Infineon Technologies - MB91F525FSBPMC-GSE2 Datasheet

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What is "Embedded - Microcontrollers"?

"Embedded - Microcontrollers" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

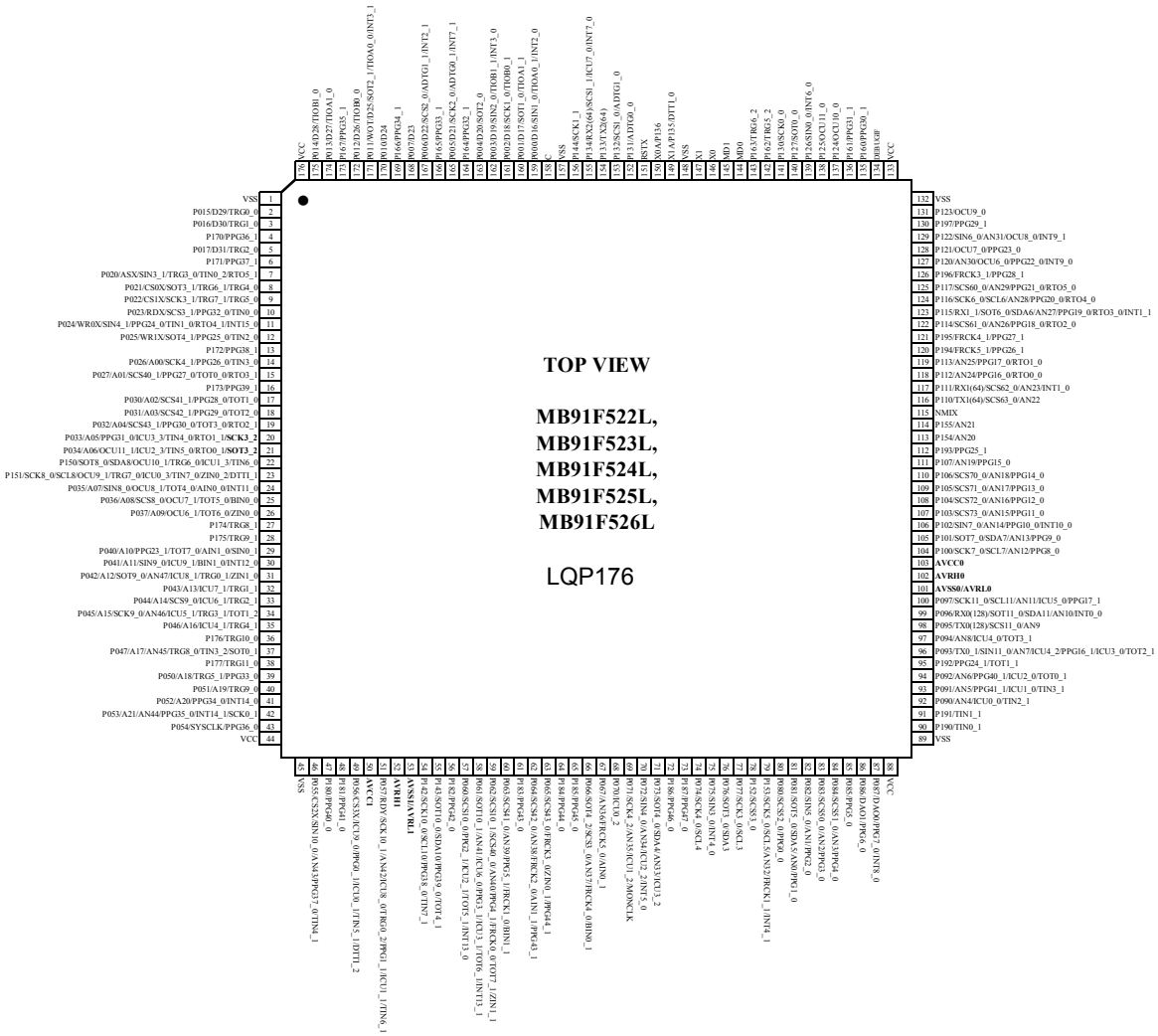
Applications of "Embedded - Microcontrollers"

Details	
Product Status	Obsolete
Core Processor	FR81S
Core Size	32-Bit Single-Core
Speed	80MHz
Connectivity	CANbus, CSIO, I²C, LINbus, SPI, UART/USART
Peripherals	DMA, LVD, POR, PWM, WDT
Number of I/O	76
Program Memory Size	832KB (832K x 8)
Program Memory Type	FLASH
EEPROM Size	64K x 8
RAM Size	104K x 8
Voltage - Supply (Vcc/Vdd)	2.7V ~ 5.5V
Data Converters	A/D 37x12b; D/A 2x8b
Oscillator Type	External
Operating Temperature	-40°C ~ 105°C (TA)
Mounting Type	Surface Mount
Package / Case	100-LQFP
Supplier Device Package	100-LQFP (14x14)
Purchase URL	https://www.e-xfl.com/product-detail/infineon-technologies/mb91f525fsbpmc-gse2

MB91F52xL

MB91F522L, MB91F523L, MB91F524L, MB91F525L, MB91F526L

(TOP VIEW)



* In a single clock product, pin 149 and pin 150 are the general-purpose ports.

Pin no.						Pin Name	Polarity	I/O circuit types*8	Function*9
64	80	100	120	144	176				
5 *1	7 *1	9 *1	12 *1	15	19	P032	-	A	General-purpose I/O port
						A04 *2, *3, *4, *5	-		External bus/Address bit4 output (0)
						SCS43_1	-		Serial chip select 43 output (1)
						PPG30_0	-		PPG ch.30 output (0)
						TOT3_0	-		Reload timer ch.3 output (0)
						RTO2_1	-		Waveform generator ch.2 output pin (1)
6 *1	8 *1	10 *1	13 *1	16	20	P033	-	A	General-purpose I/O port
						A05 *2, *3, *4, *5	-		External bus/Address bit5 output (0)
						PPG31_0	-		PPG ch.31 output (0)
						ICU3_3	-		Input capture ch.3 input (3)
						TIN4_0	-		Reload timer ch.4 event input (0)
						RTO1_1	-		Waveform generator ch.1 output pin (1)
						SCK3_2	-		Multi-function serial ch.3 clock I/O (2)
7 *1	9 *1	11 *1	14 *1	17	21	P034	-	A	General-purpose I/O port
						A06 *2, *3, *4, *5	-		External bus/Address bit6 output (0)
						OCU11_1	-		Output compare ch.11 output (1)
						ICU2_3	-		Input capture ch.2 input (3)
						TIN5_0	-		Reload timer ch.5 event input (0)
						RTO0_1	-		Waveform generator ch.0 output pin (1)
						SOT3_2	-		Multi-function serial ch.3 serial data output (2)
-	-	12	15	18	22	P150	-	F	General-purpose I/O port
						SOT8_0/ SDA8	-		Multi-function serial ch.8 serial data output (0)/ I^2C bus serial data I/O
						OCU10_1	-		Output compare ch.10 output (1)
						TRG6_0	-		PPG trigger 6 input (0)
						ICU1_3	-		Input capture ch.1 input (3)
						TIN6_0	-		Reload timer ch.6 event input (0)
8 *1	10 *1	13	16	19	23	P151	-	F	General-purpose I/O port
						SCK8_0/ SCL8 *2, *3	-		Multi-function serial ch.8 clock I/O (0)/ I^2C bus serial clock I/O
						OCU9_1	-		Output compare ch.9 output (1)
						TRG7_0	-		PPG trigger 7 input (0)
						ICU0_3	-		Input capture ch.0 input (3)
						TIN7_0	-		Reload timer ch.7 event input (0)
						ZIN0_2	-		U/D counter ch.0 ZIN input (2)
						DTTI_1	-		Waveform generator ch.1 input pin (1)

