

RENESAS SEMICONDUCTOR RELIABILITY REPORT

GROUP : RL78/G13

DEVICE : R5F100XXX

APPLICATION : Consumer / Industry

Quality Assurance Div.
Renesas Electronics Corporation

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Table. Reliability test results (QFP)

Test Items	Reference	Test Conditions	Results Failure/Size	Comment
High Temperature Operating Life (HTOL)	JESD22-A108	Ta=125 °C, Vccmax, 1000 hrs	0/22	
High Temperature Storage Life (HTSL)	JESD22-A103	Ta=150 °C, 1000 hrs	0/22	
Temperature Humidity bias (THB) (*1)	JESD22-A101	Ta=85 °C, RH=85 %, Vccmax, 1000 hrs	0/22	
Temperature Cycling (TC) (*1)	JESD22-A104	Ta=-65 °C to 150 °C , 300 cycles	0/22	
Latch-Up (LU)	JESD78	Pulse Current Injection, I=+/-150 mA	0/3	
Electrostatic discharge (ESD-HBM)	JS-001	1.5 kΩ, 100 pF, +/-2000 V, 1 time	0/3	Class: 2
Electrostatic discharge (ESD-CDM)	JESD22-C101	+/-500V,1time	0/3	Class: C2
Solderability (SD)	J-STD-002	245 °C, 5 s, Solder coverage ≥95 %	0/5	
Resistance to Soldering Heat (PC)	JESD22-A113, J-STD-020	MSL3(Moisture Sensitivity Level 3)	0/22	

*1) With preconditioning per JESD22-A113, MSL 3

•It is tested to confirm that all the samples are satisfied with an individual product specification.

Note :

Basically qualification tests were performed using a representative product with the same wafer process and the same package structure .

Table. Reliability test results (QFN)

Test Items	Reference	Test Conditions	Results Failure/Size	Comment
High Temperature Operating Life (HTOL)	JESD22-A108	Ta=125 °C, Vccmax, 1000 hrs	0/22	
High Temperature Storage Life (HTSL)	JESD22-A103	Ta=150 °C, 1000 hrs	0/22	
Temperature Humidity bias (THB) (*1)	JESD22-A101	Ta=85 °C, RH=85 %, Vccmax, 1000 hrs	0/22	
Temperature Cycling (TC) (*1)	JESD22-A104	Ta=-65 °C to 150 °C , 300 cycles	0/22	
Latch-Up (LU)	JESD78	Pulse Current Injection, I=+/-150 mA	0/3	
Electrostatic discharge (ESD-HBM)	JS-001	1.5 kΩ, 100 pF, +/-2000 V, 1 time	0/3	Class: 2
Electrostatic discharge (ESD-CDM)	JESD22-C101	+/-500V,1time	0/3	Class: C2
Solderability (SD)	J-STD-002	245 °C, 5 s, Solder coverage ≥95 %	0/5	
Resistance to Soldering Heat (PC)	JESD22-A113, J-STD-020	MSL3(Moisture Sensitivity Level 3)	0/22	

*1) With preconditioning per JESD22-A113, MSL 3

•It is tested to confirm that all the samples are satisfied with an individual product specification.

Note :

Basically qualification tests were performed using a representative product with the same wafer process and the same package structure .

Table. Reliability test results (SOP)

Test Items	Reference	Test Conditions	Results Failure/Size	Comment
High Temperature Operating Life (HTOL)	JESD22-A108	Ta=125 °C, Vccmax, 1000 hrs	0/22	
High Temperature Storage Life (HTSL)	JESD22-A103	Ta=150 °C, 1000 hrs	0/22	
Temperature Humidity bias (THB) (*1)	JESD22-A101	Ta=85 °C, RH=85 %, Vccmax, 1000 hrs	0/22	
Temperature Cycling (TC) (*1)	JESD22-A104	Ta=-65 °C to 150 °C , 300 cycles	0/22	
Latch-Up (LU)	JESD78	Pulse Current Injection, I=+/-150 mA	0/3	
Electrostatic discharge (ESD-HBM)	JS-001	1.5 kΩ, 100 pF, +/-2000 V, 1 time	0/3	Class: 2
Electrostatic discharge (ESD-CDM)	JESD22-C101	+/-500V,1time	0/3	Class: C2
Solderability (SD)	J-STD-002	245 °C, 5 s, Solder coverage ≥95 %	0/5	
Resistance to Soldering Heat (PC)	JESD22-A113, J-STD-020	MSL3(Moisture Sensitivity Level 3)	0/22	

*1) With preconditioning per JESD22-A113, MSL 3

•It is tested to confirm that all the samples are satisfied with an individual product specification.

