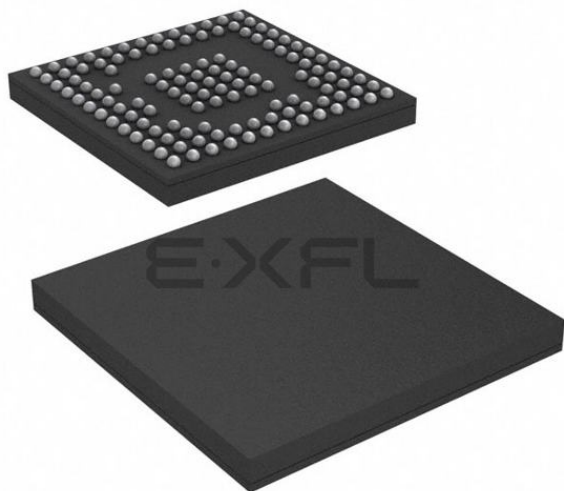




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Details

Product Status	Active
Core Processor	ARM® Cortex®-M3
Core Size	32-Bit Single-Core
Speed	40MHz
Connectivity	I ² C, IrDA, LINbus, SmartCard, SPI, UART/USART
Peripherals	Brown-out Detect/Reset, DMA, I ² S, POR, PWM, WDT
Number of I/O	65
Program Memory Size	1MB (1M x 8)
Program Memory Type	FLASH
EEPROM Size	-
RAM Size	256K x 8
Voltage - Supply (Vcc/Vdd)	1.8V ~ 3.8V
Data Converters	A/D - 12b SAR
Oscillator Type	Internal
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Surface Mount
Package / Case	125-VFBGA
Supplier Device Package	125-BGA (7x7)
Purchase URL	https://www.e-xfl.com/product-detail/silicon-labs/efm32jg12b500f1024gl125-cr

3.10.2 Memory System Controller (MSC)

The Memory System Controller (MSC) is the program memory unit of the microcontroller. The flash memory is readable and writable from both the Cortex-M and DMA. The flash memory is divided into two blocks; the main block and the information block. Program code is normally written to the main block, whereas the information block is available for special user data and flash lock bits. There is also a read-only page in the information block containing system and device calibration data. Read and write operations are supported in energy modes EM0 Active and EM1 Sleep.

3.10.3 Linked Direct Memory Access Controller (LDMA)

The Linked Direct Memory Access (LDMA) controller allows the system to perform memory operations independently of software. This reduces both energy consumption and software workload. The LDMA allows operations to be linked together and staged, enabling sophisticated operations to be implemented.

3.11 Memory Map

The EFM32JG12 memory map is shown in the figures below. RAM and flash sizes are for the largest memory configuration.