Pin no.						Pin Name	Polarity	I/O circuit types*8	Function*9
64	80	100	120	144	176				
13 *1	15 *1	19 *1	22 *1	25	31	P042	-	B	General-purpose I/O port
						A12 *2, *3, *4, *5	-		External bus/Address bit12 output
						SOT9_0	-		Multi-function serial ch.9 serial data output (0)
						AN47	-		ADC analog 47 input
						ICU8_1	-		Input capture ch.8 input (1)
						TRG0_1	-		PPG trigger 0 input (1)
						ZIN1_0	-		U/D counter ch.1 ZIN input (0)
-	-	20 *1	23 *1	26	32	P043	-	A	General-purpose I/O port
						A13 *4, *5	-		External bus/Address bit13 output (0)
						ICU7_1	-		Input capture ch.7 input (1)
						TRG1_1	-		PPG trigger 1 input (1)
-	16 *1	21 *1	24 *1	27	33	P044	-	A	General-purpose I/O port
						A14 *3, *4, *5	-		External bus/Address bit14 output (0)
						SCS9_0	-		Serial chip select 9 I/O (0)
						ICU6_1	-		Input capture ch.6 input (1)
						TRG2_1	-		PPG trigger 2 input (1)
14 *1	17 *1	22 *1	25 *1	28	34	P045	-	G	General-purpose I/O port
						A15 *2, *3, *4, *5	-		External bus/Address bit15 output (0)
						SCK9_0	-		Multi-function serial ch.9 clock I/O (0)
						AN46	-		ADC analog 46 input
						ICU5_1	-		Input capture ch.5 input (1)
						TRG3_1	-		PPG trigger 3 input (1)
						TOT1_2	-		Reload timer ch.1 output (2)
-	-	-	26 *1	29	35	P046	-	A	General-purpose I/O port
						A16 *5	-		External bus/Address bit16 output (0)
						ICU4_1	-		Input capture ch.4 input (1)
						TRG4_1	-		PPG trigger 4 input (1)
-	-	-	-	-	36	P176	-	A	General-purpose I/O port
						TRG10_0	-		PPG trigger 10 input (0)
15 *1	18 *1	23 *1	27 *1	30	37	P047	-	B	General-purpose I/O port
						A17 *2, *3, *4, *5	-		External bus/Address bit17 output (0)
						AN45	-		ADC analog 45 input
						TRG8_0	-		PPG trigger 8 input (0)
						TIN3_2	-		Reload timer ch.3 event input (2)
						SOT0_1	-		Multi-function serial ch.0 serial data output (1)
-	-	-	-	-	38	P177	-	A	General-purpose I/O port
						TRG11_0	-		PPG trigger 11 input (0)

Pin no.						Pin Name	Polarity	I/O circuit types*8	Function*9
64	80	100	120	144	176				
23	28	34	40	48	59	P062	-	B	General-purpose I/O port
						SCS10_1	-		Serial chip select 10 I/O (1)
						SCS40_0	-		Serial chip select 40 I/O (0)
						AN40	-		ADC analog 40 input
						PPG4_1	-		PPG ch.4 output (1)
						FRCK0_0	-		Free-run timer 0 clock input (0)
						TOT7_1	-		Reload timer ch.7 output (1)
						ZIN1_1	-		U/D counter ch.1 ZIN input (1)
-	29	35	41	49	60	P063	-	B	General-purpose I/O port
						SCS41_0	-		Serial chip select 41 output (0)
						AN39	-		ADC analog 39 input
						PPG5_1	-		PPG ch.5 output (1)
						FRCK1_0	-		Free-run timer 1 clock input (0)
						BIN1_1	-		U/D counter ch.1 BIN input (1)
-	-	-	-	-	61	P183	-	A	General-purpose I/O port
						PPG43_0	-		PPG ch.43 output (0)
24	30	36	42	50	62	P064	-	B	General-purpose I/O port
						SCS42_0	-		Serial chip select 42 output (0)
						AN38	-		ADC analog 38 input
						FRCK2_0	-		Free-run timer 2 clock input (0)
						AIN1_1	-		U/D counter ch.1 AIN input (1)
						PPG43_1	-		PPG ch.43 output (1)
-	-	37	43	51	63	P065	-	A	General-purpose I/O port
						SCS43_0	-		Serial chip select 43 output (0)
						FRCK3_0	-		Free-run timer 3 clock input (0)
						ZIN0_1	-		U/D counter ch.0 ZIN input (1)
						PPG44_1	-		PPG ch.44 output (1)
-	-	-	-	-	64	P184	-	A	General-purpose I/O port
						PPG44_0	-		PPG ch.44 output (0)
-	-	-	-	-	65	P185	-	A	General-purpose I/O port
						PPG45_0	-		PPG ch.45 output (0)
25	31	38	44	52	66	P066	-	B	General-purpose I/O port
						SOT4_2	-		Multi-function serial ch.4 serial data output (2)
						SCS3_0	-		Serial chip select 3 I/O (0)
						AN37	-		ADC analog 37 input
						FRCK4_0	-		Free-run timer 4 clock input (0)
						BIN0_1	-		U/D counter ch.0 BIN input (1)
-	32	39	45	53	67	P067	-	B	General-purpose I/O port
						AN36	-		ADC analog 36 input
						FRCK5_0	-		Free-run timer 5 clock input (0)
						AIN0_1	-		U/D counter ch.0 AIN input (1)