Note :

Basically qualification tests were performed using a representative product with the same wafer process and the same package structure .

Table. Reliability test results (BGA)

Test Items	Reference	Test Conditions	Results Failure/Size	Comment
High Temperature Operating Life (HTOL)	JESD22-A108	Ta=125 °C, Vccmax, 1000 hrs	0/22	
High Temperature Storage Life (HTSL)	JESD22-A103	Ta=150 °C, 1000 hrs	0/22	
Temperature Humidity bias (THB) (*1)	JESD22-A101	Ta=85 °C, RH=85 %, Vccmax, 1000 hrs	0/22	
Temperature Cycling (TC) (*1)	JESD22-A104	Ta=-55 °C to 125 °C , 500 cycles	0/22	
Latch-Up (LU)	JESD78	Pulse Current Injection, I=+/-150 mA	0/3	
Electrostatic discharge (ESD-HBM)	JS-001	1.5 kΩ, 100 pF, +/-2000 V, 1 time	0/3	Class: 2
Electrostatic discharge (ESD-CDM)	JESD22-C101	+/-500V,1time	0/3	Class: C2
Resistance to Soldering Heat (PC)	JESD22-A113, J-STD-020	MSL3(Moisture Sensitivity Level 3)	0/22	

*1) With preconditioning per JESD22-A113, MSL 3

•It is tested to confirm that all the samples are satisfied with an individual product specification.

Note :

Basically qualification tests were performed using a representative product with the same wafer process and the same package structure .

Table. Reliability test results (LGA)

Test Items	Reference	Test Conditions	Results Failure/Size	Comment
High Temperature Operating Life (HTOL)	JESD22-A108	Ta=125 °C, Vccmax, 1000 hrs	0/22	
High Temperature Storage Life (HTSL)	JESD22-A103	Ta=150 °C, 1000 hrs	0/22	
Temperature Humidity bias (THB) (*1)	JESD22-A101	Ta=85 °C, RH=85 %, Vccmax, 1000 hrs	0/22	
Temperature Cycling (TC) (*1)	JESD22-A104	Ta=-55 °C to 125 °C , 500 cycles	0/22	
Latch-Up (LU)	JESD78	Pulse Current Injection, I=+/-150 mA	0/3	
Electrostatic discharge (ESD-HBM)	JS-001	1.5 kΩ, 100 pF, +/-2000 V, 1 time	0/3	Class: 2
Electrostatic discharge (ESD-CDM)	JESD22-C101	+/-500V,1time	0/3	Class: C2
Resistance to Soldering Heat (PC)	JESD22-A113, J-STD-020	MSL3(Moisture Sensitivity Level 3)	0/22	

*1) With preconditioning per JESD22-A113, MSL 3

•It is tested to confirm that all the samples are satisfied with an individual product specification.

Note :

Basically qualification tests were performed using a representative product with the same wafer process and the same package structure .

The failure rate of the device in an actual use condition can be estimated by the below procedure.

•Equation for the failure rate estimation (λ)

$$\lambda = \lambda_b \times \pi T \text{ (FIT)}$$

①Unique failure rate (λ_b)

$$\lambda_b = 3.8 \text{ FIT}$$

Unique failure rate at $T_a=55^\circ\text{C}$ using 60 % confidence level.

