



Microcontrollers

H8 Family H8 Super Low Power (Cont.)

Memory Type	ROM Bytes	Data Flash Bytes	RAM Bytes	A/D		Serial Communication	Timers 8/16/32	GPIO	Operating Frequency/Supply Voltage	Temperature	Package	Digi-Key Part No.	Price Each		
													1	25	100
Flash	60K	—	2K	12-ch. 10-bit	—	3 USART	4/2/0	84	16MHz/2.7 - 5.5V	-40°C - 85°C	100-TQFP	DF38347XWV-ND	12.83	11.52	10.22
				8-ch. 10-bit	—	2 USART	4/2/0	64	16MHz/2.7 - 5.5V	-20°C - 75°C	80-QFP	DF38427HV-ND	11.67	10.49	9.30
	16K	—	1K	6-ch. 10-bit	—	1 USART, 1 SSU*, IrDA, 1 I ² C	3/2/0	19	10MHz/2.7 - 3.6V 4.2MHz/1.8 - 3.6V	-20°C - 75°C -20°C - 75°C	32-QFN 32-QFN	DF38602RFT10V-ND DF38602RFT4V-ND	9.86 9.86	7.89 7.89	6.66 6.66

H8/300 Series H8/300H and H8/300L Series of MCUs provide extensive support of customers' system requirements with a high level of peripheral functionality.

Memory Type	ROM Bytes	Data Flash Bytes	RAM Bytes	A/D		Serial Communication	Timers 8/16/32	GPIO	Operating Frequency/Supply Voltage	Temperature	Package	Digi-Key Part No.	Price Each			
													1	25	100	
ROMless	—	—	512	8-ch. 10-bit	—	2 UART	—/5/—	38	16MHz/4.5 - 5.5V	-20°C - 75°C	100-QFP	D13002F16V-ND	11.72	10.53	9.34	
				8-ch. 10-bit	—	2 UART	—/5/—	50	16MHz/4.5 - 5.5V	-20°C - 75°C	100-TQFP	D13003TF16V-ND	16.32	15.24	14.15	
				4K	8-ch. 10-bit	2-ch. 8-bit	1 Smart Card, 2 SCI	4/3/—	47	25MHz/4.5 - 5.5V 25MHz/3.0 - 3.6V	-20°C - 75°C	100-QFP	D13008F25V-ND D13008VF25V-ND	9.50 8.33	7.60 7.50	6.42 6.65
Flash	128K	—	4K	8-ch. 10-bit	2-ch. 8-bit	2 UART, Smart Card	—/3/—	47	25MHz/3.0 - 3.6V	-20°C - 75°C	100-QFP	D13008VFB25V-ND	5.10	4.08	3.45	
				8-ch. 10-bit	2-ch. 8-bit	2 UART, Smart Card	—/3/—	79	25MHz/3.0 - 3.6V	-20°C - 75°C	100-QFP	DF3024F25V-ND	12.42	11.16	9.90	
				8-ch. 10-bit	2-ch. 8-bit	2 UART	—/8/—	79	25MHz/3.0 - 3.6V	-20°C - 75°C	100-TQFP	DF3026XBL25V-ND	14.63	13.65	12.68	
	384K	—	16K	8-ch. 10-bit	2-ch. 8-bit	3 UART, Smart Card	—/8/—	79	25MHz/3.0 - 3.6V	-20°C - 75°C	100-TQFP	DF3028X25V-ND	16.70	15.59	14.47	
				8-ch. 10-bit	2-ch. 8-bit	3 UART	—/9/—	79	25MHz/3.0 - 3.6V	-20°C - 75°C	100-QFP	DF3029F25V-ND	16.58	15.47	14.37	
				8-ch. 10-bit	2-ch. 8-bit	2 UART, Smart Card	—/5/—	63	18MHz/4.5 - 5.5V	-20°C - 75°C	80-QFP	DF3039F18V-ND	20.34	18.99	17.63	
	512K	—	16K	8-ch. 10-bit	2-ch. 8-bit	2 UART, Smart Card	—/5/—	78	25MHz/4.5 - 5.5V	-20°C - 75°C	100-QFP	DF3048BF25V-ND	13.78	12.38	10.98	
				8-ch. 10-bit	2-ch. 8-bit	2 UART, Smart Card	—/5/—	78	25MHz/4.5 - 5.5V	-20°C - 75°C	100-TQFP	DF3048BX25V-ND	14.43	12.96	11.50	
				8-ch. 10-bit	2-ch. 8-bit	2 UART	—/5/—	78	25MHz/3.0 - 3.6V	-20°C - 75°C	100-QFP	DF3048BFV25V-ND HD64F3048VTF8-ND	13.78 36.96	12.38 34.50	10.98 32.04	
	Flash	128K	—	4K	8-ch. 10-bit	2-ch. 8-bit	2 USART	—/2/—	78	25MHz/2.7 - 5.5V	-40°C - 85°C	100-QFP	DF3048BF25V-ND	13.62	12.72	11.81
					8-ch. 10-bit	2-ch. 8-bit	2 UART, Smart Card	—/5/—	79	25MHz/4.5 - 5.5V	-20°C - 75°C	100-QFP	DF3052BF25V-ND	21.09	19.69	18.28
					8-ch. 10-bit	2-ch. 8-bit	2 UART, Smart Card	—/3/—	79	25MHz/4.5 - 5.5V	-20°C - 75°C	100-QFP	DF3062BFP250V-ND	9.55	8.58	7.61
		256K	—	8K	8-ch. 10-bit	2-ch. 8-bit	2 UART, Smart Card	4/3/—	79	25MHz/4.5 - 5.5V	-20°C - 75°C	100-QFP	DF3064BF25V-ND	14.83	13.32	11.82
					8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	4/3/—	79	25MHz/3.0 - 5.5V	-20°C - 75°C	100-QFP	DF3067RF20V-ND	20.55	19.18	17.81
					8-ch. 10-bit	2-ch. 8-bit	3 UART, Smart Card	4/3/—	79	25MHz/4.5 - 5.5V	-20°C - 75°C	100-QFP	DF3068F25V-ND	16.70	15.59	14.47
		384K	—	16K	8-ch. 10-bit	2-ch. 8-bit	3 UART, Smart Card	4/3/—	79	25MHz/4.5 - 5.5V	-20°C - 75°C	100-QFP	DF3069RF25V-ND	16.58	15.47	14.37
					8-ch. 10-bit	2-ch. 8-bit	3 UART, Smart Card	4/3/—	79	25MHz/4.5 - 5.5V	-20°C - 75°C	100-TQFP	DF3069RX25V-ND	17.03	15.89	14.76
					8-ch. 10-bit	2-ch. 8-bit	2 UART, CAN	3/2/—	45	20MHz/4.5 - 5.5V	-20°C - 75°C	64-LQFP	DF36037GFZJEV-ND	12.31	11.06	9.81
		32K	—	4K	8-ch. 10-bit	—	I ² C, SCI	3/2/—	47	20MHz/4.5 - 5.5V	-20°C - 75°C	64-LQFP	DF36074GFZV-ND	7.54	6.03	5.09
					8-ch. 10-bit	—	I ² C, SCI	3/2/—	47	16MHz/3.0 - 3.6V	-20°C - 75°C	64-QFP	DF36077LHV-ND	7.20	5.76	4.86
					8-ch. 10-bit	—	I ² C, SCI	3/2/—	47	20MHz/4.5 - 5.5V	-20°C - 75°C	64-LQFP	DF36078GFZV-ND	8.70	6.96	5.87
		128K	—	6K	8-ch. 10-bit	—	I ² C, SCI	3/2/—	47	16MHz/3.0 - 3.6V	-20°C - 75°C	64-LQFP	DF36079LV-ND	9.68	7.75	6.53
					8-ch. 10-bit	—	I ² C, SCI	3/2/—	47	16MHz/3.0 - 3.6V	-20°C - 75°C	64-QFP	DF36079LVH-ND	9.68	7.75	6.53
					8-ch. 10-bit	—	1 UART, 2 SCI	3/1/—	45	5MHz/2.5 - 5.5V	-20°C - 75°C	64-QFP	HD64F3644DV-ND	11.11	9.98	8.85
	32K	—	1K	8-ch. 10-bit	—	SCI	3/1/—	53	8MHz/2.5 - 5.5V	-20°C - 75°C	80-TQFP	HD64F3644V-ND HD64F3644PV-ND	10.19 12.15	9.15 11.34	8.12 10.53	
				8-ch. 8-bit	—	SCI	3/1/—	53	8MHz/2.5 - 5.5V	-20°C - 75°C	80-TQFP	HD64F3644V-ND	11.44	10.28	9.11	
				8-ch. 10-bit	—	I ² C, SCI	2/4/—	75	10MHz/2.7 - 3.6V 4.2MHz/1.8 - 3.6V	-20°C - 75°C	100-LQFP	DF38099FP10WV-ND	14.22	13.27	12.33	
	128K	—	4K	8-ch. 10-bit	—	I ² C, SCI	2/4/—	75	10MHz/2.7 - 3.6V	-20°C - 75°C	100-LQFP	DF38099FP4V-ND	14.25	12.80	11.35	
				8-ch. 10-bit	—	I ² C, IRDA, UART	3/1/—	75	5MHz/2.7 - 3.6V	-20°C - 75°C	80-QFP	DF38524HV-ND	7.62	6.10	5.14	
				8-ch. 10-bit	—	I ² C, IRDA, UART	2/4/—	75	10MHz/2.7 - 3.6V	-20°C - 75°C	100-LQFP	DF38799FP10WV-ND	10.60	9.53	8.45	
128K	—	4K	10-bit	—	I ² C, IRDA, UART	2/4/—	75	10MHz/2.7 - 3.6V	-20°C - 75°C	100-LQFP	DF38799FP10WV-ND	11.66	10.47	9.28		
			10-bit	—	I ² C, IRDA, UART	2/4/—	75	10MHz/2.7 - 3.6V	-20°C - 75°C	100-LQFP	DF38799FP10WV-ND	11.66	10.47	9.28		