Pin no.						Pin Name	Polarity	I/O circuit types*8	Function*9
64	80	100	120	144	176				
-	-	-	-	76	94	P092	-	B	General-purpose I/O port
						AN6	-		ADC analog 6 input
						PPG40_1	-		PPG ch.40 output (1)
						ICU2_0	-		Input capture ch.2 input (0)
						TOT0_1	-		Reload timer ch.0 output (1)
-	-	-	-	-	95	P192	-	A	General-purpose I/O port
						PPG24_1	-		PPG ch.24 output (1)
						TOT1_1	-		Reload timer ch.1 output (1)
34 *1	42 *1	52	62	77	96	P093	-	J	General-purpose I/O port
						TX0_1	-		CAN transmission data 0 output (1)
						SIN11_0	-		Multi-function serial ch.11 serial data input (0)
						AN7	-		ADC analog 7 input
						ICU4_2	-		Input capture ch.4 input (2)
						PPG16_1	-		PPG ch.16 output (1)
						ICU3_0	-		Input capture ch.3 input (0)
						TOT2_1 *2, *3	-		Reload timer ch.2 output (1)
-	-	-	-	78	97	P094	-	B	General-purpose I/O port
						AN8	-		ADC analog 8 input
						ICU4_0	-		Input capture ch.4 input (0)
						TOT3_1	-		Reload timer ch.3 output (1)
-	-	53	63	79	98	P095	-	B	General-purpose I/O port
						TX0(128)	-		CAN transmission data 0 output
						SCS11_0	-		Serial chip select 11 I/O (0)
						AN9	-		ADC analog 9 input
35	43	54	64	80	99	P096	-	G	General-purpose I/O port
						RX0(128)	-		CAN reception data 0 input
						SOT11_0 / SDA11	-		Multi-function serial ch.11 serial data output (0)/I^2C bus serial data I/O
						AN10	-		ADC analog 10 input
						INT0_0	-		INT0 External interrupt input (0)
36	44	55	65	81	100	P097	-	G	General-purpose I/O port
						SCK11_0 / SCL11	-		Multi-function serial ch.11 clock I/O (0)/ I^2C bus serial clock I/O
						AN11	-		ADC analog 11 input
						ICU5_0	-		Input capture ch.5 input (0)
						PPG17_1	-		PPG ch.17 output (1)

Address	Address offset value / Register name				Block
	+0	+1	+2	+3	
000120_H	OCCP6 [R/W] W 00000000 00000000 00000000 00000000				Output Compare 6,7 32-bit OCU
000124_H	OCCP7 [R/W] W 00000000 00000000 00000000 00000000				
000128_H	—	—	OCSH67 [R/W] B,H,W ---0--00	OCSL67 [R/W] B,H,W 0000--00	
$00012C_H$	OCCP8 [R/W] W 00000000 00000000 00000000 00000000				Output Compare 8,9 32-bit OCU
000130_H	OCCP9 [R/W] W 00000000 00000000 00000000 00000000				
000134_H	—	—	OCSH89 [R/W] B,H,W ---0--00	OCSL89 [R/W] B,H,W 0000--00	
000138_H to $0001B4_H$	—	—	—	—	Reserved
$0001B8_H$	EPFR64 [R/W] B,H,W -----00-	EPFR65 [R/W] B,H,W 0000-000	EPFR66 [R/W] B,H,W --000000	EPFR67 [R/W] B,H,W ----0000	Extended port function register
$0001BC_H$	EPFR68 [R/W] B,H,W ----0000	EPFR69 [R/W] B,H,W ----0000	EPFR70 [R/W] B,H,W ---00000	EPFR71 [R/W] B,H,W -0-0-0-0	
$0001C0_H$	EPFR72 [R/W] B,H,W 000000-0	EPFR73 [R/W] B,H,W 00000000	EPFR74 [R/W] B,H,W 00000000	EPFR75 [R/W] B,H,W 00000000	
$0001C4_H$	EPFR76 [R/W] B,H,W 00000000	EPFR77 [R/W] B,H,W --000000	EPFR78 [R/W] B,H,W ------00	EPFR79 [R/W] B,H,W 00000000	
$0001C8_H$	EPFR80 [R/W] B,H,W ---00000	EPFR81 [R/W] B,H,W 00000000	EPFR82 [R/W] B,H,W 00000000	EPFR83 [R/W] B,H,W -0000000	
$0001CC_H$	EPFR84 [R/W] B,H,W 00000000	EPFR85 [R/W] B,H,W --000000	EPFR86 [R/W] B,H,W ---00000	EPFR87 [R/W] B,H,W ------00	
$0001D0_H$	EPFR88 [R/W] B,H,W -------0	—	—	—	
$0001D4_H$	—	—	—	—	Reserved
$0001D8_H$	TMRLRA4 [R/W] H XXXXXXXX XXXXXXXX		TMR4 [R] H XXXXXXXX XXXXXXXX		Reload Timer 4
$0001DC_H$	TMRLRB4 [R/W] H XXXXXXXX XXXXXXXX		TMCSR4 [R/W] B, H,W 00000000 0-000000		
$0001E0_H$ to $0001EC_H$	—	—	—	—	Reserved
$0001F0_H$	TMRLRA5 [R/W] H XXXXXXXX XXXXXXXX		TMR5 [R] H XXXXXXXX XXXXXXXX		Reload Timer 5
$0001F4_H$	TMRLRB5 [R/W] H XXXXXXXX XXXXXXXX		TMCSR5 [R/W] B, H,W 00000000 0-000000		