②Temperature term (πT)

$$\pi T = \exp\{11600 \times E_a \times (1/(273+55) - 1/(273+T_a))\}$$

E_a : Activation energy (eV)

T_a : Ambient temperature ($^\circ\text{C}$)

πT simplified chart as $E_a=0.7 \text{ eV}$

T_a ($^\circ\text{C}$)	40	50	55	60	65	70	75	80	85	90	100	110
πT	0.31	0.68	1	1.45	2.08	2.95	4.15	5.77	7.96	10.88	19.82	34.99

•MTTF (Mean Time To Failure)

$$MTTF = 1/\lambda$$

Reference about Renesas package code

Package type		Package code *1
Lead type plastic package	QFP	PxQP
	SOP	PxSP
Non-lead type plastic package	QFN	PxQN
Grid array type plastic package	BGA	PxBG
	LGA	PxLG

*1. First four digit

Table. Product list

No	Group	Product part number	Package code	No	Group	Product part number	Package code
1	RL78/G13	R5F1006AASM	PTSP0020J*	51	RL78/G13	R5F100ADASP	PLSP0030J*
2	RL78/G13	R5F1006AASP	PLSP0020J*	52	RL78/G13	R5F100ADDSP	PLSP0030J*
3	RL78/G13	R5F1006ADSP	PLSP0020J*	53	RL78/G13	R5F100ADGSP	PLSP0030J*
4	RL78/G13	R5F1006AGSM	PTSP0020J*	54	RL78/G13	R5F100AEASP	PLSP0030J*
5	RL78/G13	R5F1006AGSP	PLSP0020J*	55	RL78/G13	R5F100AEDSP	PLSP0030J*
6	RL78/G13	R5F1006CASM	PTSP0020J*	56	RL78/G13	R5F100AEGSP	PLSP0030J*
7	RL78/G13	R5F1006CASP	PLSP0020J*	57	RL78/G13	R5F100AFASP	PLSP0030J*
8	RL78/G13	R5F1006CDSP	PLSP0020J*	58	RL78/G13	R5F100AFDSP	PLSP0030J*
9	RL78/G13	R5F1006CGSM	PTSP0020J*	59	RL78/G13	R5F100AFGSP	PLSP0030J*
10	RL78/G13	R5F1006CGSP	PLSP0020J*	60	RL78/G13	R5F100AGASP	PLSP0030J*
11	RL78/G13	R5F1006DASM	PTSP0020J*	61	RL78/G13	R5F100AGDSP	PLSP0030J*
12	RL78/G13	R5F1006DASP	PLSP0020J*	62	RL78/G13	R5F100AGGSP	PLSP0030J*
13	RL78/G13	R5F1006DDSP	PLSP0020J*	63	RL78/G13	R5F100BAANA	PWQN0032K*
14	RL78/G13	R5F1006DGSM	PTSP0020J*	64	RL78/G13	R5F100BADNA	PWQN0032K*
15	RL78/G13	R5F1006DGSP	PLSP0020J*	65	RL78/G13	R5F100BAGNA	PWQN0032K*
16	RL78/G13	R5F1006EASM	PTSP0020J*	66	RL78/G13	R5F100BCAFP	PLQP0032G*
17	RL78/G13	R5F1006EASP	PLSP0020J*	67	RL78/G13	R5F100BCANA	PWQN0032K*
18	RL78/G13	R5F1006EDSP	PLSP0020J*	68	RL78/G13	R5F100BCDNA	PWQN0032K*
19	RL78/G13	R5F1006EGSM	PTSP0020J*	69	RL78/G13	R5F100BCGFP	PLQP0032G*
20	RL78/G13	R5F1006EGSP	PLSP0020J*	70	RL78/G13	R5F100BCGNA	PWQN0032K*