H8/300 Tiny Series

Memory Type	ROM Bytes	Data Flash Bytes	RAM Bytes	A/D		Serial Communication	Timers 8/16/32	GPIO	Operating Frequency/Supply Voltage	Temperature	Package	Digi-Key Part No.	Price Each		
													1	25	100
Flash	32K	—	2K	8-ch. x 10-bit	—	UART, CAN	3/2/—	53	1 - 20MHz/3.0 - 5.5V	-20°C - 75°C	64-LQFP	DF36034FPV-ND	10.86	9.75	8.65
				8-ch. x 10-bit	—	UART, CAN	3/2/—	53	1 - 20MHz/3.0 - 5.5V	-20°C - 75°C	64-LQFP	DF36034GFPV-ND	9.55	8.58	7.61
				8-ch. x 10-bit	—	UART, CAN	3/2/—	53	1 - 20MHz/3.0 - 5.5V	-20°C - 75°C	64-LQFP	DF36037FPV-ND	11.94	10.73	9.51
				8-ch. x 10-bit	—	2 USART, I ² C	3/2/—	47	20MHz/4.5 - 5.5V	-20°C - 75°C	64-QFP	DF36079GHV-ND	9.68	7.75	6.54
				8-ch. x 10-bit	—	UART	1/1/—	22	2 - 12MHz/3.0 - 5.5V	-20°C - 75°C	32-LQFP	DF38902GFHSWV-ND	4.48	3.59	2.79

◆ RoHS Compliant *SSU = SPI*

H8S Family

The H8S Family meets the growing demands for system designs requiring the performance of 16-bit microcontrollers with sophisticated peripherals integrated on-chip. The H8S is the leader in memory size capacity with up to 512K on-chip flash. It includes performance speeds as high as 33MHz, extremely low power consumption, and offers a wide selection of peripherals for optimizing system cost, development time, performance, and features.

