00
On Chip Debug Emulator E10A Lite	HS0005KCU11H-ND	900.00
Emulator Base Unit H8S/2168	HS2168P61H-ND	8299.20
Emulator Base Unit H8S/2214	HS2214EP162H-ND	7710.00
Emulator Base Unit H8/3664	HS3664EP162H-ND	5910.00
Compact Emulator for M16C/26A/28/29	M3029072-CPE-ND	1620.00
Compact Emulator for M16C/Tiny	M3029072-CPE-HP-ND	1829.23
Compact Emulator for M16C/26A/28/29	M3062PT3-CPE-3-ND	1860.00
Emulator Base Unit M16C/60	M3062PT3-RPD-E-ND	3777.20
Compact Emulator for M16C/80	M30800T-CPE-ND	1995.00
Emulator Base Unit M16C Platform	PC7501-ND	6727.50
Compact Emulator for H8/3664	ROE436640CPE10-ND	2457.00
Compact Emulator for H8/TINY	ROE436640CPE20-ND	2457.00
Compact Emulator for M16C/62P	ROK271SNV003001R-ND	3593.13
Emulator Personality Kit H8/3664	ROE436640CPE00-ND	2715.00
Emulator Personality Kit R8C/13	ROE52100CEP800-ND	1215.00
Emulator Base E8A for H8 and M16C	ROE00008AKCE00-ND	175.00
Emulator Personality Kit R8C/13	ROE521134CPE00-ND	1935.00
Emulator Personality Kit R8C/10-13	ROE521134CEP800-ND	1725.00
Emulator Personality Kit R8C/17	ROE521174CPE00-ND	1935.00
Emulator for R8C/18/19/1A/1B	ROE521174CPE10-ND	1800.00
Emulator Personality Kit R8C/20-23	ROE521237CPE00-ND	1935.00
On Chip Debug Emulator	RTA-FOUSB-MON-ND	60.86
Accessories		
Development Emulator Accessory	E6E10EXT-ND	369.60
Emulator PCB Adapter 100-QFP	EHB2148Q100B-ND	628.50
Emulator PCB Adapter 100-QFP	EHB2238Q100B-ND	554.40
Emulator PCB Adapter 100-QFP	EHB2318Q100B-ND	586.32
Emulator PCB Adapter 128-QFP	EHB238Q128-ND	925.20
Emulator PCB Adapter 128-QFP	EHB2633Q128-ND	1267.20
Emulator PCB Adapter 100-QFP	EHB3064B0100B-ND	520.80
Emulator PCB Adapter 120-TQFP	HS1650ECN61H-ND	1226.40
Personality Kit H8SX/1650	HS1650EPH60H-ND	9456.30
Emulator PCB Adapter 100-QFP	HS2148EC61HE-ND	1428.24
Emulator PCB Adapter 144-TQFP	HS2168ECN61H-ND	2766.40
Emulator PCB Adapter 64-QFP	HS2212EC61H-ND	2912.70
Emulator PCB Adapter 112-LFBGA	HS2215ECB62H-ND	3370.86
Emulator PCB Adapter 120-TQFP	HS2215ECN61H-ND	2761.08
Emulator PCB Adapter 120 TQFP	HS2215ECN61H-ND	3120.00
Emulator PCB Adapter 100-QFP	HS2218ECN61H-ND	3120.00
Emulator PCB Adapter 100-QFP	HS2238EC61H-ND	1436.40
Emulator PCB Adapter 112-LFBGA	HS2238ECB62H-ND	2154.60
Emulator PCB Adapter 144-QFP	HS2238EC61H-ND	1436.40
Emulator PCB Adapter 144-QFP	HS2378EC61H-ND	1822.10
Emulator Personality Kit H8S/2633	HS2633EC61H-ND	1428.42
Emulator PCB Adapter 64-QFP	HS36014EC61H-ND	1436.40
Emulator PCB Adapter 48-QFP	HS36014EC63H-ND	1436.40
Emulator Accessory H8/36024	HS36024E1061H-ND	1290.00
Emulator PCB Adapter 80-QFP	HS36049EC61H-ND	1620.00
Emulator PCB Adapter 64-QFP	HS3664EC61H-ND	1436.40
Emulator PCB Adapter 64-QFP	HS3664EC62H-ND	1436.40
Emulator PCB Adapter 48-QFP	HS3664EC63H-ND	1436.40
Emulator PCB Adapter 48-QFP	HS3664EC64H-ND	1436.40
Emulator PCB Adapter 64-QFP	HS3687EC61H-ND	1620.00
Emulator PCB Adapter 64-QFP	HS3687EC62H-ND	1620.00
Emulator Personality Kit M16C/26	M30260T-EPB-GP-ND	1374.24
Emulator Personality Kit M16C/26	M30262T-PTC-ND	570.00
Emulator Personality Kit M16C/28	M30290T-EPB-HP-ND	1374.24
Emulator Personality Kit M16C/28	M30291T-EPB-HP-ND	1374.24
Emulator Personality Kit M16C/62P	M3062PT-EPB-ND	1359.00
Emulator Probe M16C/6N	M306NKT-EPB-ND	1710.00
M16C/26 Socket Board (48-P6Q-A)	M3A-0286G01-ND	295.20
Emulator Accessory	M3T-100LCC-DMS-ND	108.00
Emulator PCB Adapter 100-QFP	M3T-DUMMY100S-ND	196.50
Emulator PCB Adapter 100-LQFP	M3T-F160-100NSD-ND	381.00
Emulator PCB Adapter 128-LQFP	M3T-F160-128NRD-ND	570.00
Emulator PCB Adapter 100-LQFP	M3T-FLX-100NRB-ND	728.00
Emulator PCB Adapter 100-QFP	M3T-FLX-100NSD-ND	780.00
Emulator PCB Adapter 144-LQFP	M3T-FLX-144NSD-ND	570.00
Emulator Accessory	M3T-FLX100-R-ND	196.00
Emulator Accessory	M3T-FLX100-T-ND	196.00
Development Evaluation PSU and Serial Cable	USBAG-PSU1-ND	23.25

◆ RoHS Compliant

More Product Available Online: www.digikey.com

Toll-Free: 1-800-344-4539 • Phone 218-681-6674 • Fax: 218-681-3380