21	RL78/G13	R5F1007AANA	PWQN0024K*	71	RL78/G13	R5F100BDANA	PWQN0032K*
22	RL78/G13	R5F1007ADNA	PWQN0024K*	72	RL78/G13	R5F100BDDNA	PWQN0032K*
23	RL78/G13	R5F1007AGNA	PWQN0024K*	73	RL78/G13	R5F100BDGFP	PLQP0032G*
24	RL78/G13	R5F1007CANA	PWQN0024K*	74	RL78/G13	R5F100BDGNA	PWQN0032K*
25	RL78/G13	R5F1007CDNA	PWQN0024K*	75	RL78/G13	R5F100BEANA	PWQN0032K*
26	RL78/G13	R5F1007CGNA	PWQN0024K*	76	RL78/G13	R5F100BEDNA	PWQN0032K*
27	RL78/G13	R5F1007DANA	PWQN0024K*	77	RL78/G13	R5F100BEGFP	PLQP0032G*
28	RL78/G13	R5F1007DDNA	PWQN0024K*	78	RL78/G13	R5F100BEGNA	PWQN0032K*
29	RL78/G13	R5F1007DGNA	PWQN0024K*	79	RL78/G13	R5F100BFANA	PWQN0032K*
30	RL78/G13	R5F1007EANA	PWQN0024K*	80	RL78/G13	R5F100BFDNA	PWQN0032K*
31	RL78/G13	R5F1007EDNA	PWQN0024K*	81	RL78/G13	R5F100BFGNA	PWQN0032K*
32	RL78/G13	R5F1007EGNA	PWQN0024K*	82	RL78/G13	R5F100BGANA	PWQN0032K*
33	RL78/G13	R5F1008AALA	PWLG0025K*	83	RL78/G13	R5F100BGDNA	PWQN0032K*
34	RL78/G13	R5F1008ADLA	PWLG0025K*	84	RL78/G13	R5F100BGGNA	PWQN0032K*
35	RL78/G13	R5F1008AGLA	PWLG0025K*	85	RL78/G13	R5F100CAALA	PWLG0036K*
36	RL78/G13	R5F1008CALA	PWLG0025K*	86	RL78/G13	R5F100CADLA	PWLG0036K*
37	RL78/G13	R5F1008CDLA	PWLG0025K*	87	RL78/G13	R5F100CAGLA	PWLG0036K*
38	RL78/G13	R5F1008CGLA	PWLG0025K*	88	RL78/G13	R5F100CCALA	PWLG0036K*
39	RL78/G13	R5F1008DALA	PWLG0025K*	89	RL78/G13	R5F100CCDLA	PWLG0036K*
40	RL78/G13	R5F1008DDLA	PWLG0025K*	90	RL78/G13	R5F100CCGLA	PWLG0036K*
41	RL78/G13	R5F1008DGLA	PWLG0025K*	91	RL78/G13	R5F100CDALA	PWLG0036K*
42	RL78/G13	R5F1008EALA	PWLG0025K*	92	RL78/G13	R5F100CDDLA	PWLG0036K*
43	RL78/G13	R5F1008EDLA	PWLG0025K*	93	RL78/G13	R5F100CDGLA	PWLG0036K*
44	RL78/G13	R5F1008EGLA	PWLG0025K*	94	RL78/G13	R5F100CEALA	PWLG0036K*
45	RL78/G13	R5F100AAASP	PLSP0030J*	95	RL78/G13	R5F100CEDLA	PWLG0036K*
46	RL78/G13	R5F100AADSP	PLSP0030J*	96	RL78/G13	R5F100CEGLA	PWLG0036K*
47	RL78/G13	R5F100AAGSP	PLSP0030J*	97	RL78/G13	R5F100CFALA	PWLG0036K*
48	RL78/G13	R5F100ACASP	PLSP0030J*	98	RL78/G13	R5F100CFDLA	PWLG0036K*
49	RL78/G13	R5F100ACDSP	PLSP0030J*	99	RL78/G13	R5F100CFGLA	PWLG0036K*
50	RL78/G13	R5F100ACGSP	PLSP0030J*	100	RL78/G13	R5F100CGALA	PWLG0036K*