Memory Type	ROM Bytes	Data Flash Bytes	RAM Bytes	A/D		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	2-ch. 8-bit	2 USART, Smart Card	2/6/—	79	20MHz/3.0 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	100-QFP	D12312SVF20V-ND	9.60	7.68	6.48
				8-ch. 10-bit	2-ch. 8-bit	2 USART, Smart Card	2/6/—	79	25MHz/3.0 - 3.6V	-20°C - 75°C	100-TQFP	D12312SVF25V-ND	9.60	7.68	6.48
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12312SVTE25V-ND	8.60	7.74	6.87
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12320VF20V-ND	9.60	7.68	6.48
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12320VF25V-ND	9.60	7.68	6.48
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12320VTE20V-ND	8.62	7.74	6.87
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12320VTE25V-ND	8.62	7.74	6.87
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12321VF20V-ND	9.60	7.68	6.48
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12321VF25V-ND	9.60	7.68	6.48
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12321VTE20V-ND	8.62	7.74	6.87
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12321VTE25V-ND	8.62	7.74	6.87
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12322RVF20V-ND	9.02	8.10	7.19
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12322RVF25V-ND	8.82	7.92	7.03
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	HD6412322RVFBL25V-ND	7.58	6.07	5.12
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12322RVTE20V-ND	9.62	8.64	7.67
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12322RVTE25V-ND	9.62	8.64	7.67
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12324SVF25V-ND	11.00	9.90	8.78
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12324SVTE20V-ND	11.62	10.44	9.26
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	D12324SVTE25V-ND	11.62	10.44	9.26
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	118	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	144-QFP	D12332VFC20V-ND	11.87	10.67	9.46
				8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	118	20MHz/2.7 - 3.6V 25MHz/3.0 - 3.6V	-20°C - 75°C	144-QFP	D12332VFC25V-ND	11.85	1	

