A. ECAD Design Information

This appendix contains information that supports the development of the PCB ECAD model for this device. It is intended to be used by PCB designers.

A.1 Part Number Indexing

Orderable Part Number	Number of Pins	Package Type	Package Code/POD Number
R5F21206JFP#U1	48	LFQFP	PLQP0048KB-A
R5F21206JFP#W4	48	LFQFP	PLQP0048KB-A
R5F21206KFP#U1	48	LFQFP	PLQP0048KB-A
R5F21207JFP#W4	48	LFQFP	PLQP0048KB-A
R5F21208JFP#U1	48	LFQFP	PLQP0048KB-A
R5F21208KFP#W4	48	LFQFP	PLQP0048KB-A
R5F2120CKFP#U0	48	LFQFP	PLQP0048KB-A
R5F21216JFP#U1	48	LFQFP	PLQP0048KB-A
R5F21216KFP#U1	48	LFQFP	PLQP0048KB-A
R5F21217JFP#U1	48	LFQFP	PLQP0048KB-A
R5F21217JFP#W4	48	LFQFP	PLQP0048KB-A
R5F21218JFP#U1	48	LFQFP	PLQP0048KB-A
R5F2121AJFP#U0	48	LFQFP	PLQP0048KB-A
R5F2121CJFP#U0	48	LFQFP	PLQP0048KB-A

A.2 Symbol Pin Information

A.2.1 48-LFQFP

Pin Number	Primary Pin Name	Primary Electrical Type	Alternate Pin Name(s)
1	SCL	I/O	P3_5/SSCK
2	P3_3	I/O	SSI
3	SDA	I/O	P3_4/SCS#
4	MODE	Input	-
5	P4_3	I/O	-
6	P4_4	I/O	-
7	\RESET	Input	-
8	XOUT	Output	P4_7
9	VSS	Power	AVSS
10	XIN	Input	P4_6
11	VCC	Power	AVCC
12	P2_7	I/O	TRDIOD1
13	P2_6	I/O	TRDIOC1
14	P2_5	I/O	TRDIOB1
15	P2_4	I/O	TRDIOA1
16	P2_3	I/O	TRDIOD0
17	P2_2	I/O	TRDIOC0
18	P2_1	I/O	TRDIOB0
19	P2_0	I/O	TRDIOA0/TRDCLK
20	P1_7	I/O	INT1#/TRAIO
21	P1_6	I/O	CLK0
22	P1_5	I/O	(INT1#)/(TRAIO)/RXD0
23	P1_4	I/O	TXD0
24	P1_3	I/O	KI3#/AN11
25	P4_5	I/O	INT0#
26	P6_6	I/O	INT2#/TXD1
27	P6_7	I/O	INT3#/RXD1
28	P1_2	I/O	KI2#/AN10
29	P1_1	I/O	KI1#/AN9
30	P1_0	I/O	KI0#/AN8
31	P3_1	I/O	TRBO

Pin Number	Primary Pin Name	Primary Electrical Type	Alternate Pin Name(s)
32	P3_0	I/O	TRAO
33	P6_5	I/O	-
34	P6_4	I/O	-
35	P6_3	I/O	-
36	P0_7	I/O	AN0
37	P0_6	I/O	AN1
38	P0_5	I/O	AN2
39	P0_4	I/O	AN3
40	P4_2	Input	VREF
41	P6_0	I/O	TREO
42	P6_2	I/O	-
43	P6_1	I/O	-
44	P0_3	I/O	AN4
45	P0_2	I/O	AN5
46	P0_1	I/O	AN6
47	P0_0	I/O	AN7
48	P3_7	I/O	SSO

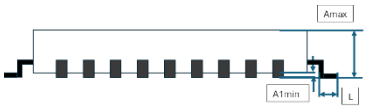
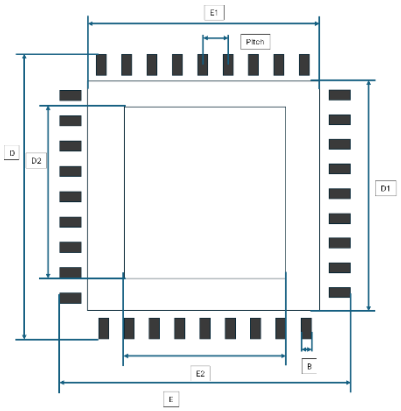
A.3 Symbol Parameters