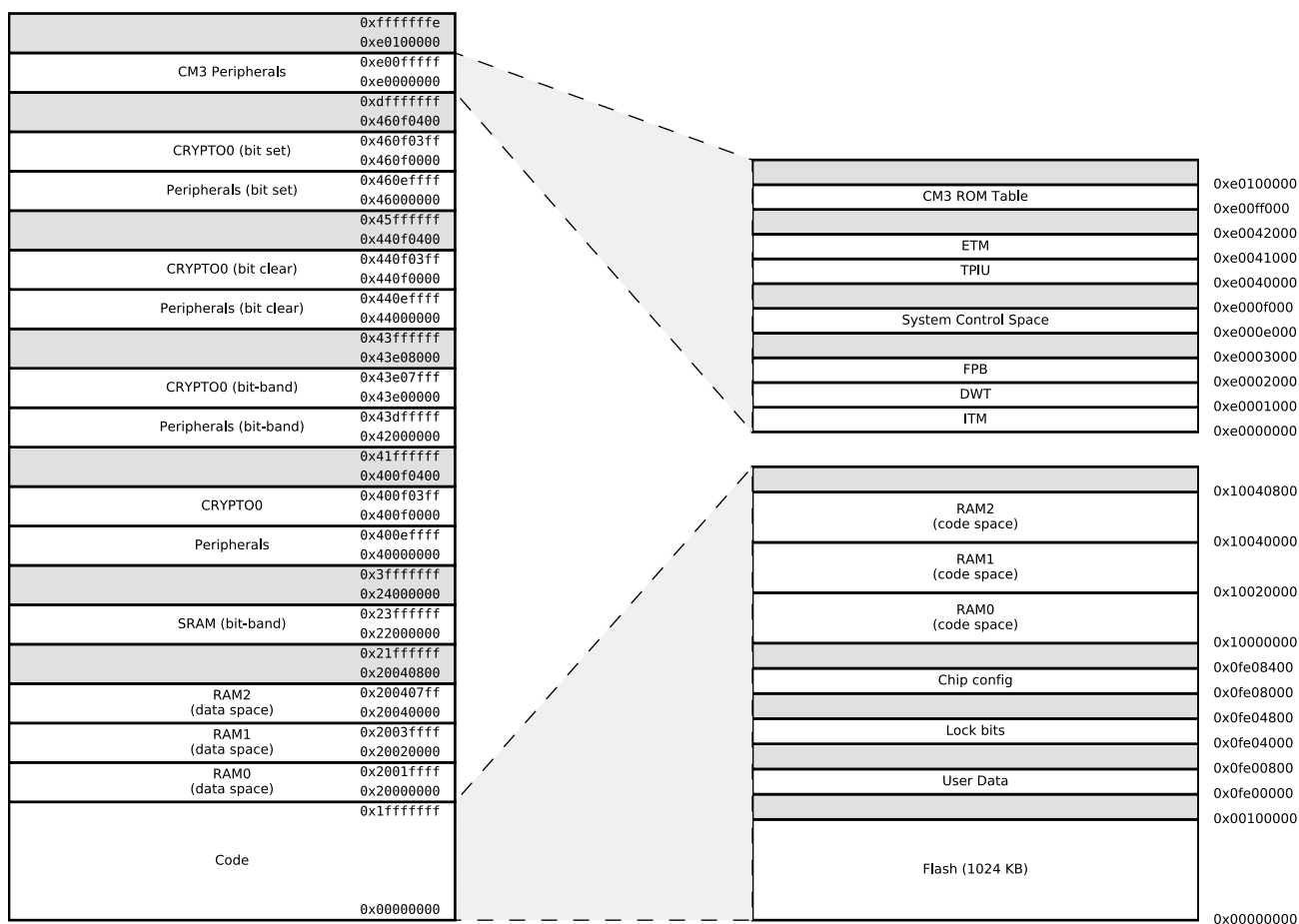


Figure 3.2. EFM32JG12 Memory Map — Core Peripherals and Code Space

4.1.8.4 High-Frequency RC Oscillator (HFRCO)

Table 4.13. High-Frequency RC Oscillator (HFRCO)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Frequency accuracy	$f_{\text{HFRCO_ACC}}$	At production calibrated frequencies, across supply voltage and temperature	TBD	—	TBD	%
Start-up time	t_{HFRCO}	$f_{\text{HFRCO}} \geq 19 \text{ MHz}$	—	300	—	ns
		$4 < f_{\text{HFRCO}} < 19 \text{ MHz}$	—	1	—	μs
		$f_{\text{HFRCO}} \leq 4 \text{ MHz}$	—	2.5	—	μs
Maximum DPLL lock time ¹	$t_{\text{DPLL_LOCK}}$	$f_{\text{REF}} = 32.768 \text{ kHz}$, $f_{\text{HFRCO}} = 39.98 \text{ MHz}$, $N = 1219$, $M = 0$	—	183	—	μs
Current consumption on all supplies	I_{HFRCO}	$f_{\text{HFRCO}} = 38 \text{ MHz}$	—	244	TBD	μA
		$f_{\text{HFRCO}} = 32 \text{ MHz}$	—	204	TBD	μA
		$f_{\text{HFRCO}} = 26 \text{ MHz}$	—	173	TBD	μA
		$f_{\text{HFRCO}} = 19 \text{ MHz}$	—	143	TBD	μA
		$f_{\text{HFRCO}} = 16 \text{ MHz}$	—	123	TBD	μA
		$f_{\text{HFRCO}} = 13 \text{ MHz}$	—	110	TBD	μA
		$f_{\text{HFRCO}} = 7 \text{ MHz}$	—	85	TBD	μA
		$f_{\text{HFRCO}} = 4 \text{ MHz}$	—	32	TBD	μA
		$f_{\text{HFRCO}} = 2 \text{ MHz}$	—	31	TBD	μA
		$f_{\text{HFRCO}} = 1 \text{ MHz}$	—	30	TBD	μA
		$f_{\text{HFRCO}} = 40 \text{ MHz}$, DPLL enabled	—	385	TBD	μA
		$f_{\text{HFRCO}} = 32 \text{ MHz}$, DPLL enabled	—	310	—	μA
		$f_{\text{HFRCO}} = 16 \text{ MHz}$, DPLL enabled	—	203	—	μA
		$f_{\text{HFRCO}} = 4 \text{ MHz}$, DPLL enabled	—	95	—	μA
		$f_{\text{HFRCO}} = 1 \text{ MHz}$, DPLL enabled	—	79	—	μA
Coarse trim step size (% of period)	$SS_{\text{HFRCO_COARSE}}$		—	0.8	—	%
Fine trim step size (% of period)	$SS_{\text{HFRCO_FINE}}$		—	0.1	—	%
Period jitter	PJ_{HFRCO}		—	0.2	—	% RMS
Note: 1. Maximum DPLL lock time $\sim 6 \times (M+1) \times t_{\text{REF}}$, where t_{REF} is the reference clock period.						

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output fall time, From 70% to 30% of V_{IO}	t_{IOF}	$C_L = 50\text{ pF}$, DRIVESTRENGTH ¹ = STRONG, SLEWRATE ¹ = 0x6	—	1.8	—	ns
		$C_L = 50\text{ pF}$, DRIVESTRENGTH ¹ = WEAK, SLEWRATE ¹ = 0x6	—	4.5	—	ns
Output rise time, From 30% to 70% of V_{IO}	t_{IOR}	$C_L = 50\text{ pF}$, DRIVESTRENGTH ¹ = STRONG, SLEWRATE = 0x6 ¹	—	2.2	—	ns
		$C_L = 50\text{ pF}$, DRIVESTRENGTH ¹ = WEAK, SLEWRATE ¹ = 0x6	—	7.4	—	ns

Note:
1. In GPIO_Pn_CTRL register.

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Note: 1. ACMPVDD is a supply chosen by the setting in ACMPn_CTRL_PWRSEL and may be IOVDD, AVDD or DVDD. 2. The total ACMP current is the sum of the contributions from the ACMP and its internal voltage reference. $I_{ACMPTOTAL} = I_{ACMP} + I_{ACMPREF}$. 3. ± 100 mV differential drive. 4. In ACMPn_CTRL register. 5. In ACMPn_HYSTERESIS register. 6. In ACMPn_INPUTSEL register.						

4.2.1 Supply Current

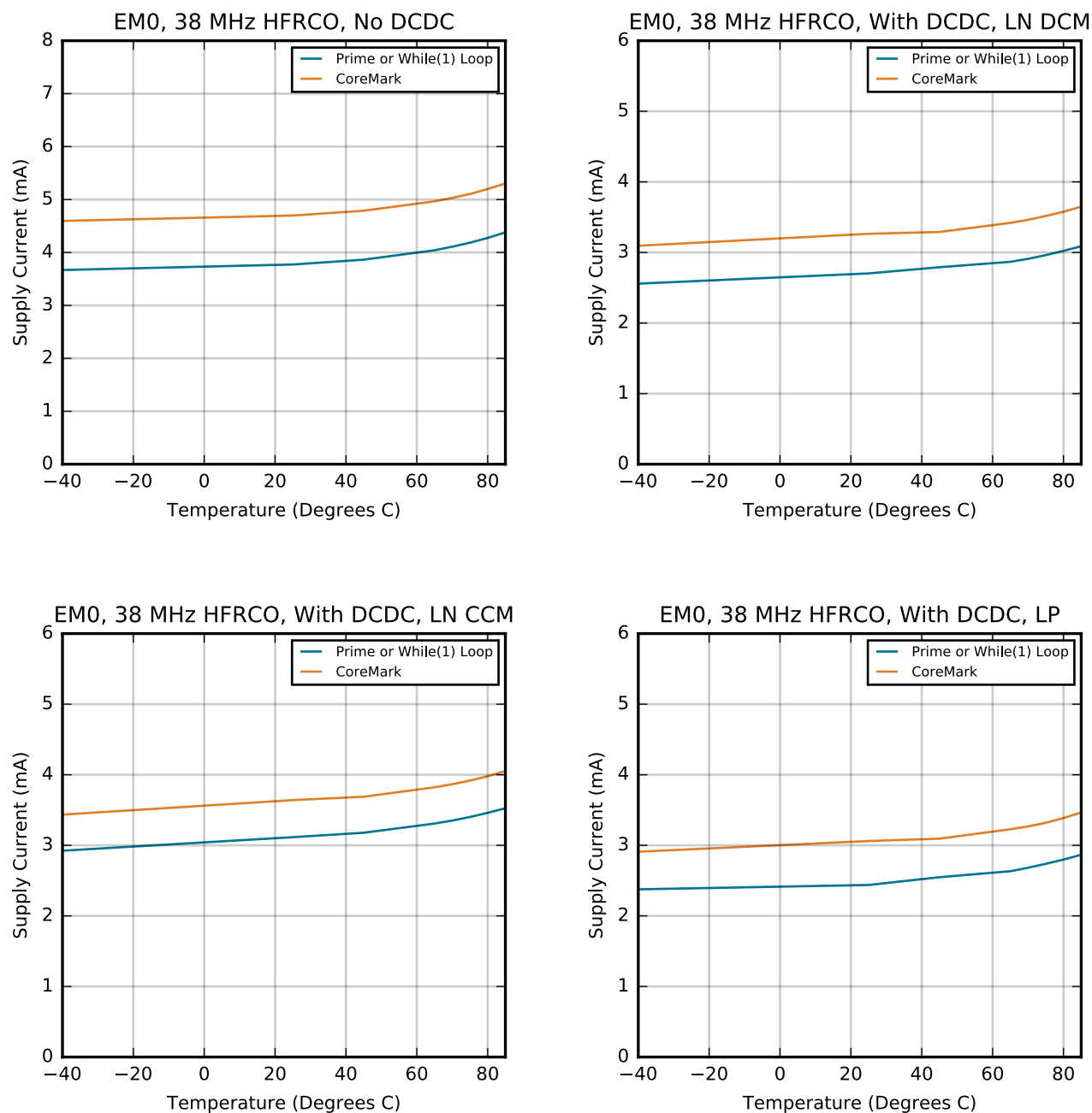


Figure 4.3. EM0 Active Mode Typical Supply Current vs. Temperature

4.2.2 DC-DC Converter

Default test conditions: CCM mode, LDCDC = 4.7 μ H, CDCDC = 4.7 μ F, VDCDC_I = 3.3 V, VDCDC_O = 1.8 V, FDCDC_LN = 7 MHz