Table. Product list

MCR-22-0498

No	Group	Product part number	Package code	No	Group	Product part number	Package code
101	RL78/G13	R5F100CGDLA	PWLG0036K*	161	RL78/G13	R5F100GCDNA	PWQN0048K*
102	RL78/G13	R5F100CGGLA	PWLG0036K*	162	RL78/G13	R5F100GCGFB	PLQP0048K*
103	RL78/G13	R5F100EAANA	PWQN0040K*	163	RL78/G13	R5F100GCGNA	PWQN0048K*
104	RL78/G13	R5F100EADNA	PWQN0040K*	164	RL78/G13	R5F100GDAFB	PLQP0048K*
105	RL78/G13	R5F100EAGNA	PWQN0040K*	165	RL78/G13	R5F100GDANA	PWQN0048K*
106	RL78/G13	R5F100ECANA	PWQN0040K*	166	RL78/G13	R5F100GDDFB	PLQP0048K*
107	RL78/G13	R5F100ECDNA	PWQN0040K*	167	RL78/G13	R5F100GDDNA	PWQN0048K*
108	RL78/G13	R5F100ECGNA	PWQN0040K*	168	RL78/G13	R5F100GDGFB	PLQP0048K*
109	RL78/G13	R5F100EDANA	PWQN0040K*	169	RL78/G13	R5F100GDGNA	PWQN0048K*
110	RL78/G13	R5F100EDDNA	PWQN0040K*	170	RL78/G13	R5F100GEAFB	PLQP0048K*
111	RL78/G13	R5F100EDGNA	PWQN0040K*	171	RL78/G13	R5F100GEANA	PWQN0048K*
112	RL78/G13	R5F100EEANA	PWQN0040K*	172	RL78/G13	R5F100GEDFB	PLQP0048K*
113	RL78/G13	R5F100EEDNA	PWQN0040K*	173	RL78/G13	R5F100GEDNA	PWQN0048K*
114	RL78/G13	R5F100EEGNA	PWQN0040K*	174	RL78/G13	R5F100GEGFB	PLQP0048K*
115	RL78/G13	R5F100EFANA	PWQN0040K*	175	RL78/G13	R5F100GEGNA	PWQN0048K*
116	RL78/G13	R5F100EFDNA	PWQN0040K*	176	RL78/G13	R5F100GFAFB	PLQP0048K*
117	RL78/G13	R5F100EFGNA	PWQN0040K*	177	RL78/G13	R5F100GFANA	PWQN0048K*
118	RL78/G13	R5F100EGANA	PWQN0040K*	178	RL78/G13	R5F100GDFB	PLQP0048K*
119	RL78/G13	R5F100EGDNA	PWQN0040K*	179	RL78/G13	R5F100GFDNA	PWQN0048K*
120	RL78/G13	R5F100EGGNA	PWQN0040K*	180	RL78/G13	R5F100GFGFB	PLQP0048K*
121	RL78/G13	R5F100EHANA	PWQN0040K*	181	RL78/G13	R5F100GFGNA	PWQN0048K*
122	RL78/G13	R5F100EHDNA	PWQN0040K*	182	RL78/G13	R5F100GGAFB	PLQP0048K*
123	RL78/G13	R5F100EHGNA	PWQN0040K*	183	RL78/G13	R5F100GGANA	PWQN0048K*
124	RL78/G13	R5F100FAAFP	PLQP0044G*	184	RL78/G13	R5F100GGDFB	PLQP0048K*
125	RL78/G13	R5F100FADFP	PLQP0044G*	185	RL78/G13	R5F100GGDNA	PWQN0048K*
126	RL78/G13	R5F100FAGFP	PLQP0044G*	186	RL78/G13	R5F100GGGFB	PLQP0048K*
127	RL78/G13	R5F100FCAFP	PLQP0044G*	187	RL78/G13	R5F100GGGNA	PWQN0048K*
128	RL78/G13	R5F100FCDFF	PLQP0044G*	188	RL78/G13	R5F100GHAFB	PLQP0048K*
129	RL78/G13	R5F100FCGFP	PLQP0044G*	189	RL78/G13	R5F100GHANA	PWQN0048K*
130	RL78/G13	R5F100FDAFP	PLQP0044G*	190	RL78/G13	R5F100GHDFB	PLQP0048K*
131	RL78/G13	R5F100FDDFP	PLQP0044G*	191	RL78/G13	R5F100GHDNA	PWQN0048K*
132	RL78/G13	R5F100FDGFP	PLQP0044G*	192	RL78/G13	R5F100GHGFB	PLQP0048K*
133	RL78/G13	R5F100FEAFP	PLQP0044G*	193	RL78/G13	R5F100GHGNA	PWQN0048K*
134	RL78/G13	R5F100FEDFP	PLQP0044G*	194	RL78/G13	R5F100GJAFB	PLQP0048K*