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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	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	13MHz/3.0 - 5.5V 13MHz/3.0 - 5.5V 20MHz/4.5 - 5.5V	-20°C - 75°C	128-QFP 120-TQFP 120-TQFP	D12352F13V-ND◆ D12352TE13V-ND◆ D12352TE20V-ND◆	14.01	12.59	11.16										
													13.73	12.81	11.90										
													13.73	12.81	11.90										
													16K	10-ch. 10-bit	2-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—	94	33MHz/3.0 - 3.6V	-20°C - 75°C	128-QFP 120-TQFP	D12363VF33V-ND◆ D12363VE33V-ND◆	11.02	9.90	8.78
																							11.62	10.44	9.26
																							14.03	12.60	11.18
													16K	16-ch. 10-bit	6-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—	113	33MHz/3.0 - 3.6V	-20°C - 75°C	144-LQFP 144-LQFP	D12373RVFQ33V-ND◆ D12373VFQ33V-ND◆	13.03	11.70	10.38
																							13.03	11.70	10.38
													4K	8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/4.5 - 5.5V	-20°C - 75°C	128-QFP 120-TQFP	D12390F20V-ND◆ D12390TE20V-ND◆	9.60	7.68	6.48
																							8.62	7.74	6.87
8K	8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/4.5 - 5.5V	-20°C - 75°C	128-QFP 120-TQFP	D12392F20V-ND◆ D12392TE20V-ND◆	9.02	8.10	7.19													
										9.62	8.64	7.67													
32K	8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/4.5 - 5.5V	-20°C - 75°C	128-QFP 120-TQFP	D12394F20V-ND◆ D12394TE20V-ND◆	11.02	9.90	8.78													
										11.62	10.44	9.26													
8K	12-ch. 10-bit	4-ch. 8-bit	3 USART, IrDA, Smart Card	2/6/—	115	33MHz/3.0 - 3.6V	-20°C - 75°C	144-QFP	D12670VFC33V-ND◆	11.14	10.01	8.88													
										13.33	12.00	10.64													
32K	12-ch. 10-bit	4-ch. 8-bit	3 USART, IrDA, Smart Card	2/6/—	115	33MHz/3.0 - 3.6V	-20°C - 75°C	144-LQFP	D12674RVFC33V-ND◆	13.33	12.00	10.64													
										13.33	12.00	10.64													
Flash	64K	—	2K	—	—	1 USART, 2 I ² C	3/1/—	82	10MHz/3.0 - 3.6V	-20°C - 75°C	100-TQFP	DF2110BVT10V-ND◆	14.63	13.14	11.66										
													13.73	12.81	11.90										
													14.06	13.12	12.19										
	1M	—	8K	8-ch. 10-bit	—	—	2 USART, IrDA, Smart Card, 2 I ² C	2/1/—	119	20MHz/3.0 - 3.6V	-20°C - 75°C	144-TQFP	DF2114RV20V-ND◆	20.96	19.56	18.17									
														20.96	19.56	18.17									
	128K	—	8K	16-ch. 10-bit	—	—	1 USART, Smart Card, 3 I ² C	2/1/—	125	20MHz/3.0 - 3.6V	-20°C - 75°C	144-TQFP	DF2116TV20V-ND◆	10.60	9.53	8.45									
														10.60	9.53	8.45									
	160K	—	8K	16-ch. 10-bit	—	—	I ² C, SCI	4/10/—	128	20MHz/3.0 - 3.6V	-20°C - 75°C	176-LFBGA 145-TLGA	DF2117VBG20V-ND◆ NEW! DF2117VLP20V-ND◆ NEW!	15.47	14.43	13.41									
														16.50	15.40	14.30									
	64K	—	2K	8-ch. 10-bit	2-ch. 8-bit	—	3 USART, IrDA	3/1/—	66	20MHz/4.0 - 5.5V 20MHz/4.0 - 5.5V 10MHz/3.0 - 5.5V	-20°C - 75°C	80-QFP 80-TQFP 80-TQFP	DF2132RFA20V-ND◆ DF2132RTF20V-ND◆ DF2132RVTF10V-ND◆	13.52	12.62	11.72									
14.87														13.88	12.89										
128K	—	4K	8-ch. 10-bit	2-ch. 8-bit	—	3 USART, IrDA	3/1/—	66	20MHz/4.0 - 5.5V 20MHz/4.0 - 5.5V 10MHz/2.7 - 3.6V 10MHz/2.7 - 3.6V 20MHz/4.0 - 5.5V	-20°C - 75°C	80-QFP 80-TQFP 80-QFP 80-TQFP 80-QFP	DF2134AFA20V-ND◆ DF2134ATF20V-ND◆ DF2134AVFA10V-ND◆ DF2134AVTF10V-ND◆ DF2134BFA20V-ND◆	13.73	12.81	11.90										
													15.05	14.05	13.04										
128K	—	4K	8-ch. 10-bit	2-ch. 8-bit	—	3 USART, IrDA, 2 I ² C	4/1/—	66	20MHz/4.0 - 5.5V 20MHz/4.0 - 5.5V 10MHz/2.7 - 3.6V 10MHz/2.7 - 3.6V	-20°C - 75°C	80-QFP 80-TQFP 80-QFP 80-TQFP	DF2138AFA20V-ND◆ DF2138ATF20V-ND◆ DF2138AVFA10V-ND◆ DF2138AVTF10V-ND◆	15.00	14.00	13.00										
													15.60	14.56	13.52										
64K	—	4K	8-ch. 10-bit	2-ch. 8-bit	—	3 USART, IrDA, 2 I ² C	4/1/—	82	10MHz/2.7 - 3.6V	-20°C - 75°C	100-TQFP	DF2140BVT10V-ND◆	14.63	13.14	11.66										
													14.63	13.14	11.66										
128K	—	4K	8-ch. 10-bit	2-ch. 8-bit	—	3 UART	3/1/—	82	20MHz/2.7 - 5.5V 10MHz/2.7 - 5.5V 20MHz/2.7 - 5.5V 10MHz/2.7 - 5.5V	-20°C - 75°C	100-QFP 100-TQFP 100-QFP 100-QFP	DF2144AFA20V-ND◆ DF2144AVTE10V-ND◆ DF2144FA20V-ND◆ DF2144VFA10V-ND◆	14.48	13.51	12.55										
													16.01	14.94	13.88										