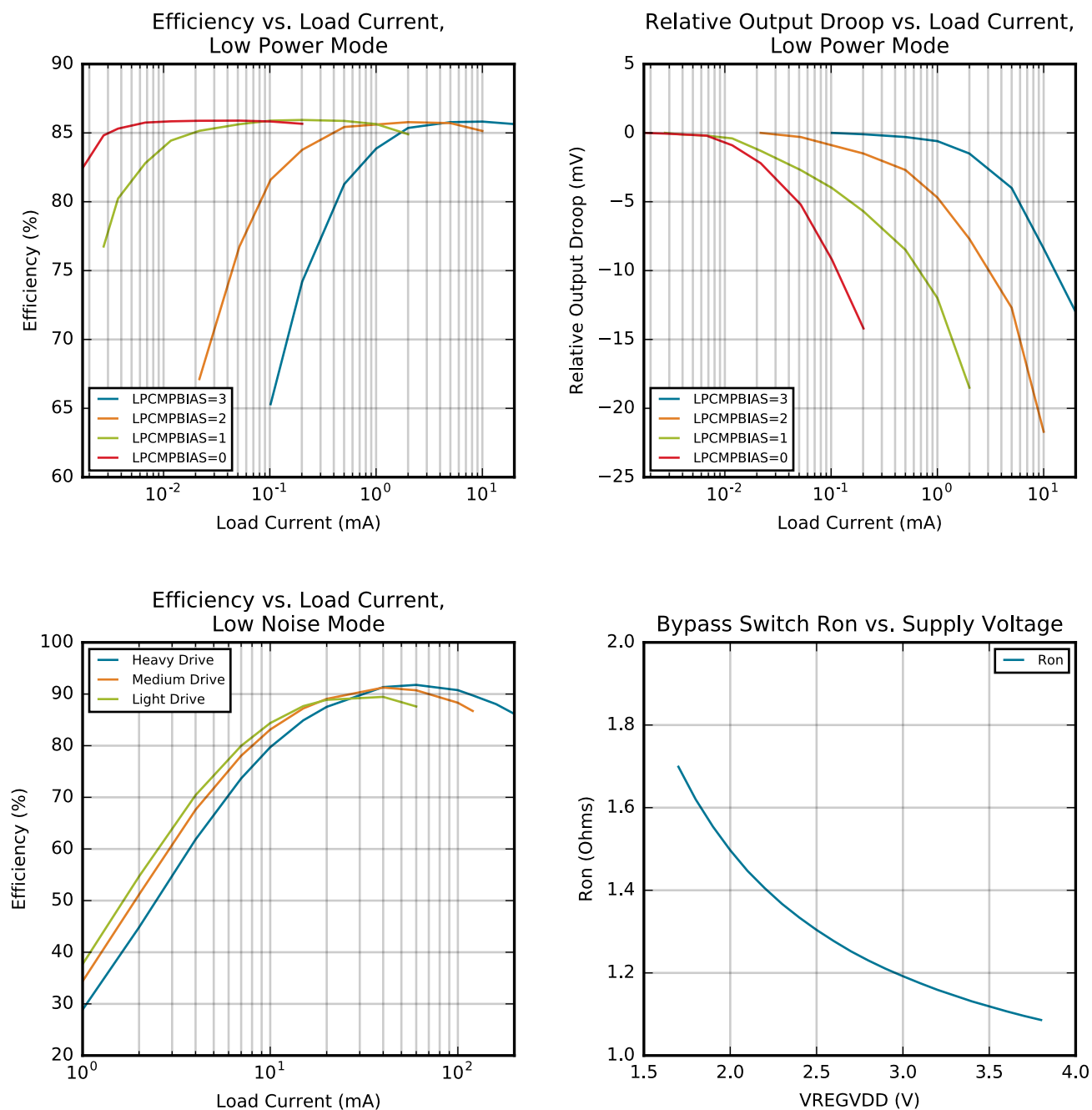


Figure 4.8. DC-DC Converter Typical Performance Characteristics

Table 6.1. EFM32JG12B5xx in BGA125 Device Pinout

Pin		Pin Alternate Functionality / Description			
Pin #	Pin Name	Analog	Timers	Communication	Other
A1	PF3	BUSAY BUSBX	TIM0_CC0 #27 TIM0_CC1 #26 TIM0_CC2 #25 TIM0_CDTI0 #24 TIM0_CDTI1 #23 TIM0_CDTI2 #22 TIM1_CC0 #27 TIM1_CC1 #26 TIM1_CC2 #25 TIM1_CC3 #24 WTIM0_CDTI2 #31 WTIM1_CC0 #27 WTIM1_CC1 #25 WTIM1_CC2 #23 WTIM1_CC3 #21 LE- TIM0_OUT0 #27 LE- TIM0_OUT1 #26 PCNT0_S0IN #27 PCNT0_S1IN #26	US0_TX #27 US0_RX #26 US0_CLK #25 US0_CS #24 US0_CTS #23 US0_RTS #22 US1_TX #27 US1_RX #26 US1_CLK #25 US1_CS #24 US1_CTS #23 US1_RTS #22 US2_TX #16 US2_RX #15 US2_CLK #14 US2_CS #13 US2_CTS #12 US2_RTS #11 LEU0_TX #27 LEU0_RX #26 I2C0_SDA #27 I2C0_SCL #26	CMU_CLK1 #6 PRS_CH0 #3 PRS_CH1 #2 PRS_CH2 #1 PRS_CH3 #0 ACMP0_O #27 ACMP1_O #27 DBG_TDI
A2	PF1	BUSAY BUSBX	TIM0_CC0 #25 TIM0_CC1 #24 TIM0_CC2 #23 TIM0_CDTI0 #22 TIM0_CDTI1 #21 TIM0_CDTI2 #20 TIM1_CC0 #25 TIM1_CC1 #24 TIM1_CC2 #23 TIM1_CC3 #22 WTIM0_CDTI1 #31 WTIM0_CDTI2 #29 WTIM1_CC0 #25 WTIM1_CC1 #23 WTIM1_CC2 #21 WTIM1_CC3 #19 LE- TIM0_OUT0 #25 LE- TIM0_OUT1 #24 PCNT0_S0IN #25 PCNT0_S1IN #24	US0_TX #25 US0_RX #24 US0_CLK #23 US0_CS #22 US0_CTS #21 US0_RTS #20 US1_TX #25 US1_RX #24 US1_CLK #23 US1_CS #22 US1_CTS #21 US1_RTS #20 US2_TX #15 US2_RX #14 US2_CLK #13 US2_CS #12 US2_CTS #11 US2_RTS #10 LEU0_TX #25 LEU0_RX #24 I2C0_SDA #25 I2C0_SCL #24	PRS_CH0 #1 PRS_CH1 #0 PRS_CH2 #7 PRS_CH3 #6 ACMP0_O #25 ACMP1_O #25 DBG_SWDIOTMS BOOT_RX
A3	PC5	BUSAY BUSBX	WTIM0_CC0 #25 WTIM0_CC1 #23 WTIM0_CC2 #21 WTIM0_CDTI0 #17 WTIM0_CDTI1 #15 WTIM0_CDTI2 #13 WTIM1_CC0 #9 WTIM1_CC1 #7 WTIM1_CC2 #5 WTIM1_CC3 #3 PCNT1_S0IN #18 PCNT1_S1IN #17 PCNT2_S0IN #18 PCNT2_S1IN #17	US3_TX #23 US3_RX #22 US3_CLK #21 US3_CS #20 US3_CTS #19 US3_RTS #18 I2C1_SDA #18 I2C1_SCL #17	