Address	Address offset value / Register name				Block
	+0	+1	+2	+3	
000440_H	ICR00 [R/W] B,H,W ---11111	ICR01 [R/W] B,H,W ---11111	ICR02 [R/W] B,H,W ---11111	ICR03 [R/W] B,H,W ---11111	Interrupt Controller [S]
000444_H	ICR04 [R/W] B,H,W ---11111	ICR05 [R/W] B,H,W ---11111	ICR06 [R/W] B,H,W ---11111	ICR07 [R/W] B,H,W ---11111	
000448_H	ICR08 [R/W] B,H,W ---11111	ICR09 [R/W] B,H,W ---11111	ICR10 [R/W] B,H,W ---11111	ICR11 [R/W] B,H,W ---11111	
$00044C_H$	ICR12 [R/W] B,H,W ---11111	ICR13 [R/W] B,H,W ---11111	ICR14 [R/W] B,H,W ---11111	ICR15 [R/W] B,H,W ---11111	
000450_H	ICR16 [R/W] B,H,W ---11111	ICR17 [R/W] B,H,W ---11111	ICR18 [R/W] B,H,W ---11111	ICR19 [R/W] B,H,W ---11111	
000454_H	ICR20 [R/W] B,H,W ---11111	ICR21 [R/W] B,H,W ---11111	ICR22 [R/W] B,H,W ---11111	ICR23 [R/W] B,H,W ---11111	
000458_H	ICR24 [R/W] B,H,W ---11111	ICR25 [R/W] B,H,W ---11111	ICR26 [R/W] B,H,W ---11111	ICR27 [R/W] B,H,W ---11111	
$00045C_H$	ICR28 [R/W] B,H,W ---11111	ICR29 [R/W] B,H,W ---11111	ICR30 [R/W] B,H,W ---11111	ICR31 [R/W] B,H,W ---11111	
000460_H	ICR32 [R/W] B,H,W ---11111	ICR33 [R/W] B,H,W ---11111	ICR34 [R/W] B,H,W ---11111	ICR35 [R/W] B,H,W ---11111	
000464_H	ICR36 [R/W] B,H,W ---11111	ICR37 [R/W] B,H,W ---11111	ICR38 [R/W] B,H,W ---11111	ICR39 [R/W] B,H,W ---11111	
000468_H	ICR40 [R/W] B,H,W ---11111	ICR41 [R/W] B,H,W ---11111	ICR42 [R/W] B,H,W ---11111	ICR43 [R/W] B,H,W ---11111	
$00046C_H$	ICR44 [R/W] B,H,W ---11111	ICR45 [R/W] B,H,W ---11111	ICR46 [R/W] B,H,W ---11111	ICR47 [R/W] B,H,W ---11111	
000470_H to $00047C_H$	—	—	—	—	Reserved [S]
000480_H	RSTRR [R] B,H,W XXXX--XX	RSTCR [R/W] B,H,W 111----0	STBCR [R/W] B,H,W * 000---11	—	Reset Control [S] Power Control [S] *: Writing STBCR by DMA is forbidden
000484_H	—	—	—	—	Reserved [S]
000488_H	DIVR0 [R/W] B,H,W 000-----	DIVR1 [R/W] B,H,W 0001----	DIVR2 [R/W] B,H,W 0011----	—	Clock Control [S]
$00048C_H$	—	—	—	—	Reserved [S]
000490_H	IORR0 [R/W] B,H,W -0000000	IORR1 [R/W] B,H,W -0000000	IORR2 [R/W] B,H,W -0000000	IORR3 [R/W] B,H,W -0000000	DMA request by peripheral [S]
000494_H	IORR4 [R/W] B,H,W -0000000	IORR5 [R/W] B,H,W -0000000	IORR6 [R/W] B,H,W -0000000	IORR7 [R/W] B,H,W -0000000	
000498_H	IORR8 [R/W] B,H,W -0000000	IORR9 [R/W] B,H,W -0000000	IORR10 [R/W] B,H,W -0000000	IORR11 [R/W] B,H,W -0000000	

Address	Address offset value / Register name				Block
	+0	+1	+2	+3	
001394_H	ADTCD4[R] B,H,W 10--0000 00000000		ADTCD5[R] B,H,W 10--0000 00000000		12-bit A/D converter 1/2 unit
001398_H	ADTCD6[R] B,H,W 10--0000 00000000		ADTCD7[R] B,H,W 10--0000 00000000		
$00139C_H$	ADTCD8[R] B,H,W 10--0000 00000000		ADTCD9[R] B,H,W 10--0000 00000000		
$0013A0_H$	ADTCD10[R] B,H,W 10--0000 00000000		ADTCD11[R] B,H,W 10--0000 00000000		
$0013A4_H$	ADTCD12[R] B,H,W 10--0000 00000000		ADTCD13[R] B,H,W 10--0000 00000000		
$0013A8_H$	ADTCD14[R] B,H,W 10--0000 00000000		ADTCD15[R] B,H,W 10--0000 00000000		
$0013AC_H$	ADTCD16[R] B,H,W 10--0000 00000000		ADTCD17[R] B,H,W 10--0000 00000000		
$0013B0_H$	ADTCD18[R] B,H,W 10--0000 00000000		ADTCD19[R] B,H,W 10--0000 00000000		
$0013B4_H$	ADTCD20[R] B,H,W 10--0000 00000000		ADTCD21[R] B,H,W 10--0000 00000000		
$0013B8_H$	ADTCD22[R] B,H,W 10--0000 00000000		ADTCD23[R] B,H,W 10--0000 00000000		
$0013BC_H$	ADTCD24[R] B,H,W 10--0000 00000000		ADTCD25[R] B,H,W 10--0000 00000000		
$0013C0_H$	ADTCD26[R] B,H,W 10--0000 00000000		ADTCD27[R] B,H,W 10--0000 00000000		
$0013C4_H$	ADTCD28[R] B,H,W 10--0000 00000000		ADTCD29[R] B,H,W 10--0000 00000000		
$0013C8_H$	ADTCD30[R] B,H,W 10--0000 00000000		ADTCD31[R] B,H,W 10--0000 00000000		
$0013CC_H$	ADTECS0[R/W] B,H,W -------0 ---00000		ADTECS1[R/W] B,H,W -------0 ---00000		
$0013D0_H$	ADTECS2[R/W] B,H,W -------0 ---00000		ADTECS3[R/W] B,H,W -------0 ---00000		
$0013D4_H$	ADTECS4[R/W] B,H,W -------0 ---00000		ADTECS5[R/W] B,H,W -------0 ---00000		
$0013D8_H$	ADTECS6[R/W] B,H,W -------0 ---00000		ADTECS7[R/W] B,H,W -------0 ---00000		
$0013DC_H$	ADTECS8[R/W] B,H,W -------0 ---00000		ADTECS9[R/W] B,H,W -------0 ---00000		
$0013E0_H$	ADTECS10[R/W] B,H,W -------0 ---00000		ADTECS11[R/W] B,H,W -------0 ---00000		
$0013E4_H$	ADTECS12[R/W] B,H,W -------0 ---00000		ADTECS13[R/W] B,H,W -------0 ---00000		

