

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
R5F10CGB CJFB#12	48	LFQFP	PLQP0048KF-A
R5F10CGB CJFB#12G	48	LFQFP	PLQP0048KF-A
R5F10CGB CJFB#56	48	LFQFP	PLQP0048KF-A
R5F10CGB CJFB#56G	48	LFQFP	PLQP0048KF-A
R5F10CGB CLFB#12	48	LFQFP	PLQP0048KF-A
R5F10CGB CLFB#12G	48	LFQFP	PLQP0048KF-A
R5F10CGB CLFB#56	48	LFQFP	PLQP0048KF-A
R5F10CGB CLFB#56G	48	LFQFP	PLQP0048KF-A
R5F10CGCC JFB#12	48	LFQFP	PLQP0048KF-A
R5F10CGCC JFB#12G	48	LFQFP	PLQP0048KF-A
R5F10CGCC JFB#56	48	LFQFP	PLQP0048KF-A
R5F10CGCC JFB#56G	48	LFQFP	PLQP0048KF-A
R5F10CGCC LFB#12	48	LFQFP	PLQP0048KF-A
R5F10CGCC LFB#12G	48	LFQFP	PLQP0048KF-A
R5F10CGCC LFB#56	48	LFQFP	PLQP0048KF-A
R5F10CGCC LFB#56G	48	LFQFP	PLQP0048KF-A
R5F10CGDC JFB#12	48	LFQFP	PLQP0048KF-A
R5F10CGDC JFB#12G	48	LFQFP	PLQP0048KF-A
R5F10CGDC JFB#56	48	LFQFP	PLQP0048KF-A
R5F10CGDC JFB#56G	48	LFQFP	PLQP0048KF-A
R5F10CGDC LFB#12	48	LFQFP	PLQP0048KF-A
R5F10CGDC LFB#12G	48	LFQFP	PLQP0048KF-A
R5F10CGDC LFB#56	48	LFQFP	PLQP0048KF-A
R5F10CGDC LFB#56G	48	LFQFP	PLQP0048KF-A
R5F10DGCC JFB#12	48	LFQFP	PLQP0048KF-A
R5F10DGCC JFB#12G	48	LFQFP	PLQP0048KF-A
R5F10DGCC JFB#56	48	LFQFP	PLQP0048KF-A
R5F10DGCC JFB#56G	48	LFQFP	PLQP0048KF-A
R5F10DGCC LFB#12	48	LFQFP	PLQP0048KF-A
R5F10DGCC LFB#12G	48	LFQFP	PLQP0048KF-A
R5F10DGCC LFB#56	48	LFQFP	PLQP0048KF-A
R5F10DGCC LFB#56G	48	LFQFP	PLQP0048KF-A
R5F10DGD JFB#12	48	LFQFP	PLQP0048KF-A
R5F10DGD JFB#12G	48	LFQFP	PLQP0048KF-A
R5F10DGD JFB#56	48	LFQFP	PLQP0048KF-A
R5F10DGD JFB#56G	48	LFQFP	PLQP0048KF-A
R5F10DGD LFB#12	48	LFQFP	PLQP0048KF-A
R5F10DGD LFB#12G	48	LFQFP	PLQP0048KF-A
R5F10DGD LFB#56	48	LFQFP	PLQP0048KF-A
R5F10DGD LFB#56G	48	LFQFP	PLQP0048KF-A
R5F10DGE JFB#12	48	LFQFP	PLQP0048KF-A
R5F10DGE JFB#12G	48	LFQFP	PLQP0048KF-A
R5F10DGE JFB#56	48	LFQFP	PLQP0048KF-A
R5F10DGE JFB#56G	48	LFQFP	PLQP0048KF-A
R5F10DGE LFB#12	48	LFQFP	PLQP0048KF-A
R5F10DGE LFB#12G	48	LFQFP	PLQP0048KF-A
R5F10DGE LFB#56	48	LFQFP	PLQP0048KF-A
R5F10DGE LFB#56G	48	LFQFP	PLQP0048KF-A
R5F10DSJJFB#H2G	128	LFQFP	PLQP0128KD-A
R5F10DSJJFB#X6G	128	LFQFP	PLQP0128KD-A
R5F10DSJLFB#H2G	128	LFQFP	PLQP0128KD-A
R5F10DSJLFB#X6G	128	LFQFP	PLQP0128KD-A

