

**Table 3: PERIPHERAL INTEGRATED CIRCUITS FOR THE FUJITSU 4-BIT MCU FAMILY**

Process	Device Number	Function	Features
NMOS	MB 88301A-P	D/A Converter	Pulsewidth modulation type, 6-bit x 3 ch, 13-bit x 1 ch., 4-bit data input
	MB 88303-P	TV Display Controller [for TV/VCR]	20 character x 9 lines, 5 x 7 dot matrix, 64 character types, programmable character size/position/blink, parallel data input, character generator ROM
	MB 88304-P	I/O Expander [open-drain output]	4-bit x 4 ch. I/O ports, parallel/AND/OR I/O ports, power on reset
	MB 88305-P	I/O Expander [3 state output]	4-bit x 4 ch. I/O ports, parallel/AND/OR I/O ports, power on reset
CMOS	MB 88306-P/-PF	Output Expander	Rising-edge-triggered shift clock input, 8-bit CMOS data output, serial I/O
	MB 88307-P/-PF	Output Expander	Rising-edge-triggered shift clock input, 8-bit N-ch. open-drain data output, serial I/O
	MB 88308-P/-PF	Output Expander	Falling-edge-triggered shift clock input, 8-bit CMOS data output, serial I/O
	MB 88309-P/-PF	Output Expander	Falling-edge-triggered shift clock input, 8-bit N-ch. open-drain data output, serial I/O
	MB 88310-P	I/O Expander [open-drain output]	CMOS version of MB 88304
	MB 88311-P	I/O Expander [3 state output]	CMOS version of MB 88305
	MB 88313-P	TV Display Controller [for TV/VCR]	16(8) characters x 1(2), line(s), 5 x 7 dot matrix, 32 character types, programmable character size/position/blink, serial data input, character generator ROM
	*MB 88321-P	TV Display Controller [for TV, ROM version]	20 characters x 9 lines, 8 x 8 dot matrix, 64 character types, programmable character size/position/blink, serial data input, character generator ROM, RGB outputs
	*MB 88322-P	TV Display Controller [for TV, RAM version]	Character generator RAM version of MB 88321
	MB 88323-P	TV Display Controller [for VCR, ROM version]	20 characters x 9 lines, 8 x 8 dot matrix, 64 character types, programmable character size/position/blink, serial data input, character generator ROM, V & H sync generation
	MB 88324-P	TV Display Controller [for VCR, RAM version]	Character generator RAM version of MB 88323

\* Under development

Package	Supply Voltage	Ambient Temperature Range [°C]	Typical Operating Clock Frequency [MHz]	Process
DIP-16P-M02	5.0 ± 10%	-30 to +70	4.0	NMOS
DIP-22P-M02/ FPT-24P-M02	5.0 ± 10%	-30 to +70	6.0	
DIP-24P-M01	5.0 ± 10%	-30 to +70	—	
DIP-24P-M01	5.0 ± 10%	-30 to +70	—	
DIP-16P-M02/ FPT-16P-M02	5.0 ± 10%	-40 to +85	2.0	CMOS
DIP-16P-M02/ FPT-16P-M02	5.0 ± 10%	-40 to +85	2.0	
DIP-16P-M02/ FPT-16P-M02	5.0 ± 10%	-40 to +85	2.0	
DIP-16P-M02/ FPT-16P-M02	5.0 ± 10%	-40 to +85	2.0	
DIP-24P-M01	5.0 ± 10%	-40 to +85	—	
DIP-24P-M01	5.0 ± 10%	-40 to +85	—	
DIP-16P-M02/ FPT-16P-M02	5.0 ± 10%	-30 to +70	6.0	
DIP-22P-M02	5.0 ± 10%	-30 to +70	TBD	
DIP-22P-M02	5.0 ± 10%	-30 to +70	TBD	
DIP-22P-M02	5.0 ± 10%	-30 to +70	7.16	
DIP-22P-M02	5.0 ± 10%	-30 to +70	7.16	