Pin		Pin Alternate Functionality / Description			
Pin #	Pin Name	Analog	Timers	Communication	Other
B1	PF8	BUSBY BUSAX	WTIM1_CC1 #30 WTIM1_CC2 #28 WTIM1_CC3 #26 PCNT1_S0IN #21 PCNT1_S1IN #20 PCNT2_S0IN #21 PCNT2_S1IN #20	US2_TX #21 US2_RX #20 US2_CLK #19 US2_CS #18 US2_CTS #17 US2_RTS #16 I2C1_SDA #21 I2C1_SCL #20	ETM_TCLK #0
B2	PF2	BUSBY BUSAX	TIM0_CC0 #26 TIM0_CC1 #25 TIM0_CC2 #24 TIM0_CDTI0 #23 TIM0_CDTI1 #22 TIM0_CDTI2 #21 TIM1_CC0 #26 TIM1_CC1 #25 TIM1_CC2 #24 TIM1_CC3 #23 WTIM0_CDTI2 #30 WTIM1_CC0 #26 WTIM1_CC1 #24 WTIM1_CC2 #22 WTIM1_CC3 #20 LE- TIM0_OUT0 #26 LE- TIM0_OUT1 #25 PCNT0_S0IN #26 PCNT0_S1IN #25	US0_TX #26 US0_RX #25 US0_CLK #24 US0_CS #23 US0_CTS #22 US0_RTS #21 US1_TX #26 US1_RX #25 US1_CLK #24 US1_CS #23 US1_CTS #22 US1_RTS #21 LEU0_TX #26 LEU0_RX #25 I2C0_SDA #26 I2C0_SCL #25	CMU_CLK0 #6 PRS_CH0 #2 PRS_CH1 #1 PRS_CH2 #0 PRS_CH3 #7 ACMP0_O #26 ACMP1_O #26 DBG_TDO DBG_SWO #0 GPIO_EM4WU0
B3	PF0	BUSBY BUSAX	TIM0_CC0 #24 TIM0_CC1 #23 TIM0_CC2 #22 TIM0_CDTI0 #21 TIM0_CDTI1 #20 TIM0_CDTI2 #19 TIM1_CC0 #24 TIM1_CC1 #23 TIM1_CC2 #22 TIM1_CC3 #21 WTIM0_CDTI1 #30 WTIM0_CDTI2 #28 WTIM1_CC0 #24 WTIM1_CC1 #22 WTIM1_CC2 #20 WTIM1_CC3 #18 LE- TIM0_OUT0 #24 LE- TIM0_OUT1 #23 PCNT0_S0IN #24 PCNT0_S1IN #23	US0_TX #24 US0_RX #23 US0_CLK #22 US0_CS #21 US0_CTS #20 US0_RTS #19 US1_TX #24 US1_RX #23 US1_CLK #22 US1_CS #21 US1_CTS #20 US1_RTS #19 US2_TX #14 US2_RX #13 US2_CLK #12 US2_CS #11 US2_CTS #10 US2_RTS #9 LEU0_TX #24 LEU0_RX #23 I2C0_SDA #24 I2C0_SCL #23	PRS_CH0 #0 PRS_CH1 #7 PRS_CH2 #6 PRS_CH3 #5 ACMP0_O #24 ACMP1_O #24 DBG_SWCLKTCK BOOT_TX

Pin		Pin Alternate Functionality / Description			
Pin #	Pin Name	Analog	Timers	Communication	Other
E13	PB7	BUSCY BUSDX	WTIM0_CC0 #11 WTIM0_CC1 #9 WTIM0_CC2 #7 WTIM0_CDTI0 #3 WTIM0_CDTI1 #1 PCNT1_S0IN #7 PCNT1_S1IN #6 PCNT2_S0IN #7 PCNT2_S1IN #6	US2_TX #10 US2_RX #9 US2_CLK #8 US2_CS #7 US2_CTS #6 US2_RTS #5 US3_TX #11 US3_RX #10 US3_CLK #9 US3_CS #8 US3_CTS #7 US3_RTS #6 I2C1_SDA #7 I2C1_SCL #6	ETM_TD2 #2
F1	PK2		PCNT1_S0IN #31 PCNT1_S1IN #30 PCNT2_S0IN #31 PCNT2_S1IN #30	US2_TX #31 US2_RX #30 US2_CLK #29 US2_CS #28 US2_CTS #27 US2_RTS #26 US3_TX #31 US3_RX #30 US3_CLK #29 US3_CS #28 US3_CTS #27 US3_RTS #26 I2C1_SDA #31 I2C1_SCL #30	
F2	IOVDD	Digital IO power supply .			
F5	VSS	Ground			
F6	VSS	Ground			
F7	VSS	Ground			
F8	VSS	Ground			
F9	VSS	Ground			
F11	IOVDD	Digital IO power supply .			
F12	PB6	BUSDY BUSCX	WTIM0_CC0 #10 WTIM0_CC1 #8 WTIM0_CC2 #6 WTIM0_CDTI0 #2 WTIM0_CDTI1 #0 PCNT1_S0IN #6 PCNT1_S1IN #5 PCNT2_S0IN #6 PCNT2_S1IN #5	US2_TX #9 US2_RX #8 US2_CLK #7 US2_CS #6 US2_CTS #5 US2_RTS #4 US3_TX #10 US3_RX #9 US3_CLK #8 US3_CS #7 US3_CTS #6 US3_RTS #5 I2C1_SDA #6 I2C1_SCL #5	CMU_CLKI0 #3 ETM_TD1 #2
F13	PI3	BUSADC0Y BU-SADC0X	PCNT1_S0IN #5 PCNT1_S1IN #4 PCNT2_S0IN #5 PCNT2_S1IN #4	US2_TX #8 US2_RX #7 US2_CLK #6 US2_CS #5 US2_CTS #4 US2_RTS #3 US3_TX #9 US3_RX #8 US3_CLK #7 US3_CS #6 US3_CTS #5 US3_RTS #4 I2C1_SDA #5 I2C1_SCL #4	LES_ALTEX7 ETM_TD0 #2