256K	—	8K	8-ch. 10-bit	2-ch. 8-bit	—	3 USART, IrDA, 2 I ² C	4/1/—	82	20MHz/4.0 - 5.5V 20MHz/4.5 - 5.5V 20MHz/4.5 - 5.5V 10MHz/2.7 - 3.6V 10MHz/2.7 - 3.6V 10MHz/2.7 - 3.6V 10MHz/2.7 - 3.6V	-20°C - 75°C	100-QFP 100-TQFP 100-TQFP 100-QFP 100-TQFP 100-QFP 100-TQFP	DF2145BFA20V-ND◆ DF2145BTE20V-ND◆ HD64F2145BTE20-ND DF2145BVF10V-ND◆ DF2145BVT10V-ND◆ HD64F2145BVF10-ND HD64F2145BVT10-ND	15.30	14.28	13.26										
													15.84	14.79	13.73										
128K	—	4K	8-ch. 10-bit	2-ch. 8-bit	—	3 USART, IrDA, 2 I ² C	4/1/—	82	20MHz/4.0 - 5.5V 20MHz/4.0 - 5.5V 20MHz/4.0 - 5.5V 20MHz/4.0 - 5.5V 20MHz/4.0 - 5.5V 10MHz/2.7 - 3.6V 10MHz/2.7 - 3.6V	-20°C - 75°C	100-TQFP 100-TQFP 100-QFP 100-TQFP 100-QFP 100-TQFP	HD64F2148ATE20V-ND◆ DF2148ATE20V-ND◆ DF2148BFA20V-ND◆ DF2148BTE20V-ND◆ DF2148BFA20V-ND◆ DF2148BFA20V-ND◆ DF2148BVT10V-ND◆	18.45	17.22	15.99										
													18.86	17.60	16.35										
64K	—	4K	8-ch. 10-bit	2-ch. 8-bit	—	3 USART, IrDA, 2 I ² C	4/1/—	122	10MHz/2.7 - 3.6V	-20°C - 75°C	144-TQFP	DF2160BVT10V-ND◆	15.32	14.30	13.28										
													16.20	15.12	14.04										
128K	—	4K	8-ch. 10-bit	2-ch. 8-bit	—	3 USART, IrDA, 2 I ² C	4/1/—	122	10MHz/2.7 - 3.6V	-20°C - 75°C	144-TQFP	DF2161BVT10V-ND◆	16.20	15.12	14.04										
													16.20	15.12	14.04										
512K	—	40K	8-ch. 10-bit	2-ch. 8-bit	—	3 USART, IrDA, 6 I ² C, Smart Card	4/1/—	115	33MHz/3 - 3.6V	-20°C - 75°C	144-TQFP	DF2166VT33V-ND◆	27.00	25.20	23.40										
													27.00	25.20	23.40										
384K	—	40K	8-ch. 10-bit	2-ch. 8-bit	—	3 USART, IrDA, 6 I ² C, Smart Card	4/1/—	115	33MHz/3.0 - 3.6V	-20°C - 75°C	144-TQFP 144-TQFP	DF2167VTE33V-ND◆ DF2167VT33-ND◆	25.20	23.52	21.84										
													28.01	26.14	24.28										
256K	—	40K	8-ch. 10-bit	2-ch. 8-bit	—	I ² C, SCI	4/1/—	106	33MHz/3.0 - 3.6V	-20°C - 75°C	144-TQFP	DF2168VTE33V-ND◆ NEW!	24.77	23.12	21.46										
													24.77	23.12	21.46										
256K	—	40K	8-ch. 10-bit	2-ch. 8-bit	—	3 USART, IrDA, 6 I ² C, Smart Card	4/1/—	115	33MHz/3.0 - 3.6V	-20°C - 75°C	144-TQFP	DF2168VT33V-ND◆	22.52	21.02	19.52										
													22.52	21.02	19.52										
32K	—	—	—	—	—	USB	2/—/—	76	33MHz/3.0 - 3.6V	-20°C - 75°C	100-TQFP	DF2170BVT33V-ND◆	18.00	16.80	15.60										
													18.00	16.80	15.60										
1M	—	6K	8-ch. 10-bit	—	—	2 USART, IrDA, Smart Card, 2 I ² C	4/4/—	119	20MHz/3.0 - 3.6V	-20°C - 75°C	144-TQFP	DF2189RV20V-ND◆	23.81	22.22	20.64										
													23.81	22.22	20.64										
64K	—	8K	6-ch. 10-bit	—	—	2 USART, Smart Card	—/3/—	37	24MHz/2.7 - 3.6V	-20°C - 75°C	64-LQFP 64-LQFP 64-LQFP	DF2211FP24V-ND◆ DF2211UFP24V-ND◆ HD64F2211UFP24-ND	11.65	10.49	9.30										
													11.65	10.49	9.30										
													11.67	10.49	9.30										
128K	—	12K	6-ch. 10-bit	—	—	2 USART, Smart Card	—/3/—	37	24MHz/2.7 - 3.6V	-20°C - 75°C	64-LQFP 64-LQFP 64-LQFP 64-LQFP	DF2212FP24V-ND◆ DF2212UFP24V-ND◆ HD64F2212FP24-ND HD64F2212UFP24-ND	12.48	11.24	9.97										
													12.48	11.24	9.97										
													12.48	11.24	9.97										
													12.48	11.24	9.97										
256K	—	20K	6-ch. 10-bit	2-ch. 8-bit	—	3 USART, Smart Card	—/3/—	81	16MHz/2.7 - 3.6V	-20°C - 75°C	112-TFBGA	DF2214BQ16V-ND◆	15.30	14.28	13.26										
													15.30	14.28	13.26										
256K	—	20K	6-ch. 10-bit	2-ch. 8-bit	—	3 USART, Smart Card	2/3/—	75	24MHz/2.7 - 3.6V	-20°C - 75°C	112-LFBGA 120-TQFP 112-LFBGA	DF2215RBR24V-ND◆ DF2215RTE24V-ND◆ DF2215RUBR24V-ND◆	15.41	14.38	13.36										
													13.80	12.88	11.96										
256K	—	16K	6-ch. 10-bit	2-ch. 8-bit	—	3 USART, Smart Card	2/3/—	75	16MHz/2.7 - 3.6V	-20°C - 75°C	112-LFBGA 120-TQFP 112-LFBGA	DF2215BR16V-ND◆ DF2215TE16V-ND◆ DF2215UBR16V-ND◆	21.00	19.60	18.20										
													19.01	17.74	16.48										
128K	—	12K	6-ch. 10-bit	—	—	2 USART, Smart Card	—/3/—	69	24MHz/2.7 - 3.6V	-20°C - 75°C	112-LFBGA 100-TQFP 100-TQFP	DF2218BR24V-ND◆ DF2218TF24V-ND◆ DF2218UT24V-ND◆	14.60	13.63	12.65										
													14.36	12.90	11.44										
128K	—	12K	6-ch. 10-bit	—	—	2 USART, Smart Card	—/3/—	69	24MHz/2.7 - 3.6V	-20°C - 75°C	100-TQFP 112-LFBGA	HD64F2218TF24-ND◆ DF2218UBR24V-ND◆	15.99	14.40	12.77										
													14.60	13.63	12.65										
128K	—	12K	6-ch. 10-bit	—	—	2 USART, Smart Card	—/3/—	69	24MHz/2.7 - 3.6V	-20°C - 75°C	100-TQFP	HD64F2218TF24-ND◆	15.99	14.40	12.77										
													15.99	14.40	12.77										