Orderable Part Number	Number of Pins	Package Type	Package Code/POD Number
R5F10DSKJFB#H2G	128	LFQFP	PLQP0128KD-A
R5F10DSKJFB#X6G	128	LFQFP	PLQP0128KD-A
R5F10DSKLFB#H2G	128	LFQFP	PLQP0128KD-A
R5F10DSKLFB#X6G	128	LFQFP	PLQP0128KD-A
R5F10DSLJFB#H2G	128	LFQFP	PLQP0128KD-A
R5F10DSLJFB#X6G	128	LFQFP	PLQP0128KD-A
R5F10DSLLFB#H2G	128	LFQFP	PLQP0128KD-A
R5F10DSLLFB#X6G	128	LFQFP	PLQP0128KD-A

A.2 Symbol Pin Information

A.2.1 128-LFQFP

Pin Number	Primary Pin Name	Primary Electrical Type	Alternate Pin Name(s)
1	P60	I/O	SCL11/TI20/TO20/INTP1
2	P61	I/O	SDA11/TI21/TO21/INTP3
3	P62	I/O	CTxD1/TI27/TO27
4	P63	I/O	CRxD1/TI26/TO26
5	P64	I/O	RTC1HZ/TI11/TO11
6	P65	I/O	TI25/TO25
7	P66	I/O	TI24/TO24/PCL
8	EVDD1	Power	-
9	EVSS1	Power	-
10	P110	I/O	DBD0/SCK00/TI00/TO00/SEG35
11	P111	I/O	DBD1/SI00/RxD0/TI02/TO02/SEG34
12	P112	I/O	DBD2/SO00/TxD0/TI04/TO04/SEG33
13	P113	I/O	DBD3/TI06/TO06/SEG32
14	P114	I/O	DBD4/TI07/TO07/SEG31
15	P115	I/O	DBD5/TI10/TO10/SEG30
16	P116	I/O	DBD6/TI12/TO12/SEG29
17	P117	I/O	DBD7/TI20/TO20/SEG28
18	P46	I/O	DBWR#/SEG27
19	P47	I/O	DBRD#/SEG26
20	P10	I/O	LTXD1/SCK00/TI10/TO10/INTP4/SEG31
21	P11	I/O	LRxD1/INTPLR1/SI00/RxD0/TI11/TO11/SEG30
22	P12	I/O	SO00/TxD0/TI12/TO12/INTP2/SEG29
23	P17	I/O	TI17/TO17/INTP0/SEG28
24	P75	I/O	SI01/TI22/TO22/SEG27/PCL
25	P74	I/O	SCK01/TI23/TO23/SEG26
26	P13	I/O	SO01/TI13/TO13/SEG25
27	P14	I/O	LRxD0/INTPLR0/TI14/TO14/SEG24
28	P15	I/O	LTXD0/RTC1HZ/TI15/TO15/SEG23
29	P16	I/O	TI16/TO16/SEG22
30	P07	I/O	TI07/TO07/TI17/TO17/SEG21
31	P06	I/O	TI06/TO06/TI16/TO16/SEG20
32	P05	I/O	TI05/TO05/TI15/TO15/SEG19
33	P04	I/O	SCK00/TI04/TO04/TI14/TO14/SEG18
34	P03	I/O	SI00/RxD0/TI03/TO03/TI13/TO13/SEG17
35	P02	I/O	SO00/TxD0/TI02/TO02/TI12/TO12/SEG16
36	P125	I/O	TI12/TO12/SEG25
37	P126	I/O	TI14/TO14/SEG24
38	P127	I/O	TI16/TO16/SEG23
39	P01	I/O	CRxD0/TI01/TO01/SEG15
40	P00	I/O	CTxD0/TI00/TO00/SEG14
41	P37	I/O	TI27/TO27/SEG13
42	P36	I/O	TI26/TO26/SEG12
43	P35	I/O	TI25/TO25/SEG11
44	P34	I/O	TI24/TO24/SCK00/SEG10
45	P33	I/O	TI23/TO23/SI00/RxD0/SEG9
46	P32	I/O	TI22/TO22/SO00/TxD0/SEG8