Pin		Pin Alternate Functionality / Description			
Pin #	Pin Name	Analog	Timers	Communication	Other
J13	PA5	VDAC0_OUT0ALT / OPA0_OUTALT #0 BUSCY BUSDX	TIM0_CC0 #5 TIM0_CC1 #4 TIM0_CC2 #3 TIM0_CDTI0 #2 TIM0_CDTI1 #1 TIM0_CDTI2 #0 TIM1_CC0 #5 TIM1_CC1 #4 TIM1_CC2 #3 TIM1_CC3 #2 WTIM0_CC0 #5 WTIM0_CC1 #3 WTIM0_CC2 #1 LE- TIM0_OUT0 #5 LE- TIM0_OUT1 #4 PCNT0_S0IN #5 PCNT0_S1IN #4	US0_TX #5 US0_RX #4 US0_CLK #3 US0_CS #2 US0_CTS #1 US0_RTS #0 US1_TX #5 US1_RX #4 US1_CLK #3 US1_CS #2 US1_CTS #1 US1_RTS #0 US2_TX #0 US2_RX #31 US2_CLK #30 US2_CS #29 US2_CTS #28 US2_RTS #27 LEU0_TX #5 LEU0_RX #4 I2C0_SDA #5 I2C0_SCL #4	CMU_CLKI0 #4 PRS_CH6 #5 PRS_CH7 #4 PRS_CH8 #3 PRS_CH9 #2 ACMP0_O #5 ACMP1_O #5 LES_CH13 ETM_TCLK #1
K1	HFX TAL_N	High Frequency Crystal input pin.			
K2	VSS	Ground			
K12	PA4	VDAC0_OUT1ALT / OPA1_OUTALT #2 BUSDY BUSCX OPA0_N	TIM0_CC0 #4 TIM0_CC1 #3 TIM0_CC2 #2 TIM0_CDTI0 #1 TIM0_CDTI1 #0 TIM0_CDTI2 #31 TIM1_CC0 #4 TIM1_CC1 #3 TIM1_CC2 #2 TIM1_CC3 #1 WTIM0_CC0 #4 WTIM0_CC1 #2 WTIM0_CC2 #0 LE- TIM0_OUT0 #4 LE- TIM0_OUT1 #3 PCNT0_S0IN #4 PCNT0_S1IN #3	US0_TX #4 US0_RX #3 US0_CLK #2 US0_CS #1 US0_CTS #0 US0_RTS #31 US1_TX #4 US1_RX #3 US1_CLK #2 US1_CS #1 US1_CTS #0 US1_RTS #31 LEU0_TX #4 LEU0_RX #3 I2C0_SDA #4 I2C0_SCL #3	PRS_CH6 #4 PRS_CH7 #3 PRS_CH8 #2 PRS_CH9 #1 ACMP0_O #4 ACMP1_O #4 LES_CH12
K13	PA3	BUSCY BUSDX VDAC0_OUT0 / OPA0_OUT	TIM0_CC0 #3 TIM0_CC1 #2 TIM0_CC2 #1 TIM0_CDTI0 #0 TIM0_CDTI1 #31 TIM0_CDTI2 #30 TIM1_CC0 #3 TIM1_CC1 #2 TIM1_CC2 #1 TIM1_CC3 #0 WTIM0_CC0 #3 WTIM0_CC1 #1 LE- TIM0_OUT0 #3 LE- TIM0_OUT1 #2 PCNT0_S0IN #3 PCNT0_S1IN #2	US0_TX #3 US0_RX #2 US0_CLK #1 US0_CS #0 US0_CTS #31 US0_RTS #30 US1_TX #3 US1_RX #2 US1_CLK #1 US1_CS #0 US1_CTS #31 US1_RTS #30 LEU0_TX #3 LEU0_RX #2 I2C0_SDA #3 I2C0_SCL #2	PRS_CH6 #3 PRS_CH7 #2 PRS_CH8 #1 PRS_CH9 #0 ACMP0_O #3 ACMP1_O #3 LES_CH11 GPIO_EM4WU8
L1	HFX TAL_P	High Frequency Crystal output pin.			
L2	VSS	Ground			
L10	BODEN	Brown-Out Detector Enable. This pin may be left disconnected or tied to AVDD.			

Pin		Pin Alternate Functionality / Description			
Pin #	Pin Name	Analog	Timers	Communication	Other
M9	PD9	BUSCY BUSDX	TIM0_CC0 #17 TIM0_CC1 #16 TIM0_CC2 #15 TIM0_CDTI0 #14 TIM0_CDTI1 #13 TIM0_CDTI2 #12 TIM1_CC0 #17 TIM1_CC1 #16 TIM1_CC2 #15 TIM1_CC3 #14 WTIM0_CC1 #31 WTIM0_CC2 #29 WTIM0_CDTI0 #25 WTIM0_CDTI1 #23 WTIM0_CDTI2 #21 WTIM1_CC0 #17 WTIM1_CC1 #15 WTIM1_CC2 #13 WTIM1_CC3 #11 LE- TIM0_OUT0 #17 LE- TIM0_OUT1 #16 PCNT0_S0IN #17 PCNT0_S1IN #16	US0_TX #17 US0_RX #16 US0_CLK #15 US0_CS #14 US0_CTS #13 US0_RTS #12 US1_TX #17 US1_RX #16 US1_CLK #15 US1_CS #14 US1_CTS #13 US1_RTS #12 US3_TX #1 US3_RX #0 US3_CLK #31 US3_CS #30 US3_CTS #29 US3_RTS #28 LEU0_TX #17 LEU0_RX #16 I2C0_SDA #17 I2C0_SCL #16	CMU_CLK0 #4 PRS_CH3 #8 PRS_CH4 #0 PRS_CH5 #6 PRS_CH6 #11 ACMP0_O #17 ACMP1_O #17 LES_CH1
M10	PD11	BUSCY BUSDX	TIM0_CC0 #19 TIM0_CC1 #18 TIM0_CC2 #17 TIM0_CDTI0 #16 TIM0_CDTI1 #15 TIM0_CDTI2 #14 TIM1_CC0 #19 TIM1_CC1 #18 TIM1_CC2 #17 TIM1_CC3 #16 WTIM0_CC2 #31 WTIM0_CDTI0 #27 WTIM0_CDTI1 #25 WTIM0_CDTI2 #23 WTIM1_CC0 #19 WTIM1_CC1 #17 WTIM1_CC2 #15 WTIM1_CC3 #13 LE- TIM0_OUT0 #19 LE- TIM0_OUT1 #18 PCNT0_S0IN #19 PCNT0_S1IN #18	US0_TX #19 US0_RX #18 US0_CLK #17 US0_CS #16 US0_CTS #15 US0_RTS #14 US1_TX #19 US1_RX #18 US1_CLK #17 US1_CS #16 US1_CTS #15 US1_RTS #14 US3_TX #3 US3_RX #2 US3_CLK #1 US3_CS #0 US3_CTS #31 US3_RTS #30 LEU0_TX #19 LEU0_RX #18 I2C0_SDA #19 I2C0_SCL #18	PRS_CH3 #10 PRS_CH4 #2 PRS_CH5 #1 PRS_CH6 #13 ACMP0_O #19 ACMP1_O #19 LES_CH3

