

Specification		Orderable Part No.			
Bit Size	32/16-bit CISC	Orderable Part No.	Packing	Environmental	remark
Family	H8S Family	Mass Production			
Series	H8S/2300	D12350TE20IV	Tray	Pb Free	Consumer
Group	H8S/2350				
ROM	-				
RAM	2K				
ROM Type	ROMless				
CPU	H8S/2000 core				
Minimum Instruction Execution Time (ns)	50(@20MHz)				
Operating Frequency/Supply Voltage	20MHz/4.5 to 5.5V				
Production Status	Mass Production				
Remarks	-				
EEPROM(Bytes)	-				
Data Flash	-				
Cache Memory	-				
Program Security	-				
Basic Instructions	65				
Dhrystone Performance	-				
Multiplier	-				
Multiply -Accumulate Instruction	-				
Barrel Shifter	-				
FPU	-				
MMU	-				
DMAC (Channels)	4				
EXDMAC (Channels)	-				
DTC/DMACII	DTC				
Address Space (Bytes)	16M				
Bus Structure	Separate bus(8/16-bit)				
Bus State Controller	Direct connection to ROM/ Burst ROM/ SRAM/ DRAM is supported				
External Bus Interface	-				
SDRAM Controller	-				
DRAM Controller	Yes				
PCI Controller	-				
Endian Conversion	-				
Host Interface	-				
Clock Generation Circuit	1 circuit (Main clock)				
PLL	-				
Subclock	-				
RTC	-				
On-Chip Oscillator	-				
Oscillation Stop Detection	-				
Frequency Divider	1/n(n = 1, 2, 4, 8, 16, 32)				
Power Save	Mediumspeed/ Sleep/ Module stop/ Software standby/ Hardware standby				
Power -On Reset/POR	-				
LVD (Low Voltage Detection)	-				
A/D Converter Resolution x Channels	10-bit x 8				
A/D Converter Sample and Hold	Yes				
A/D Converter Multi-Channel Sample and Hold	-				
D/A Resolution x Circuits	8-bit x 2				
8-bit Timer	-				
10-bit Timer	-				
14-bit Timer	-				
16-bit Timer	6(TPU)				
24-bit Timer	-				
32-bit Timer	-				
Input Capture	6(shared with TPU)				
Output Compare	6(shared with TPU)				
PWM Output	6(shared with TPU)				
Real-Time Port	-				
Programmable Pulse Generator	16(shared with DMAC, DTC, TMR, TPU)				
Event Counter	6(shared with TPU)				
2-Phase Encoder Input	6(shared with TPU)				
3-Phase Inverter Control	-				
Watchdog Timer	1				
Serial Interface (Total)	2				
Serial Interface Clock Sync./Clock Async	2				
Serial Interface Clock Sync. Only	-				
Serial Interface Clock Async. Only	-				
I2C-bus	-				
IEBus	-				
Smart Card/SIM	2				
SSU/ Special Serial I/O	1(Multiprocessor communication function)				
CAN (Channels)	-				
CAN (Message Box)	-				
FlexRay	-				
Ethernet	-				
USB HOST	-				
USB Function	-				
LPC/ ISA	-				
IrDA	-				
LCD	-				
VFD	-				
OSD	-				
CRC Calculation Circuit	-				
X/Y Converter	-				
I/O Ports Input Only (Numbers)	8				
I/O Ports CMOS Output Only (Numbers)	-				
I/O Ports CMOS I/O (Numbers)	87				
I/O Ports High Voltage Port (Numbers)	-				
I/O Ports N-Channel Open Drain Port (Numbers)	6				
I/O Ports DTMF	-				
I/O Ports High Current Drive Port	32(Port for LED drive)				
I/O Ports NMOS Push-Pull	-				
I/O Ports Pull-Up Resistor	-				
External Interrupt Pins	9(NMI, IRQ x 8)				
Boundary Scan/JTAG	-				
On-Chip Debug	-				
On-Board Flash Program	-				
ROM Correction Function	-				
Other Functions	-				
Operating Ambient Temperature (°C)	-40 to 85				
Quality Level	Consumer's use				
Package Code	PTOP0120LAA (TFP-120)				