Pin Number	Primary Pin Name	Primary Electrical Type	Alternate Pin Name(s)
47	P31	I/O	TI21/TO21/SDA11/SEG7
48	P30	I/O	TI20/TO20/SCL11/SEG6
49	P57	I/O	TI17/TO17/SEG5
50	P56	I/O	TI16/TO16/SCK01/SEG4
51	P55	I/O	TI15/TO15/SI01/SEG3
52	P54	I/O	TI14/TO14/SO01/SEG2
53	P72	I/O	SGOA/ADTRG/SEG1
54	P73	I/O	SGO/SGOF/SEG0
55	COM3	Output	-
56	COM2	Output	-
57	COM1	Output	-
58	COM0	Output	-
59	P45	I/O	SEG53
60	P53	I/O	TI13/TO13/SO10/SEG52
61	P52	I/O	TI06/TO06/SI10/SEG51
62	P51	I/O	TI04/TO04/SCK10/SEG50
63	P50	I/O	TI02/TO02/SDA11/SEG49
64	P136	I/O	TI00/TO00/SCL11/SEG48
65	P107	I/O	-
66	P106	I/O	-
67	P105	I/O	-
68	P104	I/O	-
69	P97	I/O	-
70	P96	I/O	-
71	P95	I/O	-
72	P94	I/O	-
73	SMVSS1	Power	-
74	SMVDD1	Power	-
75	P93	I/O	-
76	P92	I/O	-
77	P91	I/O	-
78	P90	I/O	-
79	P87	I/O	-
80	P86	I/O	-
81	P85	I/O	-
82	P84	I/O	-
83	SMVSS0	Power	-
84	SMVDD0	Power	-
85	P83	I/O	-
86	P82	I/O	-
87	P81	I/O	-
88	P80	I/O	-
89	P103	I/O	-
90	P102	I/O	-
91	P101	I/O	-
92	P100	I/O	-
93	P44	I/O	TI23/TO23/SEG15
94	P43	I/O	TI22/TO22/SEG14
95	P42	I/O	TI10/TO10/SEG7
96	P135	I/O	SGO/SGOF/CRxD1/TI26/TO26
97	P134	I/O	SGOA/CTxD1/TI24/TO24
98	P133	I/O	SCK10/TI22/TO22
99	P132	I/O	SI10/LRxD1/INTPLR1/TI20/TO20
100	P131	I/O	SO10/LTxD1/TI21/TO21
101	P41	I/O	STOPST/IO4/TO04
102	RESOUT	Output	P130
103	P152	I/O	ANI10
104	P151	I/O	ANI9
105	P150	I/O	ANI8
106	P27	I/O	ANI7
107	P26	I/O	ANI6
108	P25	I/O	ANI5

Pin Number	Primary Pin Name	Primary Electrical Type	Alternate Pin Name(s)
109	P24	I/O	ANI4
110	P23	I/O	ANI3
111	P22	I/O	ANI2
112	P21	I/O	AVREFM/ANI1
113	P20	I/O	AVREFP/ANI0
114	P40	I/O	TOOL0
115	P71	I/O	CTxD0/LTxD0/TOOLTxD
116	P70	I/O	CRxD0/LRxD0/INTPLR0/TI03/TO03/TOOLRxD
117	P140	I/O	TI11/TO11
118	\RESET	Input	-
119	XT2	Input	P124
120	XT1	Input	P123
121	P137	Input	INTP5
122	X2	Input	EXCLK/P122
123	X1	Input	P121
124	REGC	Power	-
125	VSS	Power	-
126	EVSS0	Power	-
127	VDD	Power	-
128	EVDD0	Power	-

A.2.2 48-LFQFP

Pin Number	Primary Pin Name	Primary Electrical Type	Alternate Pin Name(s)
1	P23	I/O	ANI3
2	P22	I/O	ANI2
3	P21	I/O	AVREFM/ANI1
4	P20	I/O	AVREFP/ANI0
5	P40	I/O	TOOL0
6	\RESET	Input	-
7	P137	Input	INTP5
8	X2	Input	EXCLK/P122
9	X1	Input	P121
10	REGC	Power	-
11	VSS	Power	EVSS
12	VDD	Power	EVDD
13	P60	I/O	SCL11/TI20/TO20/INTP1
14	P61	I/O	SDA11/TI21/TO21/INTP3
15	P10	I/O	LTxD1/SCK00/TI10/TO10/INTP4/SEG31
16	P11	I/O	LRxD1/INTPLR1/SI00/TI11/TO11/SEG30
17	P12	I/O	SO00/TI12/TO12/INTP2/SEG29
18	P75	I/O	PCL/SI01/TI22/TO22/SEG27
19	P74	I/O	SCK01/TI23/TO23/SEG26
20	P13	I/O	SO01/TI13/TO13/SEG25
21	P14	I/O	TI14/TO14/SEG24
22	P01	I/O	TI01/TO01/SEG15
23	P00	I/O	TI00/TO00/SEG14
24	P33	I/O	TI23/TO23/SEG9
25	P31	I/O	TI21/TO21/SDA11/SEG7
26	P30	I/O	TI20/TO20/SCL11/SEG6
27	P57	I/O	TI17/TO17/SEG5
28	P56	I/O	TI16/TO16/SCK01/SEG4
29	P55	I/O	TI15/TO15/SI01/SEG3
30	P54	I/O	TI14/TO14/SO01/SEG2
31	P72	I/O	ADTRG/SGOA/SEG1
32	P73	I/O	SGO/SGOF/SEG0
33	COM3	Output	-
34	COM2	Output	-
35	COM1	Output	-
36	COM0	Output	-
37	P94	I/O	RTC1HZ/TI01/TO01/SEG44
38	P93	I/O	SGO/SGOF/TI27/TO27/SEG43