Pin		Pin Alternate Functionality / Description			
Pin #	Pin Name	Analog	Timers	Communication	Other
M11	PD13	VDAC0_OUT0ALT / OPA0_OUTALT #1 BUSCY BUSDX OPA1_P	TIM0_CC0 #21 TIM0_CC1 #20 TIM0_CC2 #19 TIM0_CDTI0 #18 TIM0_CDTI1 #17 TIM0_CDTI2 #16 TIM1_CC0 #21 TIM1_CC1 #20 TIM1_CC2 #19 TIM1_CC3 #18 WTIM0_CDTI0 #29 WTIM0_CDTI1 #27 WTIM0_CDTI2 #25 WTIM1_CC0 #21 WTIM1_CC1 #19 WTIM1_CC2 #17 WTIM1_CC3 #15 LE- TIM0_OUT0 #21 LE- TIM0_OUT1 #20 PCNT0_S0IN #21 PCNT0_S1IN #20	US0_TX #21 US0_RX #20 US0_CLK #19 US0_CS #18 US0_CTS #17 US0_RTS #16 US1_TX #21 US1_RX #20 US1_CLK #19 US1_CS #18 US1_CTS #17 US1_RTS #16 US3_TX #5 US3_RX #4 US3_CLK #3 US3_CS #2 US3_CTS #1 US3_RTS #0 LEU0_TX #21 LEU0_RX #20 I2C0_SDA #21 I2C0_SCL #20	PRS_CH3 #12 PRS_CH4 #4 PRS_CH5 #3 PRS_CH6 #15 ACMP0_O #21 ACMP1_O #21 LES_CH5
M12	IOVDD	Digital IO power supply .			
M13	PA0	BUSDY BUSCX ADC0_EXTN	TIM0_CC0 #0 TIM0_CC1 #31 TIM0_CC2 #30 TIM0_CDTI0 #29 TIM0_CDTI1 #28 TIM0_CDTI2 #27 TIM1_CC0 #0 TIM1_CC1 #31 TIM1_CC2 #30 TIM1_CC3 #29 WTIM0_CC0 #0 LE- TIM0_OUT0 #0 LE- TIM0_OUT1 #31 PCNT0_S0IN #0 PCNT0_S1IN #31	US0_TX #0 US0_RX #31 US0_CLK #30 US0_CS #29 US0_CTS #28 US0_RTS #27 US1_TX #0 US1_RX #31 US1_CLK #30 US1_CS #29 US1_CTS #28 US1_RTS #27 LEU0_TX #0 LEU0_RX #31 I2C0_SDA #0 I2C0_SCL #31	CMU_CLK1 #0 PRS_CH6 #0 PRS_CH7 #10 PRS_CH8 #9 PRS_CH9 #8 ACMP0_O #0 ACMP1_O #0 LES_CH8
N1	NC	No Connect.			
N2	NC	No Connect.			
N3	NC	No Connect.			
N4	NC	No Connect.			
N5	VSS	Ground			
N6	NC	No Connect.			
N7	NC	No Connect.			
N8	NC	No Connect.			

Table 6.3. EFM32JG12B5xx in QFN48 Device Pinout

Pin		Pin Alternate Functionality / Description			
Pin #	Pin Name	Analog	Timers	Communication	Other
0	VSS	Ground			
1	PF0	BUSBY BUSAX	TIM0_CC0 #24 TIM0_CC1 #23 TIM0_CC2 #22 TIM0_CDTI0 #21 TIM0_CDTI1 #20 TIM0_CDTI2 #19 TIM1_CC0 #24 TIM1_CC1 #23 TIM1_CC2 #22 TIM1_CC3 #21 WTIM0_CDTI1 #30 WTIM0_CDTI2 #28 WTIM1_CC0 #24 WTIM1_CC1 #22 WTIM1_CC2 #20 WTIM1_CC3 #18 LE- TIM0_OUT0 #24 LE- TIM0_OUT1 #23 PCNT0_S0IN #24 PCNT0_S1IN #23	US0_TX #24 US0_RX #23 US0_CLK #22 US0_CS #21 US0_CTS #20 US0_RTS #19 US1_TX #24 US1_RX #23 US1_CLK #22 US1_CS #21 US1_CTS #20 US1_RTS #19 US2_TX #14 US2_RX #13 US2_CLK #12 US2_CS #11 US2_CTS #10 US2_RTS #9 LEU0_TX #24 LEU0_RX #23 I2C0_SDA #24 I2C0_SCL #23	PRS_CH0 #0 PRS_CH1 #7 PRS_CH2 #6 PRS_CH3 #5 ACMP0_O #24 ACMP1_O #24 DBG_SWCLKTCK BOOT_TX
2	PF1	BUSAY BUSBX	TIM0_CC0 #25 TIM0_CC1 #24 TIM0_CC2 #23 TIM0_CDTI0 #22 TIM0_CDTI1 #21 TIM0_CDTI2 #20 TIM1_CC0 #25 TIM1_CC1 #24 TIM1_CC2 #23 TIM1_CC3 #22 WTIM0_CDTI1 #31 WTIM0_CDTI2 #29 WTIM1_CC0 #25 WTIM1_CC1 #23 WTIM1_CC2 #21 WTIM1_CC3 #19 LE- TIM0_OUT0 #25 LE- TIM0_OUT1 #24 PCNT0_S0IN #25 PCNT0_S1IN #24	US0_TX #25 US0_RX #24 US0_CLK #23 US0_CS #22 US0_CTS #21 US0_RTS #20 US1_TX #25 US1_RX #24 US1_CLK #23 US1_CS #22 US1_CTS #21 US1_RTS #20 US2_TX #15 US2_RX #14 US2_CLK #13 US2_CS #12 US2_CTS #11 US2_RTS #10 LEU0_TX #25 LEU0_RX #24 I2C0_SDA #25 I2C0_SCL #24	PRS_CH0 #1 PRS_CH1 #0 PRS_CH2 #7 PRS_CH3 #6 ACMP0_O #25 ACMP1_O #25 DBG_SWDIOTMS BOOT_RX