Address	Address offset value / Register name				Block
	+0	+1	+2	+3	
001750H	SCR0/(IBCR0)[R/W] B,H,W 0--00000	SMR0[R/W] B,H,W 000-00-0	SSR0[R/W] B,H,W 0-000011	ESCR0/(IBSR0)[R/W] B,H,W 00000000	Multi-UART0 *1: Byte access is possible only for access to lower 8 bits. *2: Reserved because I2C mode is not set immediately after reset. *3: Reserved because CSIO mode is not set immediately after reset. *4: Reserved because LIN2.1 mode is not set immediately after reset.
001754H	— /(RDR10/(TDR10))[R/W] B,H,W -------- -------- *3		RDR00/(TDR00)[R/W] B,H,W -------0 00000000 *1		
001758H	SACSR0[R/W] B,H,W 0----000 00000000		STMR0[R] B,H,W 00000000 00000000		
00175CH	STMCR0[R/W] B,H,W 00000000 00000000		— /(SCSCR0/SFUR0)[R/W] B,H,W -------- -------- *3 *4		
001760H	— /(SCSTR30)/ (LAMSR0) [R/W] B,H,W -------- *3	— /(SCSTR20)/ (LAMCR0) [R/W] B,H,W -------- *3	— /(SCSTR10) /(SFLR10) [R/W] B,H,W -------- *3	— /(SCSTR00)/ (SFLR00) [R/W] B,H,W -------- *3	
001764H	—	— /(SCSFR20) [R/W] B,H,W -------- *3	— /(SCSFR10) [R/W] B,H,W -------- *3	— /(SCSFR00) [R/W] B,H,W -------- *3	
001768H	—/(TBYTE30)/ (LAMESR0) [R/W] B,H,W -------- *3	—/(TBYTE20) /(LAMERT0) [R/W] B,H,W -------- *3	—/(TBYTE10)/ (LAMIER0) [R/W] B,H,W -------- *3	TBYTE00/(LAMRID0) / (LAMTID0) [R/W] B,H,W 00000000	
00176CH	BGR0[R/W] H, W 00000000 00000000		— /(ISMK0) [R/W] B,H,W -------- *2	— /(ISBA0) [R/W] B,H,W -------- *2	
001770H	FCR10[R/W] B,H,W ---00100	FCR00[R/W] B,H,W -0000000	FBYTE0[R/W] B,H,W 00000000 00000000		
001774H	FTICR0[R/W] B,H,W 00000000 00000000		—	—	
001778H	SCR1/(IBCR1) [R/W] B,H,W 0--00000	SMR1[R/W] B,H,W 000-00-0	SSR1[R/W] B,H,W 0-000011	ESCR1/(IBSR1)[R/W] B,H,W 00000000	Multi-UART1
00177CH	— /(RDR11/(TDR11))[R/W] B,H,W -------- -------- *3		RDR01/(TDR01)[R/W] B,H,W -------0 00000000 *1		
001780H	SACSR1[R/W] B,H,W 0----000 00000000		STMR1[R] B,H,W 00000000 00000000		Multi-UART1 *1: Byte access is possible only for access to lower 8 bits. *2: Reserved because I2C mode is not set immediately after reset.
001784H	STMCR1[R/W] B,H,W 00000000 00000000		— /(SCSCR1/SFUR1)[R/W] B,H,W -------- -------- *3 *4		
001788H	— /(SCSTR31)/ (LAMSR1) [R/W] B,H,W -------- *3	— /(SCSTR21)/ (LAMCR1) [R/W] B,H,W -------- *3	— /(SCSTR11)/ (SFLR11) [R/W] B,H,W -------- *3	— /(SCSTR01)/ (SFLR01) [R/W] B,H,W -------- *3	
00178CH	—	— /(SCSFR21)[R/W] B,H,W -------- *3	— /(SCSFR11) [R/W] B,H,W -------- *3	— /(SCSFR01) [R/W] B,H,W -------- *3	

Address	Address offset value / Register name				Block
	+0	+1	+2	+3	
$001B24_H$	PDUT11 [W] H,W XXXXXXXX XXXXXXXX		PTMR11 [R] H,W 11111111 11111111		PPG11
$001B28_H$	PCN211 [R/W] B,H,W --000000 -----110		PSDR11 [R/W] H,W 00000000 00000000		
$001B2C_H$	PTPC11 [R/W] H,W 00000000 00000000		—	—	
$001B30_H$	PCN12 [R/W] B,H,W 00000000 000000-0		PCSR12 [W] H,W XXXXXXXX XXXXXXXX		PPG12
$001B34_H$	PDUT12 [W] H,W XXXXXXXX XXXXXXXX		PTMR12 [R] H,W 11111111 11111111		
$001B38_H$	PCN212 [R/W] B,H,W --000000 -----110		PSDR12 [R/W] H,W 00000000 00000000		
$001B3C_H$	PTPC12 [R/W] H,W 00000000 00000000		—	—	
$001B40_H$	PCN13 [R/W] B,H,W 00000000 000000-0		PCSR13 [W] H,W XXXXXXXX XXXXXXXX		PPG13
$001B44_H$	PDUT13 [W] H,W XXXXXXXX XXXXXXXX		PTMR13 [R] H,W 11111111 11111111		
$001B48_H$	PCN213 [R/W] B,H,W --000000 -----110		PSDR13 [R/W] H,W 00000000 00000000		
$001B4C_H$	PTPC13 [R/W] H,W 00000000 00000000		—	—	
$001B50_H$	PCN14 [R/W] B,H,W 00000000 000000-0		PCSR14 [W] H,W XXXXXXXX XXXXXXXX		PPG14
$001B54_H$	PDUT14 [W] H,W XXXXXXXX XXXXXXXX		PTMR14 [R] H,W 11111111 11111111		
$001B58_H$	PCN214 [R/W] B,H,W --000000 -----110		PSDR14 [R/W] H,W 00000000 00000000		
$001B5C_H$	PTPC14 [R/W] H,W 00000000 00000000		—	—	
$001B60_H$	PCN15 [R/W] B,H,W 00000000 000000-0		PCSR15 [W] H,W XXXXXXXX XXXXXXXX		PPG15
$001B64_H$	PDUT15 [W] H,W XXXXXXXX XXXXXXXX		PTMR15 [R] H,W 11111111 11111111		
$001B68_H$	PCN215 [R/W] B,H,W --000000 -----110		PSDR15 [R/W] H,W 00000000 00000000		
$001B6C_H$	PTPC15 [R/W] H,W 00000000 00000000		—	—	
$001B70_H$	PCN16 [R/W] B,H,W 00000000 000000-0		PCSR16 [W] H,W XXXXXXXX XXXXXXXX		PPG16
$001B74_H$	PDUT16 [W] H,W XXXXXXXX XXXXXXXX		PTMR16 [R] H,W 11111111 11111111		