◆ RoHS Compliant *SSU = SPI*

(Continued)

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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	256K	—	32K	10-ch. 10-bit	2-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—	94	34MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	DF2362VTE34V-ND◆	14.01	12.59	11.16																													
												16K	8-ch. 10-bit	2-ch. 8-bit	4 USART, Smart Card, 2 I ² C	4/6/—	82	13.5MHz/2.7 - 5.5V	100-QFP	DF2238BF13V-ND◆	18.11	16.90	15.70																					
																		13.5MHz/2.7 - 5.5V	100-QFP	DF2238BFA13V-ND◆	18.11	16.90	15.70																					
																		13.5MHz/2.7 - 5.5V	100-TQFP	DF2238BTE13V-ND◆	20.00	18.67	17.33																					
																		13.5MHz/2.7 - 5.5V	100-TQFP	DF2238BTF13V-ND◆	20.00	18.67	17.33																					
			13.5MHz/2.7 - 5.5V	112-TFBGA	DF2238RBQ13V-ND◆	17.10	15.96	14.82																																				
			16K	8-ch. 10-bit	2-ch. 8-bit	4 USART, Smart Card, 2 I ² C	4/6/—	82	6.25MHz/2.2 - 3.6V	112-TFBGA	DF2238RBQ6V-ND◆	17.10	15.96	14.82																														
									6.25MHz/2.2 - 3.6V	112-LFBGA	DF2238RBQ6V-ND◆	17.10	15.96	14.82																														
									6.25MHz/2.2 - 3.6V	100-TQFP	DF2238RBF6V-ND◆	15.84	14.79	13.73																														
									6.25MHz/2.2 - 3.6V	100-TQFP	DF2238RBF6V-ND◆	15.84	14.79	13.73																														
	13.5MHz/2.7 - 3.6V	112-BGA							DF2238RBR13V-ND◆	17.10	15.96	14.82																																
	384K	—	32K	8-ch. 10-bit	2-ch. 8-bit	4 USART, Smart Card, 2 I ² C	4/6/—	82	20MHz/3.0 - 3.6V	-20°C - 75°C	112-TFBGA	DF2239BQ20V-ND◆	19.80	18.48	17.16																													
												16MHz/2.7 - 3.6V	100-QFP	DF2239FA16V-ND◆	18.00	16.80	15.60																											
												20MHz/3.0 - 3.6V	100-QFP	DF2239FA20V-ND◆	18.00	16.80	15.60																											
												20MHz/3.0 - 3.6V	100-QFP	DF2239FA20IV-ND◆	19.80	18.48	17.16																											
												16MHz/2.7 - 3.6V	100-QFP	HD64F2239FA16-ND	18.00	16.80	15.60																											
									16K	8-ch. 10-bit	2-ch. 8-bit	4 USART, Smart Card, 2 I ² C	4/6/—	82	20MHz/3.0 - 3.6V	100-QFP	HD64F2239FA20-ND	18.00	16.80	15.60																								
															16MHz/2.7 - 3.6V	100-QFP	DF2239TE16V-ND◆	18.54	17.31	16.07																								
															20MHz/3.0 - 3.6V	100-QFP	DF2239TE20V-ND◆	18.54	17.31	16.07																								
															16MHz/2.7 - 3.6V	100-TQFP	DF2239TF16V-ND◆	18.54	17.31	16.07																								
															20MHz/3.0 - 3.6V	100-TQFP	DF2239TF20V-ND◆	18.54	17.31	16.07																								
	256K	—	16K	8-ch. 10-bit	2-ch. 8-bit	4 USART, Smart Card, 2 I ² C	4/6/—	82	13.5MHz/4.0 - 5.5V	-20°C - 75°C	100-QFP	DF2258FA13V-ND◆	19.25	17.97	16.68																													
												13.5MHz/3.0 - 5.5V	100-QFP	DF2265FA13V-ND◆	14.40	13.44	12.48																											
													13.5MHz/3.0 - 5.5V	100-QFP	DF2265FA20V-ND◆	14.40	13.44	12.48																										
													13.5MHz/3.0 - 5.5V	100-TQFP	DF2265TE13V-ND◆	15.00	14.00	13.00																										
													13.5MHz/3.0 - 5.5V	100-QFP	DF2266FA13V-ND◆	15.00	14.00	13.00																										
									13.5MHz/3.0 - 5.5V	100-TQFP	DF2266TF13V-ND◆		15.60	14.56	13.52																													
									16K	8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card, 2 I ² C	4/3/—	78	20.5MHz/4.0 - 5.5V	100-TQFP	DF2266TF20V-ND◆	15.60	14.56	13.52																								
															13.5MHz/3.0 - 5.5V	100-QFP	DF2268FA13V-ND◆	17.00	15.87	14.73																								
															20.5MHz/4.0 - 5.5V	100-QFP	DF2268FA20V-ND◆	17.00	15.87	14.73																								
															13.5MHz/3.0 - 5.5V	100-TQFP	DF2268TE13V-ND◆	17.60	16.43	15.25																								
	20.5MHz/4.0 - 5.5V	100-TQFP	DF2268TE20V-ND◆	17.60	16.43	15.25																																						
	384K	—	4K	8-ch. 10-bit	2-ch. 8-bit	2 USART, Smart Card	2/6/—	79	25MHz/3.0 - 3.6V	-20°C - 75°C	100-TQFP	DF2314VTE25V-ND◆	18.35	17.13	15.90																													
												8K	8-ch. 10-bit	2-ch. 8-bit	2 USART, Smart Card	2/6/—	79	13.5MHz/3.0 - 5.5V	100-QFP	DF2315VF25V-ND◆	18.00	16.80	15.60																					
																		13.5MHz/3.0 - 5.5V	100-TQFP	DF2315VTE25V-ND◆	18.54	17.31	16.07																					
																		25MHz/3.0 - 3.6V	100-TQFP	DF2317VTE25V-ND◆	14.48	13.51	12.55																					
																		25MHz/3.0 - 3.6V	100-TQFP	DF2317VTEBL25V-ND◆	9.98	7.99	6.74																					
									25MHz/3.0 - 3.6V	100-TQFP	DF2317VTF25V-ND◆							14.48	13.51	12.55																								
									256K	—	8K	8-ch. 10-bit	2-ch. 8-bit	2 USART, Smart Card	2/6/—	79	25MHz/3.0 - 3.6V	-20°C - 75°C	100-QFP	DF2318VF25V-ND◆	15.30	14.28	13.26																					
																				8K	8-ch. 10-bit	2-ch. 8-bit	2 USART, Smart Card	2/6/—	79	13.5MHz/3.0 - 5.5V	100-TQFP	HD64F2318VTE25-ND	15.84	14.79	13.73													
13.5MHz/3.0 - 5.5V																										100-TQFP	DF2318VTE25V-ND◆	15.84	14.79	13.73														
25MHz/3.0 - 3.6V																										113-TFLGA	DF2319CVLP25V-ND◆	22.86	21.34	19.82														
25MHz/3.0 - 3.6V	100-TQFP	DF2319CVTE25V-ND◆	17.64	16.47	15.29																																							
25MHz/3.0 - 3.6V	100-QFP	DF2319EVF25V-ND◆	24.00	22.40	20.80																																							
512K	—	8K	8-ch. 10-bit	2-ch. 8-bit	2 USART, Smart Card	2/6/—	79	25MHz/3.0 - 3.6V									-20°C - 75°C	100-QFP	DF2319EVTE25V-ND◆	26.48	24.71	22.95																						
																			3 USART, Smart Card	2/6/—	95	25MHz/3.0 - 3.6V	-20°C - 75°C	128-QFP	DF2319EVF25V-ND◆	24.00	22.40	20.80																
																									8K	8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	HD64F2319EVF25-ND	26.48	24.71	22.95										
																															25MHz/3.0 - 3.6V	100-QFP	DF2319VF25V-ND◆	20.76	19.38	18.00								
									25MHz/3.0 - 3.6V	100-TQFP	DF2319VTE25V-ND◆	23.04	21.51	19.97																														
					25MHz/3.0 - 3.6V	100-QFP	HD64F2319VF25-ND	20.76	19.38	18.00																																		
					25MHz/3.0 - 3.6V	128-QFP	DF2326VF25V-ND◆	21.90	20.44	18.98																																		
					256K	—	8K	8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	25MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	DF2326VTE25V-ND◆	24.00	22.40	20.80																									
																8K	8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	128-QFP	DF2328BVF25V-ND◆	16.20	15.12	14.04																		
																						120-TQFP	DF2328BVF25V-ND◆	16.74	15.63	14.51																		
128-QFP	DF2328VF25V-ND◆	16.38	15.29	14.20																																								
120-TQFP	DF2328VTE25V-ND◆	18.11	16.90	15.70																																								
128-QFP	HD64F2328VF25-ND	16.38	15.29	14.20																																								
384K	—	32K	8-ch. 10-bit	2-ch. 8-bit						3 USART, Smart Card	2/6/—	95	25MHz/3.0 - 3.6V	-20°C - 75°C	128-QFP	DF2329BVF25V-ND◆	18.90	17.64	16.38																									
																32K	8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	120-TQFP	DF2329BVFTE25V-ND◆	19.44	18.15	16.85																		
																						120-TQFP	HD64F2329BVFTE25-ND	19.44	18.15	16.85																		
																						128-QFP	DF2329EVF25V-ND◆	27.24	25.43	23.61																		
					120-TQFP	DF2329EVTE25V-ND◆	29.72	27.74	25.76																																			
					128-QFP	HD64F2329VF25-ND	29.72	27.74	25.76																																			
					256K	—	8K	12-ch. 10-bit	4-ch. 8-bit	3 USART, Smart Card	2/6/—	118	25MHz/3.0 - 3.6V	-20°C - 75°C	144-QFP	DF2338VFC25V-ND◆	18.66	17.42	16.18																									
																8K	8-ch. 10-bit	2-ch. 8-bit	2 USART, Smart Card	2/6/—	79	144-QFP	DF2339VFC25V-ND◆	28.20	26.32	24.44																		
																						144-QFP	DF2339VFC25V-ND◆	28.20	26.32	24.44																		
																						100-TQFP	DF2345TE20V-ND◆	18.86	17.60	16.35																		
120-TQFP	DF2357TE20V-ND◆	25.34	23.65	21.96																																								
128-QFP	DF2357VF13V-ND◆	23.04	21.51	19.97																																								
384K	—	32K	10-ch. 10-bit	2-ch. 8-bit						5 USART, IrDA, Smart Card, 2 I ² C	2/6/—	94	34MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	DF2357VTE13V-ND◆	25.34	23.65	21.96																									
																24K	10-ch. 10-bit	2-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—	94	34MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	DF2360VTE34V-ND◆	13.14	11.81	10.47																
																									30K	10-ch. 10-bit	2-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—	94	34MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	DF2361VTE34V-ND◆	13.58	12.20	10.82							
																																		24K	10-ch. 10-bit	2-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—	94	34MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	DF2364VTE34V-ND◆	14.85
					30K	10-ch. 10-bit	2-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—																																		94	34MHz/3.0 - 3.6V
										24K	10-ch. 10-bit	2-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—	94																													
																128-QFP	DF2367VF33V-ND◆	16.97	15.84	14.71																								
																	120-TQFP	DF2367VTE33V-ND◆	17.34	16.19	15.03																							
																		512K	—	32K	10-ch. 10-bit	2-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—	94	34MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	DF2368VTE34V-ND◆	14.66	13.68	12.71												
					16K	16-ch. 10-bit	6-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—																				113	34MHz/3.0 - 3.6V	-20°C - 75°C	144-LQFP	DF2370RVF034V-ND◆	13.91	12.98	12.06								
24K	16-ch. 10-bit	6-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—						113	34MHz/3.0 - 3.6V	-20°C - 75°C	145-TFLGA	DF2370VLP34V-ND◆	16.76																		15.64	14.53										
														144-LQFP	DF2370VF034V-ND◆	14.63																	13.14	11.66										
															145-TFLGA	DF2370VLP34V-ND◆	16.01																14.94	13.88										
																144-LQFP	DF2371RVF034V-ND◆	14.28	13.33	12.38																								
					145-TFLGA	DF2371RVL34V-ND◆	17.15	16.01	14.86																																			
144-LQFP	DF2371VF034V-ND◆	13.52	12.62	11.72																																								
	145-TFLGA	DF2371VLP34V-ND◆	16.38	15.29		14.20																																						
		144-LQFP	DF2372RVF034V-ND◆	14.66		13.68	12.71																																					