Pin		Pin Alternate Functionality / Description			
Pin #	Pin Name	Analog	Timers	Communication	Other
6	PF5	BUSAY BUSBX	TIM0_CC0 #29 TIM0_CC1 #28 TIM0_CC2 #27 TIM0_CDTI0 #26 TIM0_CDTI1 #25 TIM0_CDTI2 #24 TIM1_CC0 #29 TIM1_CC1 #28 TIM1_CC2 #27 TIM1_CC3 #26 WTIM1_CC0 #29 WTIM1_CC1 #27 WTIM1_CC2 #25 WTIM1_CC3 #23 LE- TIM0_OUT0 #29 LE- TIM0_OUT1 #28 PCNT0_S0IN #29 PCNT0_S1IN #28	US0_TX #29 US0_RX #28 US0_CLK #27 US0_CS #26 US0_CTS #25 US0_RTS #24 US1_TX #29 US1_RX #28 US1_CLK #27 US1_CS #26 US1_CTS #25 US1_RTS #24 US2_TX #18 US2_RX #17 US2_CLK #16 US2_CS #15 US2_CTS #14 US2_RTS #13 LEU0_TX #29 LEU0_RX #28 I2C0_SDA #29 I2C0_SCL #28	PRS_CH0 #5 PRS_CH1 #4 PRS_CH2 #3 PRS_CH3 #2 ACMP0_O #29 ACMP1_O #29
7	PF6	BUSBY BUSAX	TIM0_CC0 #30 TIM0_CC1 #29 TIM0_CC2 #28 TIM0_CDTI0 #27 TIM0_CDTI1 #26 TIM0_CDTI2 #25 TIM1_CC0 #30 TIM1_CC1 #29 TIM1_CC2 #28 TIM1_CC3 #27 WTIM1_CC0 #30 WTIM1_CC1 #28 WTIM1_CC2 #26 WTIM1_CC3 #24 LE- TIM0_OUT0 #30 LE- TIM0_OUT1 #29 PCNT0_S0IN #30 PCNT0_S1IN #29 PCNT1_S0IN #19 PCNT1_S1IN #18	US0_TX #30 US0_RX #29 US0_CLK #28 US0_CS #27 US0_CTS #26 US0_RTS #25 US1_TX #30 US1_RX #29 US1_CLK #28 US1_CS #27 US1_CTS #26 US1_RTS #25 US2_TX #19 US2_RX #18 US2_CLK #17 US2_CS #16 US2_CTS #15 US2_RTS #14 LEU0_TX #30 LEU0_RX #29 I2C0_SDA #30 I2C0_SCL #29	CMU_CLK1 #7 PRS_CH0 #6 PRS_CH1 #5 PRS_CH2 #4 PRS_CH3 #3 ACMP0_O #30 ACMP1_O #30
8	PF7	BUSAY BUSBX	TIM0_CC0 #31 TIM0_CC1 #30 TIM0_CC2 #29 TIM0_CDTI0 #28 TIM0_CDTI1 #27 TIM0_CDTI2 #26 TIM1_CC0 #31 TIM1_CC1 #30 TIM1_CC2 #29 TIM1_CC3 #28 WTIM1_CC0 #31 WTIM1_CC1 #29 WTIM1_CC2 #27 WTIM1_CC3 #25 LE- TIM0_OUT0 #31 LE- TIM0_OUT1 #30 PCNT0_S0IN #31 PCNT0_S1IN #30 PCNT1_S0IN #20 PCNT1_S1IN #19	US0_TX #31 US0_RX #30 US0_CLK #29 US0_CS #28 US0_CTS #27 US0_RTS #26 US1_TX #31 US1_RX #30 US1_CLK #29 US1_CS #28 US1_CTS #27 US1_RTS #26 US2_TX #20 US2_RX #19 US2_CLK #18 US2_CS #17 US2_CTS #16 US2_RTS #15 LEU0_TX #31 LEU0_RX #30 I2C0_SDA #31 I2C0_SCL #30	CMU_CLKI0 #1 CMU_CLK0 #7 PRS_CH0 #7 PRS_CH1 #6 PRS_CH2 #5 PRS_CH3 #4 ACMP0_O #31 ACMP1_O #31 GPIO_EM4WU1
9	AVDD	Analog power supply .			

Alternate	LOCATION								
Functionality	0 - 3	4 - 7	8 - 11	12 - 15	16 - 19	20 - 23	24 - 27	28 - 31	Description
PRS_CH7	0: PA1 1: PA2 2: PA3 3: PA4	4: PA5 5: PB11 6: PB12 7: PB13	8: PB14 9: PB15 10: PA0						Peripheral Reflex System PRS, channel 7.
PRS_CH8	0: PA2 1: PA3 2: PA4 3: PA5	4: PB11 5: PB12 6: PB13 7: PB14	8: PB15 9: PA0 10: PA1						Peripheral Reflex System PRS, channel 8.
PRS_CH9	0: PA3 1: PA4 2: PA5 3: PB11	4: PB12 5: PB13 6: PB14 7: PB15	8: PA0 9: PA1 10: PA2 11: PC6	12: PC7 13: PC8 14: PC9 15: PC10	16: PC11				Peripheral Reflex System PRS, channel 9.
PRS_CH10	0: PC6 1: PC7 2: PC8 3: PC9	4: PC10 5: PC11							Peripheral Reflex System PRS, channel 10.
PRS_CH11	0: PC7 1: PC8 2: PC9 3: PC10	4: PC11 5: PC6							Peripheral Reflex System PRS, channel 11.
TIM0_CC0	0: PA0 1: PA1 2: PA2 3: PA3	4: PA4 5: PA5 6: PB11 7: PB12	8: PB13 9: PB14 10: PB15 11: PC6	12: PC7 13: PC8 14: PC9 15: PC10	16: PC11 17: PD9 18: PD10 19: PD11	20: PD12 21: PD13 22: PD14 23: PD15	24: PF0 25: PF1 26: PF2 27: PF3	28: PF4 29: PF5 30: PF6 31: PF7	Timer 0 Capture Compare input / output channel 0.
TIM0_CC1	0: PA1 1: PA2 2: PA3 3: PA4	4: PA5 5: PB11 6: PB12 7: PB13	8: PB14 9: PB15 10: PC6 11: PC7	12: PC8 13: PC9 14: PC10 15: PC11	16: PD9 17: PD10 18: PD11 19: PD12	20: PD13 21: PD14 22: PD15 23: PF0	24: PF1 25: PF2 26: PF3 27: PF4	28: PF5 29: PF6 30: PF7 31: PA0	Timer 0 Capture Compare input / output channel 1.
TIM0_CC2	0: PA2 1: PA3 2: PA4 3: PA5	4: PB11 5: PB12 6: PB13 7: PB14	8: PB15 9: PC6 10: PC7 11: PC8	12: PC9 13: PC10 14: PC11 15: PD9	16: PD10 17: PD11 18: PD12 19: PD13	20: PD14 21: PD15 22: PF0 23: PF1	24: PF2 25: PF3 26: PF4 27: PF5	28: PF6 29: PF7 30: PA0 31: PA1	Timer 0 Capture Compare input / output channel 2.
TIM0_CDTI0	0: PA3 1: PA4 2: PA5 3: PB11	4: PB12 5: PB13 6: PB14 7: PB15	8: PC6 9: PC7 10: PC8 11: PC9	12: PC10 13: PC11 14: PD9 15: PD10	16: PD11 17: PD12 18: PD13 19: PD14	20: PD15 21: PF0 22: PF1 23: PF2	24: PF3 25: PF4 26: PF5 27: PF6	28: PF7 29: PA0 30: PA1 31: PA2	Timer 0 Complimentary Dead Time Insertion channel 0.
TIM0_CDTI1	0: PA4 1: PA5 2: PB11 3: PB12	4: PB13 5: PB14 6: PB15 7: PC6	8: PC7 9: PC8 10: PC9 11: PC10	12: PC11 13: PD9 14: PD10 15: PD11	16: PD12 17: PD13 18: PD14 19: PD15	20: PF0 21: PF1 22: PF2 23: PF3	24: PF4 25: PF5 26: PF6 27: PF7	28: PA0 29: PA1 30: PA2 31: PA3	Timer 0 Complimentary Dead Time Insertion channel 1.
TIM0_CDTI2	0: PA5 1: PB11 2: PB12 3: PB13	4: PB14 5: PB15 6: PC6 7: PC7	8: PC8 9: PC9 10: PC10 11: PC11	12: PD9 13: PD10 14: PD11 15: PD12	16: PD13 17: PD14 18: PD15 19: PF0	20: PF1 21: PF2 22: PF3 23: PF4	24: PF5 25: PF6 26: PF7 27: PA0	28: PA1 29: PA2 30: PA3 31: PA4	Timer 0 Complimentary Dead Time Insertion channel 2.
TIM1_CC0	0: PA0 1: PA1 2: PA2 3: PA3	4: PA4 5: PA5 6: PB11 7: PB12	8: PB13 9: PB14 10: PB15 11: PC6	12: PC7 13: PC8 14: PC9 15: PC10	16: PC11 17: PD9 18: PD10 19: PD11	20: PD12 21: PD13 22: PD14 23: PD15	24: PF0 25: PF1 26: PF2 27: PF3	28: PF4 29: PF5 30: PF6 31: PF7	Timer 1 Capture Compare input / output channel 0.
TIM1_CC1	0: PA1 1: PA2 2: PA3 3: PA4	4: PA5 5: PB11 6: PB12 7: PB13	8: PB14 9: PB15 10: PC6 11: PC7	12: PC8 13: PC9 14: PC10 15: PC11	16: PD9 17: PD10 18: PD11 19: PD12	20: PD13 21: PD14 22: PD15 23: PF0	24: PF1 25: PF2 26: PF3 27: PF4	28: PF5 29: PF6 30: PF7 31: PA0	Timer 1 Capture Compare input / output channel 1.