Interrupt factor	Interrupt number		Interrupt level	Offset	Default address for TBR	RN
	Decimal	Hexadecimal				
Multi-function serial interface ch.8 (reception completed) Multi-function serial interface ch.8 (status) 16-bit ICU 0 (fetching) / 16-bit ICU 1 (fetching)	45	2D	ICR29	348_H	$000FFF48_H$	29*1
Main timer Sub timer PLL timer Multi-function serial interface ch.8 (transmission completed) 16-bit ICU 2 (fetching) /16-bit ICU 3 (fetching)	46	2E	ICR30	344_H	$000FFF44_H$	30
Clock calibration unit (sub oscillation) Multi-function serial interface ch.9 (reception completed) Multi-function serial interface ch.9 (status)	47	2F	ICR31	340_H	$000FFF40_H$	31*1, *4
A/D converter 0/1/7/9/10/11/12/13/14/15/16/ 17/18/19/20/21/22/23/24/25/26/27/28/29/30/31	48	30	ICR32	$33C_H$	$000FFF3C_H$	32
Clock calibration unit (CR oscillation) Multi-function serial interface ch.9 (transmission completed) 16-bit OCU 0 (match) / 16-bit OCU 1 (match)	49	31	ICR33	338_H	$000FFF38_H$	33
32-bit Free-run timer 4 16-bit OCU 2 (match) / 16-bit OCU 3 (match)	50	32	ICR34	334_H	$000FFF34_H$	34*5
32-bit Free-run timer 3/5 16-bit OCU 4 (match) / 16-bit OCU 5 (match)	51	33	ICR35	330_H	$000FFF30_H$	35*5
32-bit ICU6 (fetching/measurement) Multi-function serial interface ch.10 (reception completed) Multi-function serial interface ch.10 (status)	52	34	ICR36	$32C_H$	$000FFF2C_H$	36*1
32-bit ICU7 (fetching/measurement) Multi-function serial interface ch.10 (transmission completed)	53	35	ICR37	328_H	$000FFF28_H$	37
32-bit ICU8 (fetching/measurement) Multi-function serial interface ch.11 (reception completed) Multi-function serial interface ch.11 (status)	54	36	ICR38	324_H	$000FFF24_H$	38*1
32-bit ICU9 (fetching/measurement) WG dead timer underflow 0/1/2 WG dead timer reload 0/1/2 WG DTTI 0	55	37	ICR39	320_H	$000FFF20_H$	39
32-bit ICU4 (fetching/measurement) Multi-function serial interface ch.11 (transmission completed)	56	38	ICR40	$31C_H$	$000FFF1C_H$	40

Interrupt factor	Interrupt number		Interrupt level	Offset	Default address for TBR	RN
	Decimal	Hexadecimal				
Multi-function serial interface ch.3 (transmission completed)	27	1B	ICR11	390_H	$000FFF90_H$	11
Multi-function serial interface ch.4 (reception completed) / Multi-function serial interface ch.4 (status)	28	1C	ICR12	$38C_H$	$000FFF8C_H$	12*[1]
Multi-function serial interface ch.4 (transmission completed)	29	1D	ICR13	388_H	$000FFF88_H$	13
Multi-function serial interface ch.5 (reception completed) / Multi-function serial interface ch.5 (status)	30	1E	ICR14	384_H	$000FFF84_H$	14*[1]
Multi-function serial interface ch.5 (transmission completed)	31	1F	ICR15	380_H	$000FFF80_H$	15
Multi-function serial interface ch.6 (reception completed) / Multi-function serial interface ch.6 (status)	32	20	ICR16	$37C_H$	$000FFF7C_H$	16*[1]
Multi-function serial interface ch.6 (transmission completed)	33	21	ICR17	378_H	$000FFF78_H$	17
CAN0	34	22	ICR18	374_H	$000FFF74_H$	-
CAN1 / RAM diagnosis end / RAM initialization completion / Error generation during RAM diagnosis / Backup RAM diagnosis end / Backup RAM initialization completion / Error generation during Backup RAM diagnosis	35	23	ICR19	370_H	$000FFF70_H$	-
CAN2 / Up/down counter 0 / Up/down counter 1	36	24	ICR20	$36C_H$	$000FFF6C_H$	-
Real time clock	37	25	ICR21	368_H	$000FFF68_H$	-
Multi-function serial interface ch.7 (reception completed) / Multi-function serial interface ch.7 (status)	38	26	ICR22	364_H	$000FFF64_H$	22*[1]
16-bit Free-run timer 0 (0 detection) / (compare clear) / Multi-function serial interface ch.7 (transmission completed)	39	27	ICR23	360_H	$000FFF60_H$	23
PPG 0/1/10/11/20/21/30/31/40/41 / 16-bit Free-run timer 1 (0 detection) / (compare clear)	40	28	ICR24	$35C_H$	$000FFF5C_H$	24*[3]
PPG 2/3/12/13/22/23/32/33/43 / 16-bit Free-run timer 2 (0 detection) / (compare clear)	41	29	ICR25	358_H	$000FFF58_H$	25*[3]
PPG 4/5/14/15/24/25/34/35/44/45	42	2A	ICR26	354_H	$000FFF54_H$	26*[3]
PPG 6/7/16/17/26/27/36/37/46/47	43	2B	ICR27	350_H	$000FFF50_H$	27*[3]
PPG 8/9/18/19/28/29/38/39	44	2C	ICR28	$34C_H$	$000FFF4C_H$	28*[3]

Interrupt factor	Interrupt number		Interrupt level	Offset	Default address for TBR	RN
	Decimal	Hexadecimal				
32-bit ICU5 (fetching/measurement) A/D converter 32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47	57	39	ICR41	318_H	$000FFF18_H$	41
32-bit OCU 6/7/10/11 (match)	58	3A	ICR42	314_H	$000FFF14_H$	42
32-bit OCU 8/9 (match)	59	3B	ICR43	310_H	$000FFF10_H$	43
Base timer 0 IRQ0 Base timer 0 IRQ1	60	3C	ICR44	$30C_H$	$000FFF0C_H$	44
Base timer 1 IRQ0 Base timer 1 IRQ1 - -	61	3D	ICR45	308_H	$000FFF08_H$	45
DMAC 0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15	62	3E	ICR46	304_H	$000FFF04_H$	-
Delay interrupt	63	3F	ICR47	300_H	$000FFF00_H$	-
System reserved (Used for REALOS)	64	40	-	$2FC_H$	$000FFEFC_H$	-
System reserved (Used for REALOS)	65	41	-	$2F8_H$	$000FFEF8_H$	-
Used with the INT instruction	66 | 255	42 | FF	-	$2F4_H$ | 000_H	$000FFEF4_H$ | $000FFC00_H$	-

Note: It does not support a DMA transfer request caused by an interrupt generated from a peripheral to which no RN (Resource Number) is assigned.