◆ RoHS Compliant *SSU = SPI[®]

(Continued)

C

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	256K	—	32K	16-ch. 10-bit	6-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—	113	34MHz/3.0 - 3.6V	-20°C - 75°C	145-TFLGA	DF2372RVL34V-ND	17.52	16.36	15.19	
												144-LQFP	DF2372VFQ34V-ND	13.91	12.98	12.06
												145-TFLGA	DF2372VLP34V-ND	16.76	15.64	14.53
	384K	—	32K	16-ch. 10-bit	6-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—	113	34MHz/3.0 - 3.6V	-20°C - 75°C	144-LQFP	DF2374RVFQ34V-ND	15.42	14.40	13.37	
												145-TFLGA	DF2374RVL34V-ND	18.29	17.07	15.85
												144-LQFP	DF2374VFQ34V-ND	14.67	13.70	12.75
	384K	—	30K	16-ch. 10-bit	4-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—	97	33MHz/3 - 3.6V	-20°C - 75°C	144-LQFP	DF2376VFQ33V-ND	17.34	16.19	15.03	
												144-LQFP	DF2377RVFQ33V-ND	17.90	16.71	15.51
												144-LQFP	DF2377RVFQ33V-ND	18.80	17.55	16.29
	512K	—	32K	16-ch. 10-bit	6-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	2/6/—	113	33MHz/3.0 - 3.6V	-20°C - 75°C	144-LQFP	DF2377RVFQ33V-ND	17.90	16.71	15.51	
												144-LQFP	DF2377RVFQ33V-ND	18.80	17.55	16.29
												144-LQFP	DF2377RVFQ33V-ND	17.90	16.71	15.51
	256K	—	8K	8-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card	2/6/—	95	20MHz/4.5 - 5.5V	-20°C - 75°C	120-TQFP	DF2398TE20V-ND	16.74	15.63	14.51	
												128-QFP	DF2398F20TV-ND	17.82	16.64	15.45
												128-QFP	DF2398F20V-ND	16.20	15.12	14.04
	512K	—	40K	8-ch. 10-bit	—	5 USART, 4 I ² C	4/5/—	110	20MHz/3.0 - 3.6V	-20°C - 75°C	128-QFP	DF2437FV-ND	16.20	15.12	14.04	
												144-LQFP	R4F2462VFQ34V-ND	21.83	20.37	18.92
												176-LFBGA	R4F2472VBR340V-ND	19.08	17.81	16.54
	384K	—	32K	16-ch. 10-bit	2-ch. 8-bit	5 USART, Smart Card, 2 I ² C	4/6/—	120	26MHz/3.0 - 5.5V	-40°C - 75°C	176-LFBGA	R4F2472VBR34V-ND	17.34	16.19	15.03	
												176-LFBGA	DF2505BR26DV-ND	25.01	23.34	21.68
												144-QFP	DF2505FC26V-ND	22.86	21.34	19.82
	512K	—	32K	16-ch. 10-bit	2-ch. 8-bit	5 USART, Smart Card, 2 I ² C	4/6/—	120	26MHz/3.0 - 5.5V	-40°C - 75°C	176-LFBGA	DF2506BR26DV-ND	27.00	25.20	23.40	
	384K	—	24K	16-ch. 10-bit	2-ch. 8-bit	5 USART, Smart Card, 2 I ² C	4/6/—	120	26MHz/3.0 - 5.5V	-40°C - 75°C	176-LFBGA	DF2551BR26DV-ND	26.00	24.27	22.53	
	512K	—	32K	16-ch. 10-bit	2-ch. 8-bit	5 USART, Smart Card, 2 I ² C	4/6/—	120	26MHz/3.0 - 5.5V	-40°C - 75°C	176-LFBGA	DF2552BR26DV-ND	27.90	26.04	24.18	
												144-QFP	DF2552FC26DV-ND	26.00	24.27	22.53
												144-QFP	DF2556FC20DV-ND	26.00	24.27	22.53
	128K	—	4K	12-ch. 10-bit	—	3 USART, Smart Card, 1 CAN	—/6/—	56	20MHz/4.5 - 5.5V	-20°C - 75°C	80-QFP	DF2612FA20V-ND	16.01	14.94	13.88	
	256K	—	12K	16-ch. 10-bit	—	3 USART, Smart Card, 1 CAN	—/6/—	70	20MHz/4.5 - 5.5V	-20°C - 75°C	100-QFP	DF2623FA20V-ND	28.97	27.04	25.11	
	128K	—	8K	16-ch. 10-bit	—	2 USART, 2 SSU*, Smart Card, 1 CAN	4/6/—	76	24MHz/4.5 - 5.5V	-20°C - 75°C	100-QFP	DF2628FA24V-ND	16.01	14.94	13.88	
	384K	—	16K	12-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card, 2 CAN	—/6/—	84	20MHz/4.5 - 5.5V	-20°C - 75°C	128-QFP	DF2630F20V-ND	36.20	33.79	31.37	
128-QFP												DF2630UF20JV-ND	37.52	35.02	32.52	
128-QFP												DF2630WF20V-ND	38.48	35.91	33.35	
256K	—	16K	16-ch. 10-bit	4-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	4/6/—	89	16MHz/3.0 - 3.6V	-20°C - 75°C	128-QFP	DF2633F16V-ND	21.90	20.44	18.98		
											128-QFP	DF2633F25V-ND	21.90	20.44	18.98	
											120-TQFP	DF2633TE25V-ND	24.00	22.40	20.80	
16K	16-ch. 10-bit	4-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	4-ch. 8-bit	5 USART, IrDA, Smart Card, 2 I ² C	4/6/—	89	28MHz/4.5 - 5.5V	-20°C - 75°C	120-TQFP	DF2633RF28V-ND	19.01	17.74	16.48		
											120-TQFP	DF2633RE28V-ND	19.61	18.30	17.00	
											120-TQFP	HD64F6233RTE28V-ND	19.61	18.30	17.00	
128K	—	4K	12-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card, 2 CAN	—/6/—	84	20MHz/4.5 - 5.5V	-20°C - 75°C	120-TQFP	DF2633TE16V-ND	23.81	22.22	20.64		
											128-QFP	DF2636F20V-ND	22.28	20.79	19.31	
											128-QFP	DF2636UF20V-ND	23.63	22.05	20.48	
256K	—	16K	12-ch. 10-bit	2-ch. 8-bit	3 USART, Smart Card, 2 CAN	—/6/—	84	20MHz/4.5 - 5.5V	-20°C - 75°C	128-QFP	DF2638F20V-ND	25.14	23.47	21.79		
											128-QFP	HD64F2638F20V-ND	30.66	28.62	26.58	
											128-QFP	DF2638UF20V-ND	26.28	24.53	22.78	
											128-QFP	DF2638WF20V-ND	27.42	25.60	23.77	
											128-QFP	DF2638VF20V-ND	33.29	31.07	28.85	
											128-QFP	DF2639UF20V-ND	27.80	25.95	24.09	
128K	—	4K	12-ch. 10-bit	—	2 USART, Smart Card, 1 CAN	—/6/—	108	20MHz/4.5 - 5.5V	-40°C - 85°C	144-QFP	DF2643FC16V-ND	23.04	21.51	19.97		
											144-QFP	DF2643FC25V-ND	23.04	21.51	19.97	
											144-QFP	DF2646RFC20V-ND	30.29	28.27	26.25	
384K	—	16K	12-ch. 10-bit	4-ch. 8-bit	3 USART, Smart Card, 1 CAN	—/6/—	108	20MHz/4.5 - 5.5V	-40°C - 85°C	144-QFP	DF2646RFC20V-ND	25.14	23.47	21.79		
											144-QFP	DF2648RFC20V-ND	31.62	29.52	27.41	
											144-QFP	DF2648RFC20V-ND	26.28	24.53	22.78	
256K	—	8K	12-ch. 10-bit	4-ch. 8-bit	3 USART, IrDA, Smart Card	2/6/—	115	33MHz/3.0 - 3.6V	-20°C - 75°C	144-LQFP	DF2667VFQ33V-ND	18.66	17.42	16.18		
256K	—	8K	12-ch. 10-bit	4-ch. 8-bit	3 USART, IrDA, Smart Card	2/6/—	115	33MHz/3.0 - 3.6V	-20°C - 75°C	144-QFP	DF2676VFQ33V-ND	20.00	18.67	17.33		