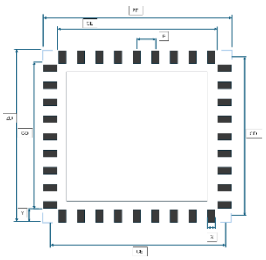
Orderable Part Number	Min Input Voltage	Max Input Voltage	Max Output Frequency	Min Operating Temperature	Max Operating Temperature	RAM Size	Memory Size	Interface	Number of ADC Channels	Number of I2C Channels	Number of SPI Channels	Number of UART Channels	Number of Timers/Counters
R5F21206JFP #U1	2.7 V	5.5 V	20 MHz	–40 °C	85 °C	2 KB	32 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch
R5F21206JFP #W4	2.7 V	5.5 V	20 MHz	–40 °C	85 °C	2 KB	32 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch
R5F21206KFP #U1	2.7 V	5.5 V	16 MHz	–40 °C	125 °C	2 KB	32 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch
R5F21207JFP #W4	2.7 V	5.5 V	20 MHz	–40 °C	85 °C	2.5 KB	48 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch
R5F21208JFP #U1	2.7 V	5.5 V	20 MHz	–40 °C	85 °C	3 KB	64 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch
R5F21208KFP #W4	2.7 V	5.5 V	16 MHz	–40 °C	125 °C	3 KB	64 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch
R5F2120CKFP #U0	2.7 V	5.5 V	16 MHz	–40 °C	125 °C	6 KB	128 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch
R5F21216JFP #U1	2.7 V	5.5 V	20 MHz	–40 °C	85 °C	2 KB	32 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch
R5F21216KFP #U1	2.7 V	5.5 V	16 MHz	–40 °C	125 °C	2 KB	32 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch
R5F21217JFP #U1	2.7 V	5.5 V	20 MHz	–40 °C	85 °C	2.5 KB	48 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch
R5F21217JFP #W4	2.7 V	5.5 V	20 MHz	–40 °C	85 °C	2.5 KB	48 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch
R5F21218JFP #U1	2.7 V	5.5 V	20 MHz	–40 °C	85 °C	3 KB	64 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch
R5F2121AJFP #U0	2.7 V	5.5 V	20 MHz	–40 °C	85 °C	5 KB	96 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch
R5F2121CJFP #U0	2.7 V	5.5 V	20 MHz	–40 °C	85 °C	6 KB	128 KB	I2C, UART, LIN	10-bit X 12-Ch	1	0	2	8-bit X 3-Ch,16-bit X 2-Ch

A.4 Footprint Design Information

A.4.1 48-LFQFP

IPC Footprint Type	Package Code/ POD number	Number of Pins
QFP	PLQP0048KB-A	48

Description	Dimension	Value (mm)	Diagram
Minimum lead span (vertical side)	Dmin	8.8	
Maximum lead span (vertical side)	Dmax	9.2	
Minimum lead span (horizontal side)	Emin	8.8	
Maximum lead span (horizontal side)	Emax	9.2	
Minimum body span (vertical side)	D1min	6.9	
Maximum body span (vertical side)	D1max	7.1	
Minimum body span (horizontal side)	E1min	6.9	
Maximum body span (horizontal side)	E1max	7.1	
Minimum Lead Width	Bmin	0.17	
Maximum Lead Width	Bmax	0.27	
Minimum Lead Length	Lmin	0.35	
Maximum Lead Length	Lmax	0.65	
Maximum Height	Amax	1.7	
Minimum Standoff Height	A1min	0	
Minimum Lead Thickness	cmin	0.09	
Maximum Lead Thickness	cmax	0.2	
Number of pins (vertical side)	PinCountD	12	
Number of pins (horizontal side)	PinCountE	12	
Distance between the center of any two adjacent pins	Pitch	0.5	
Location of pin 1; S2 = corner of D side, C1 = center of E side	Pin1	S2	
Minimum thermal pad size (vertical side)	D2min	-	
Maximum thermal pad size (vertical side)	D2max	-	
Minimum thermal pad size (horizontal side)	E2min	-	
Maximum thermal pad size (horizontal side)	E2max	-	

Recommended Land Pattern (NSMD Design)			
Description	**Dimension**	**Value (mm)**	**Diagram**
Distance between left pad toe to right pad toe (horizontal side)	ZE	-	
Distance between top pad toe to bottom pad toe (vertical side)	ZD	-	
Distance between left pad heel to right pad heel (horizontal side)	GE	-	
Distance between top pad heel to bottom pad heel (vertical side)	GD	-	
Pad Width	X	-	
Pad Length	Y	-	