*1: It does not support a DMA transfer by the status of the multi-function serial interface and I^2C reception.

*2: Reload timer ch.4 to ch.7 do not support a DMA transfer by the interrupt.

*3: PPG ch.24 to ch.47 do not support a DMA transfer by the interrupt.

*4: The clock calibration unit does not support a DMA transfer by the interrupt.

*5: 32-bit Free-run timer ch.3, ch.4 and ch.5 do not support a DMA transfer by the interrupt.

*6: There is no resource corresponding to the interrupt level.

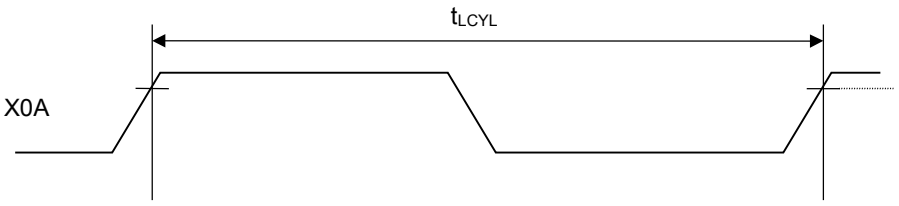
*7: It does not support a DMA transfer by the external low-voltage detection interrupt.

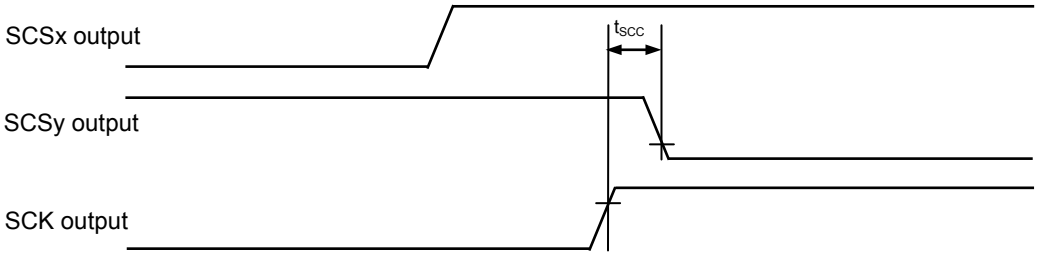
(1-2) Sub clock timing

(T_A: -40°C to +125°C, V_{CC}= AV_{CC}=5.0V ± 10%/V_{CC}=AV_{CC}=3.3V±0.3V, V_{SS}=AV_{SS}=0.0V)

Parameter	Symbol	Pin name	Conditions	Value			Unit	Remarks
				Min	Typ	Max		
Source oscillation clock frequency	F_{CL}	X0A, X1A	-	-	32.768	-	kHz	
Source oscillation clock cycle time	t_{LCYL}	X0A, X1A		-	30.52	-	µs	

・X0A,X1A clock timing





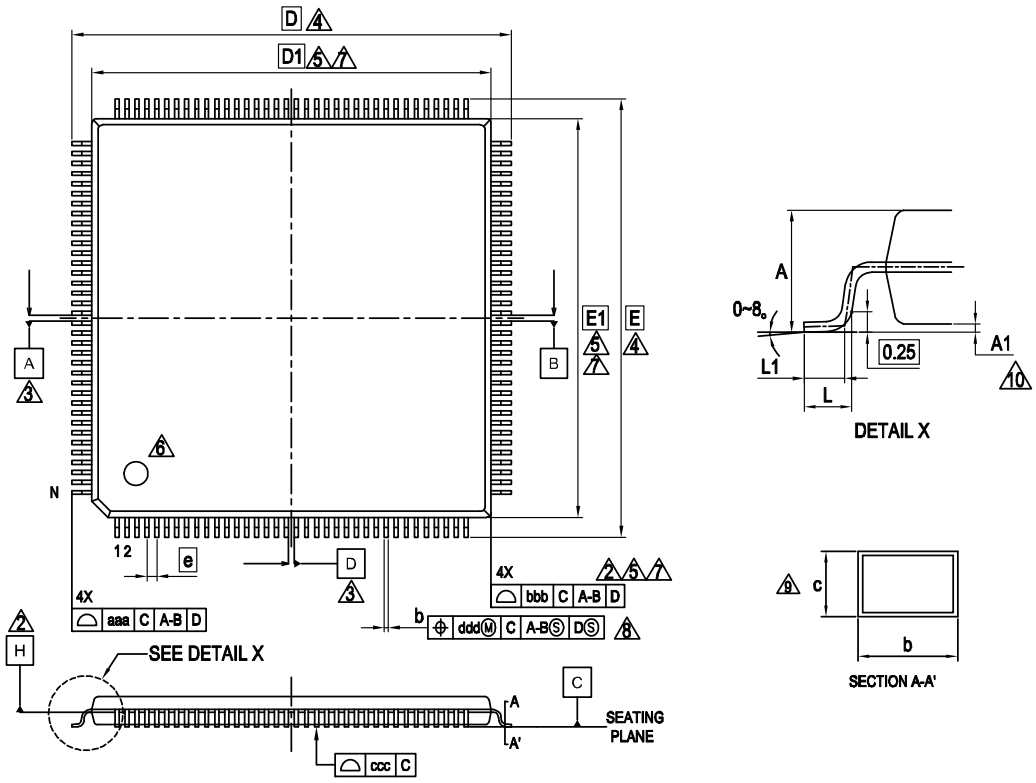
When Serial chip select is used , Serial clock output mark level "L",
Serial chip select Inactive level "H"
Internal shift clock mode , Example of switching clock by round operation (x,y=0,1,2,3)

(4-1-7) Bit setting: SMR:MD2=0, SMR:MD1=1, SMR:MD0=0,
When Serial chip select is used : SCSCR:CSEN=1,
Serial clock output mark level "H" : SMR,SCSFR:SCINV=0,
Serial chip select Inactive level "L" : SCSCR,SCSFR:CSLVL=0
(T_A:-40°C to +125°C, V_{CC}=AV_{CC}=5.0V±10%/V_{CC}=AV_{CC}=3.3V±0.3V, V_{SS}=AV_{SS}=0.0V)

Parameter	Symbol	Pin name	Conditions	Value		Unit	Remarks
				Min	Max		
SCS↑→SCK↓ setup time	t_{CSSI}	SCK1 , SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11	-	t_{CSSU}-50 *1	t_{CSSU}+0 *1	ns	Internal shift clock mode output pin : C_L=50pF
		SCK3 , SCK4 SCS3 , SCS40 to SCS43		t_{CSSU}-50 *1	t_{CSSU}+300 *1	ns	
SCK↑→SCS↓ hold time	t_{CSHI}	SCK1 to SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11		t_{CSHD}-10 *2	t_{CSHD}+50 *2	ns	
		SCK3 , SCK4 SCS3 , SCS40 to SCS43		t_{CSHD}-300 *2	t_{CSHD}+50 *2	ns	
SCS deselect time	t_{CSDI}	SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11		t_{CSDS}-50 *3	t_{CSDS}+50 *3	ns	

