

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	M38D59GCFP#U0-ND M38D59GCHP#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	M38D59GFFP#U0-ND M38D59GFHP#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[®]

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