Separate Sheet

Product Specifications of the R7F0C205L, R7F0C206L, R7F0C206M, R7F0C207M and R7F0C208M microcontrollers

Item		64-pin		80-pin		
		R7F0C205L	R7F0C206L	R7F0C206M	R7F0C207M	R7F0C208M
Code flash memory		48 KB	64 KB	64 KB	96 KB	128 KB
Data flash memory		4 KB	4 KB	4 KB	4 KB	4 KB
RAM		5.5 KB	6 KB	6 KB	7 KB	8 KB
Address space		1 MB				
Main system clock	High-speed system clock	X1 (crystal/ceramic) oscillation, external main system clock input (EXCLK) HS (High-speed main) mode: 1 to 20 MHz (V_{DD} = 2.7 to 5.5 V), HS (High-speed main) mode: 1 to 16 MHz (V_{DD} = 2.4 to 5.5 V), LS (Low-speed main) mode: 1 to 8 MHz (V_{DD} = 1.8 to 5.5 V), LV (Low-voltage main) mode: 1 to 4 MHz (V_{DD} = 1.6 to 5.5 V)				
	High-speed on-chip oscillator (f_{IH})	HS (High-speed main) mode: 1 to 24 MHz (V_{DD} = 2.7 to 5.5 V), HS (High-speed main) mode: 1 to 16 MHz (V_{DD} = 2.4 to 5.5 V), LS (Low-speed main) mode: 1 to 8 MHz (V_{DD} = 1.8 to 5.5 V), LV (Low-voltage main) mode: 1 to 4 MHz (V_{DD} = 1.6 to 5.5 V)				
Clock for 16-bit timer KB2		48 MHz (TYP.): V_{DD} = 2.7 to 5.5 V				
Subsystem clock		XT1 (crystal) oscillation, external subsystem clock input (EXCLKS) 32.768 kHz (TYP.): V_{DD} = 1.6 to 5.5 V				
Low-speed on-chip oscillator		15 kHz (TYP.) : V_{DD} = 1.6 to 5.5 V				
General-purpose register		8 bits × 32 registers (8 bits × 8 registers × 4 banks)				
Minimum instruction execution time		0.04167 μs (High-speed on-chip oscillator: f_{IH} = 24 MHz operation)				
		0.05 μs (High-speed system clock: f_{MX} = 20 MHz operation)				
		30.5 μs (Subsystem clock: f_{SUB} = 32.768 kHz operation)				
Instruction set		• Data transfer (8/16 bits) • Adder and subtractor/logical operation (8/16 bits) • Multiplication (8 bits × 8 bits, 16 bits × 16 bits), Division (16 bits ÷ 16 bits, 32 bits ÷ 32 bits) • Multiplication and accumulation (16 bits × 16 bits + 32 bits) • Rotate, barrel shift, and bit manipulation (set, reset, test, and Boolean operation), etc.				
I/O port	Total	47		63		
	CMOS I/O	42 (10 P-ch/N-ch large current pins, 25 N-ch large current pins)		56 (10 P-ch/N-ch large current pins, 39 N-ch large current pins)		
	CMOS input	5		5		
	N-ch O.D I/O (withstand voltage: 6 V)	–		2		

	Input pin shared with oscillator pin	4	4
Timer	16-bit timer TAU	8 channels	
	16-bit timer KB2	1 channel	
	Watchdog timer	1 channel	
	12-bit interval timer	1 channel	
	Real-time clock (RTC)	1 channel	
	RTC output	1 1 Hz (subsystem clock: f_{SUB} = 32.768 kHz)	

Item		64-pin		80-pin		
		R7F0C205L	R7F0C206L	R7F0C206M	R7F0C207M	R7F0C208M
Timer	Timer output	4 (TAU used), 2 (TKB2 used)		8 (TAU used), 2 (TKB2 used)		
	Remote control output function	1				
Clock output/buzzer output controller		2				
		• 2.44 kHz, 4.88 kHz, 9.77 kHz, 1.25 MHz, 2.5 MHz, 5 MHz, 10 MHz (Main system clock: f_{MAIN} = 20 MHz operation) • 256 Hz, 512 Hz, 1.024 kHz, 2.048 kHz, 4.096 kHz, 8.192 kHz, 16.384 kHz, 32.768 kHz (Subsystem clock: f_{SUB} = 32.768 kHz operation)				
12-bit resolution A/D converter		8 channels		16 channels		
Comparator		–		2 channels		
Serial interface		[64-pin, 80-pin] • CSI: 1 channel/UART (supporting LIN-bus): 1 channel/simplified I^2C: 1 channel • CSI: 1 channel/UART: 1 channel/simplified I^2C: 1 channel • UART (supporting IrDA): 1 channel				
	I^2C bus	1 channel		1 channel		
Data transfer controller (DTC)		28 sources		30 sources		
Event link controller (ELC)		Event input: 28 Event trigger output: 12		Event input: 30 Event trigger output: 12		
Vectored interrupt sources	Internal	31		31		
	External	9		11		
Key interrupt		8				
LCD controller/driver		Internal voltage boosting method, capacitor split method, and external resistance division method are switchable.				
	Segment signal output	28/26/24				

	Common signal output	4/6/8	
Capacitive touch sensing unit (CTSU)		16 channels	24 channels
Reset		• Reset by RESET pin • Internal reset by watchdog timer • Internal reset by power-on-reset • Internal reset by voltage detector • Internal reset by illegal instruction execution • Internal reset by RAM parity error • Internal reset by illegal-memory access	
Power-on-reset circuit		• Power-on-reset: 1.51 V ±0.04 V • Power-down-reset: 1.50 V ±0.04 V	
Voltage detector		• Rising edge: 1.67 V ±0.03 V to 4.06 V ±0.08 V (14 steps) • Falling edge: 1.63 V ±0.03 V to 3.98 V ±0.08 V (14 steps)	
On-chip debug function		Provided	
Power supply voltage		V_{DD} = 1.6 to 5.5 V	
Operating ambient temperature		T_A = –40 to +85°C (2C: Industrial applications), T_A = –40 to +85°C (2D: Consumer applications)	

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