H8SX 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	256K	—	12K	16-ch. 10-bit	—	2 USART, 3 SSU*, Smart Card I ² C, SCI	—/12/—	99	48MHz/4.5 - 5.5V	-20°C - 85°C	120-LQFP	DF61582N48FPV-ND	22.86	21.34	19.82	
												120-LQFP	R5F61632N50FPV-ND	12.71	11.42	10.13
ROMless	—	—	24K	8-ch. 10-bit	2-ch. 8-bit	Smart Card, SCI	4/6/2	50	50MHz/3.0 - 3.6V	-20°C - 75°C	120-LQFP	DS61650CN50FPV-ND	9.34	7.48	6.31	
												120-LQFP	DS61650CW50FPV-ND	8.58	7.71	6.84
												120-LQFP	DS61651CN50FPV-ND	9.57	8.60	7.63
Flash	384K	—	40K	8-ch. 10-bit	2-ch. 8-bit	6 USART, IrDA, USB FS, Smart Card, 2 I ² C	8/6/—	75	50MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	R5F61653N50FTV-ND	17.15	16.01	14.86	
												120-TQFP	DF61654N50FTV-ND	18.59	17.35	16.11
	512K	—	40K	8-ch. 10-bit	2-ch. 8-bit	6 USART, IrDA, Smart Card, 2 I ² C	8/6/—	82	50MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	DF61656CN35FTV-ND	17.52	16.36	15.19	
												120-TQFP	DF61656N35FTV-ND	17.52	16.36	15.19
												120-TQFP	DF61656W35FTV-ND	19.28	17.99	16.71
	768K	—	24K	8-ch. 10-bit	2-ch. 8-bit	4 USART, Smart Card	4/6/—	90	35MHz/3.0 - 3.6V	-20°C - 75°C	120-TQFP	DF61657BN35FTV-ND	19.01	17.74	16.48	
												120-TQFP	DF61657CN35FTV-ND	19.01	17.74	16.48
	384K	—	40K	8-ch. 10-bit	2-ch. 8-bit	6 USART, IrDA, 2 I ² C	8/6/—	101	50MHz/3.0 - 3.6V	-20°C - 75°C	144-LQFP	DF61663N50FPV-ND	17.52	16.36	15.19	
												144-LQFP	DF61663W50FPV-ND	19.28	17.99	16.71
	512K	—	40K	8-ch. 10-bit	2-ch. 8-bit	I ² C, SCI, USB	8/12/4	92	50MHz/3.0 - 3.6V	-20°C - 75°C	144-LQFP	R5F61664RN50FPV-ND	14.28	13.33	12.38	
144-LQFP												DF61664W50FPV-ND	20.85	19.46	18.07	
1024K	—	56K	8-ch. 10-bit	2-ch. 8-bit	I ² C, SCI, USB	8/12/4	92	50MHz/3.0 - 3.6V	-20°C - 75°C	144-LQFP	R5F61668RN50FPV-ND	19.28	17.99	16.71		

• RoHS Compliant *SSU = SPI

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