Part number	Sub clock	CSV Initial value	LVD Initial value	Package*
MB91F526FWDPMC	Yes	ON	ON	LQI・100 pin, Plastic
MB91F526FJDPMC		OFF	ON	
MB91F525FWDPMC		ON	ON	
MB91F525FJDPMC		OFF	ON	
MB91F524FWDPMC		ON	ON	
MB91F524FJDPMC		OFF	ON	
MB91F523FWDPMC		ON	ON	
MB91F523FJDPMC		OFF	ON	
MB91F522FWDPMC		ON	ON	
MB91F522FJDPMC		OFF	ON	
MB91F526FSDPMC	None	ON	ON	
MB91F526FHDPMC		OFF	ON	
MB91F525FSDPMC		ON	ON	
MB91F525FHDPMC		OFF	ON	
MB91F524FSDPMC		ON	ON	
MB91F524FHDPMC		OFF	ON	
MB91F523FSDPMC		ON	ON	
MB91F523FHDPMC		OFF	ON	
MB91F522FSDPMC		ON	ON	
MB91F522FHDPMC		OFF	ON	
MB91F526DWDPMC	Yes	ON	ON	LQH・80 pin, Plastic
MB91F526DJDPMC		OFF	ON	
MB91F525DWDPMC		ON	ON	
MB91F525DJDPMC		OFF	ON	
MB91F524DWDPMC		ON	ON	
MB91F524DJDPMC		OFF	ON	
MB91F523DWDPMC		ON	ON	
MB91F523DJDPMC		OFF	ON	
MB91F522DWDPMC		ON	ON	
MB91F522DJDPMC		OFF	ON	
MB91F526DSDPMC	None	ON	ON	
MB91F526DHDPMC		OFF	ON	
MB91F525DSDPMC		ON	ON	
MB91F525DHDPMC		OFF	ON	
MB91F524DSDPMC		ON	ON	
MB91F524DHDPMC		OFF	ON	
MB91F523DSDPMC		ON	ON	
MB91F523DHDPMC		OFF	ON	
MB91F522DSDPMC		ON	ON	
MB91F522DHDPMC		OFF	ON	

LQN144 , 144 Lead Plastic Low Profile Quad Flat Package



PACKAGE	LQN144		
SYMBOL	MIN.	NOM.	MAX.
A	——	——	1.70
A1	0.05	——	0.15
b	0.145	0.18	0.215
c	0.115	——	0.195
D	18.00 BSC.		
D1	16.00 BSC.		
e	0.40 BSC		
E	18.00 BSC.		
E1	16.00 BSC.		
L	0.45	0.60	0.75
L1	0.30	0.50	0.70
aaa	——	——	0.20
bbb	——	——	0.10
ccc	——	——	0.08
ddd	——	——	0.07
N	144		

NOTES

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (mm)
2. DATUM PLANE H IS LOCATED AT THE BOTTOM OF THE MOLD PARTING LINE COINCIDENT WITH WHERE THE LEAD EXITS THE BODY.
3. DATUMS A-B AND D TO BE DETERMINED AT DATUM PLANE H.
4. TO BE DETERMINED AT SEATING PLANE C.
5. DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.25mm PRE SIDE. DIMENSIONS D1 AND E1 INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE H.
6. DETAILS OF PIN 1 IDENTIFIER ARE OPTIONAL BUT MUST BE LOCATED WITHIN THE ZONE INDICATED.
7. REGARDLESS OF THE RELATIVE SIZE OF THE UPPER AND LOWER BODY SECTIONS. DIMENSIONS D1 AND E1 ARE DETERMINED AT THE LARGEST FEATURE OF THE BODY EXCLUSIVE OF MOLD FLASH AND GATE BURRS. BUT INCLUDING ANY MISMATCH BETWEEN THE UPPER AND LOWER SECTIONS OF THE MOLDER BODY.
8. DIMENSION b DOES NOT INCLUDE DAMBER PROTRUSION. THE DAMBAR PROTRUSION (S) SHALL NOT CAUSE THE LEAD WIDTH TO EXCEED b MAXIMUM BY MORE THAN 0.08mm. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OR THE LEAD FOOT.
9. THESE DIMENSIONS APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.10mm AND 0.25mm FROM THE LEAD TIP.
10. A1 IS DEFINED AS THE DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT OF THE PACKAGE BODY.

Rev. A

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<tr><td>TIOB0_1</td></tr>
<tr><td rowspan="5">-</td><td rowspan="5">76</td><td rowspan="5">96</td><td rowspan="5">114</td><td rowspan="5">134</td><td rowspan="5">162</td><td>P003</td></tr>
<tr><td>D19</td></tr>
<tr><td>SIN2_0</td></tr>
<tr><td>TIOB1_1</td></tr>
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<tr><td>D20</td></tr>
<tr><td>SOT2_0</td></tr>
<tr><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">164</td><td>P164</td></tr>
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<tr><td>D21</td></tr>
<tr><td>SCK2_0</td></tr>
<tr><td>ADTG0_1</td></tr>
<tr><td>INT7_1</td></tr>
<tr><td>(RX2(64))</td></tr>
<tr><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">166</td><td>P165</td></tr>
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<tr><td>D22</td></tr>
<tr><td>SCS2_0</td></tr>
<tr><td>ADTG1_1</td></tr>
<tr><td>INT2_1</td></tr>
<tr><td>(TX2(64))</td></tr>
<tr><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">117</td><td rowspan="2">138</td><td rowspan="2">168</td><td>P007</td></tr>
<tr><td>D23</td></tr>
<tr><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">-</td><td rowspan="2">169</td><td>P166</td></tr>
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<tr><td>D25</td></tr>
<tr><td>SOT2_1</td></tr>
<tr><td>TIOA0_0</td></tr>
<tr><td>INT3_1</td></tr>
</table></td></tr>
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<table>
<tr><th>Page</th><th>Section</th><th>Change Results</th></tr>
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(Error)
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<table><tr><td>Base timer 0 IRQ0
Base timer 0 IRQ1</td><td>60</td><td>3C</td><td>ICR 44</td><td>30C_H</td><td>000FFF0C_H</td><td>44</td></tr></table>
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Base timer 1 IRQ1
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