Pin Number	Primary Pin Name	Primary Electrical Type	Alternate Pin Name(s)
39	P92	I/O	SGOA/TI25/TO25/SEG42
40	P91	I/O	TI23/TO23/SEG41
41	P90	I/O	TI21/TO21/SEG40
42	SMVSS	Power	-
43	SMVDD	Power	-
44	P83	I/O	SM14/ZPD14/TI07/TO07/SEG35
45	P82	I/O	SM13/TI05/TO05/SEG34
46	P81	I/O	SM12/TI03/TO03/SEG33
47	P80	I/O	SM11/TI01/TO01/SEG32
48	P27	I/O	ANI7

A.2.3 48-LFQFP

Pin Number	Primary Pin Name	Primary Electrical Type	Alternate Pin Name(s)
1	P23	I/O	ANI3
2	P22	I/O	ANI2
3	P21	I/O	AVREFM/ANI1
4	P20	I/O	AVREFP/ANI0
5	P40	I/O	TOOL0
6	\RESET	Input	-
7	P137	Input	INTP5
8	X2	Input	EXCLK/P122
9	X1	Input	P121
10	REGC	Power	-
11	VSS	Power	EVSS
12	VDD	Power	EVDD
13	P60	I/O	SCL11/TI20/TO20/INTP1
14	P61	I/O	SDA11/TI21/TO21/INTP3
15	P10	I/O	LTXD1/SCK00/TI10/TO10/INTP4/SEG31
16	P11	I/O	LRxD1/INTPLR1/SI00/TI11/TO11/SEG30
17	P12	I/O	SO00/TI12/TO12/INTP2/SEG29
18	P75	I/O	PCL/SI01/TI22/TO22/SEG27
19	P74	I/O	SCK01/TI23/TO23/SEG26
20	P13	I/O	SO01/TI13/TO13/SEG25
21	P14	I/O	TI14/TO14/SEG24
22	P01	I/O	CRxD0/TI01/TO01/SEG15
23	P00	I/O	CTXD0/TI00/TO00/SEG14
24	P33	I/O	TI23/TO23/SEG9
25	P31	I/O	TI21/TO21/SDA11/SEG7
26	P30	I/O	TI20/TO20/SCL11/SEG6
27	P57	I/O	TI17/TO17/SEG5
28	P56	I/O	TI16/TO16/SCK01/SEG4
29	P55	I/O	TI15/TO15/SI01/SEG3
30	P54	I/O	TI14/TO14/SO01/SEG2
31	P72	I/O	ADTRG/SGOA/SEG1
32	P73	I/O	SGO/SGOF/SEG0
33	COM3	Output	-
34	COM2	Output	-
35	COM1	Output	-
36	COM0	Output	-
37	P94	I/O	RTC1HZ/TI01/TO01/SEG44
38	P93	I/O	SGO/SGOF/TI27/TO27/SEG43
39	P92	I/O	SGOA/TI25/TO25/SEG42
40	P91	I/O	TI23/TO23/SEG41
41	P90	I/O	TI21/TO21/SEG40
42	SMVSS	Power	-
43	SMVDD	Power	-
44	P83	I/O	SM14/ZPD14/TI07/TO07/SEG35
45	P82	I/O	SM13/TI05/TO05/SEG34
46	P81	I/O	SM12/TI03/TO03/SEG33
47	P80	I/O	SM11/TI01/TO01/SEG32
48	P27	I/O	ANI7

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
R5F10CGBCJF B#12	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	2 KB	24 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGBCJF B#12G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	2 KB	24 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGBCJF B#56	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	2 KB	24 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGBCJF B#56G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	2 KB	24 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGBCLF B#12	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	2 KB	24 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGBCLF B#12G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	2 KB	24 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGBCLF B#56	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	2 KB	24 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGBCLF B#56G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	2 KB	24 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGCCJF B#12	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGCCJF B#12G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGCCJF B#56	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch

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
R5F10CGCCJF B#56G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGCCLF B#12	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGCCLF B#12G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGCCLF B#56	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGCCLF B#56G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGDCJF B#12	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGDCJF B#12G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGDCJF B#56	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGDCJF B#56G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGDCL FB#12	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGDCL FB#12G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10CGDCL FB#56	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch

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
R5F10CGDCL FB#56G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGCCJF B#12	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGCCJF B#12G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGCCJF B#56	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGCCJF B#56G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGCCL FB#12	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGCCL FB#12G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGCCL FB#56	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGCCL FB#56G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	2 KB	32 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGDCJ FB#12	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGDCJ FB#12G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGDCJ FB#56	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch

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
R5F10DGD CJ FB#56G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGD CL FB#12	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGD CL FB#12G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGD CL FB#56	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGD CL FB#56G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	3 KB	48 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGE CJF B#12	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	4 KB	64 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGE CJF B#12G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	4 KB	64 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGE CJF B#56	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	4 KB	64 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGE CJF B#56G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	4 KB	64 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGE CLF B#12	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	4 KB	64 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGE CLF B#12G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	4 KB	64 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch
R5F10DGE CLF B#56	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	4 KB	64 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5- Ch	1	2	1	16-bit X 24-Ch

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
R5F10DGECLF B#56G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	4 KB	64 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 5-Ch	1	2	1	16-bit X 24-Ch
R5F10DSJJFB #H2G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	16 KB	256 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 11-Ch	1	3	3	16-bit X 24-Ch
R5F10DSJJFB #X6G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	16 KB	256 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 11-Ch	1	3	3	16-bit X 24-Ch
R5F10DSJLFB #H2G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	16 KB	256 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 11-Ch	1	3	3	16-bit X 24-Ch
R5F10DSJLFB #X6G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	16 KB	256 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 11-Ch	1	3	3	16-bit X 24-Ch
R5F10DSKJFB #H2G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	20 KB	384 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 11-Ch	1	3	3	16-bit X 24-Ch
R5F10DSKJFB #X6G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	20 KB	384 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 11-Ch	1	3	3	16-bit X 24-Ch
R5F10DSKJFB #H2G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	20 KB	384 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 11-Ch	1	3	3	16-bit X 24-Ch
R5F10DSKJFB #X6G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	20 KB	384 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 11-Ch	1	3	3	16-bit X 24-Ch
R5F10DSLJFB #H2G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	24 KB	512 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 11-Ch	1	3	3	16-bit X 24-Ch
R5F10DSLJFB #X6G	2.7 V	5.5 V	32 MHz	−40° C	+85 °C	24 KB	512 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 11-Ch	1	3	3	16-bit X 24-Ch
R5F10DSLLFB #H2G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	24 KB	512 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 11-Ch	1	3	3	16-bit X 24-Ch

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
R5F10DSLLFB #X6G	2.7 V	5.5 V	24 MHz	−40° C	+105 °C	24 KB	512 KB	SCI, SPI, I2C, UART, LIN, CAN	10-bit X 11- Ch	1	3	3	16-bit X 24-Ch

A.4 Footprint Design Information

A.4.1 48-LFQFP

IPC Footprint Type	Package Code/ POD number	Number of Pins
QFP	PLQP0048KF-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	6.8	
Maximum body span (vertical side)	D1max	7.2	
Minimum body span (horizontal side)	E1min	6.8	
Maximum body span (horizontal side)	E1max	7.2	
Minimum Lead Width	Bmin	0.17	
Maximum Lead Width	Bmax	0.27	
Minimum Lead Length	Lmin	0.45	
Maximum Lead Length	Lmax	0.75	
Maximum Height	Amax	1.6	
Minimum Standoff Height	A1min	0.05	
Minimum Lead Thickness	cmin	0.1	
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	-	

A.4.2 128-LFQFP

IPC Footprint Type	Package Code/ POD number	Number of Pins
QFP	PLQP0128KD-A	128

Description	Dimension	Value (mm)	Diagram
Minimum lead span (vertical side)	Dmin	21.8	
Maximum lead span (vertical side)	Dmax	22.2	
Minimum lead span (horizontal side)	Emin	15.8	
Maximum lead span (horizontal side)	Emax	16.2	
Minimum body span (vertical side)	D1min	20.2	
Maximum body span (vertical side)	D1max	20.2	
Minimum body span (horizontal side)	E1min	14.2	
Maximum body span (horizontal side)	E1max	14.2	
Minimum Lead Width	Bmin	0.17	
Maximum Lead Width	Bmax	0.27	
Minimum Lead Length	Lmin	0.45	
Maximum Lead Length	Lmax	0.75	
Maximum Height	Amax	1.6	
Minimum Standoff Height	A1min	0.05	
Minimum Lead Thickness	cmin	-	
Maximum Lead Thickness	cmax	-	
Number of pins (vertical side)	PinCountD	38	
Number of pins (horizontal side)	PinCountE	26	
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	-	