Table 7.2. BGA125 PCB Land Pattern Dimensions

Dimension	Min	Nom	Max
X		0.25	
C1		6.00	
C2		6.00	
E1		0.5	
E2		0.5	

Note:

1. All dimensions shown are in millimeters (mm) unless otherwise noted.
2. Dimensioning and Tolerancing per ANSI Y14.5M-1994.
3. This Land Pattern Design is based on the IPC-7351 guidelines.
4. All metal pads are to be non-solder mask defined (NSMD). Clearance between the solder mask and the metal pad is to be 60 μm minimum, all the way around the pad.
5. A stainless steel, laser-cut and electro-polished stencil with trapezoidal walls should be used to assure good solder paste release.
6. The stencil thickness should be 0.125 mm (5 mils).
7. The ratio of stencil aperture to land pad size should be 1:1.
8. A No-Clean, Type-3 solder paste is recommended.
9. The recommended card reflow profile is per the JEDEC/IPC J-STD-020C specification for Small Body Components.

8.2 QFN48 PCB Land Pattern

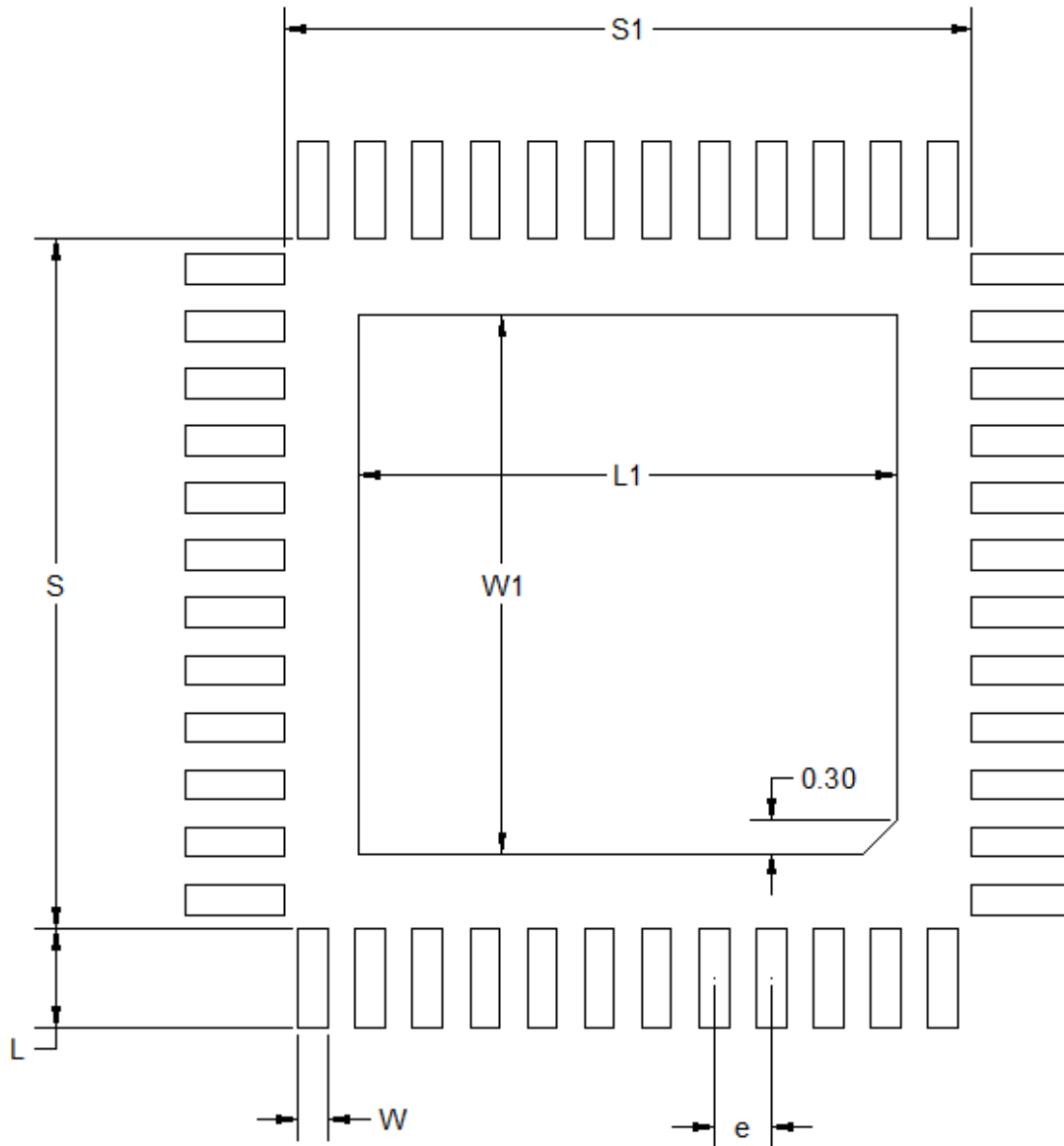


Figure 8.2. QFN48 PCB Land Pattern Drawing

8.3 QFN48 Package Marking



Figure 8.3. QFN48 Package Marking

The package marking consists of:

- P P P P P P P P P P – The part number designation.
- T T T T T T – A trace or manufacturing code. The first letter is the device revision.
- Y Y – The last 2 digits of the assembly year.
- W W – The 2-digit workweek when the device was assembled.

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