135	RL78/G13	R5F100FEGFP	PLQP0044G*	195	RL78/G13	R5F100GJANA	PWQN0048K*
136	RL78/G13	R5F100FFAFP	PLQP0044G*	196	RL78/G13	R5F100GJDFA	PLQP0048K*
137	RL78/G13	R5F100FFDFP	PLQP0044G*	197	RL78/G13	R5F100GJDNA	PWQN0048K*
138	RL78/G13	R5F100FFGFP	PLQP0044G*	198	RL78/G13	R5F100GJGFB	PLQP0048K*
139	RL78/G13	R5F100FGAFP	PLQP0044G*	199	RL78/G13	R5F100GJGNA	PWQN0048K*
140	RL78/G13	R5F100FGDFP	PLQP0044G*	200	RL78/G13	R5F100GKAFA	PLQP0048K*
141	RL78/G13	R5F100FGGFP	PLQP0044G*	201	RL78/G13	R5F100GKANA	PWQN0048K*
142	RL78/G13	R5F100FHAFA	PLQP0044G*	202	RL78/G13	R5F100GKDFB	PLQP0048K*
143	RL78/G13	R5F100FHDFA	PLQP0044G*	203	RL78/G13	R5F100GKDFA	PWQN0048K*
144	RL78/G13	R5F100FHGFP	PLQP0044G*	204	RL78/G13	R5F100GLAFB	PLQP0048K*
145	RL78/G13	R5F100FJAFA	PLQP0044G*	205	RL78/G13	R5F100GLANA	PWQN0048K*
146	RL78/G13	R5F100FJDFA	PLQP0044G*	206	RL78/G13	R5F100GLDFB	PLQP0048K*
147	RL78/G13	R5F100FJGFP	PLQP0044G*	207	RL78/G13	R5F100GLDNA	PWQN0048K*
148	RL78/G13	R5F100FKAFA	PLQP0044G*	208	RL78/G13	R5F100JCAFA	PLQP0052J*
149	RL78/G13	R5F100FKDFP	PLQP0044G*	209	RL78/G13	R5F100JCDFB	PLQP0052J*
150	RL78/G13	R5F100FLAFB	PLQP0044G*	210	RL78/G13	R5F100JCGFA	PLQP0052J*
151	RL78/G13	R5F100FLDFP	PLQP0044G*	211	RL78/G13	R5F100JDAFA	PLQP0052J*
152	RL78/G13	R5F100GAFA	PLQP0048K*	212	RL78/G13	R5F100JDDFA	PLQP0052J*
153	RL78/G13	R5F100GAANA	PWQN0048K*	213	RL78/G13	R5F100JDGFA	PLQP0052J*
154	RL78/G13	R5F100GADFB	PLQP0048K*	214	RL78/G13	R5F100JEAFA	PLQP0052J*
155	RL78/G13	R5F100GADNA	PWQN0048K*	215	RL78/G13	R5F100JEDFA	PLQP0052J*
156	RL78/G13	R5F100GAGFB	PLQP0048K*	216	RL78/G13	R5F100JEGFA	PLQP0052J*
157	RL78/G13	R5F100GAGNA	PWQN0048K*	217	RL78/G13	R5F100JFAFA	PLQP0052J*
158	RL78/G13	R5F100GCAFB	PLQP0048K*	218	RL78/G13	R5F100JFDFA	PLQP0052J*
159	RL78/G13	R5F100GCANA	PWQN0048K*	219	RL78/G13	R5F100JFGFA	PLQP0052J*
160	RL78/G13	R5F100GCDFA	PLQP0048K*	220	RL78/G13	R5F100JGAFA	PLQP0052J*

Table. Product list

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No	Group	Product part number	Package code	No	Group	Product part number	Package code
221	RL78/G13	R5F100JGDFA	PLQP0052J*	281	RL78/G13	R5F100LHDBG	PVBG0064L*
222	RL78/G13	R5F100JGGFA	PLQP0052J*	282	RL78/G13	R5F100LHDFA	PLQP0064J*
223	RL78/G13	R5F100JHAFA	PLQP0052J*	283	RL78/G13	R5F100LHDFB	PLQP0064K*
224	RL78/G13	R5F100JHDFA	PLQP0052J*	284	RL78/G13	R5F100LHGBG	PVBG0064L*
225	RL78/G13	R5F100JHGFA	PLQP0052J*	285	RL78/G13	R5F100LHGFA	PLQP0064J*
226	RL78/G13	R5F100JJFAFA	PLQP0052J*	286	RL78/G13	R5F100LHGFB	PLQP0064K*
227	RL78/G13	R5F100JJDFA	PLQP0052J*	287	RL78/G13	R5F100LJABG	PVBG0064L*
228	RL78/G13	R5F100JJGFA	PLQP0052J*	288	RL78/G13	R5F100LJAFA	PLQP0064J*
229	RL78/G13	R5F100JKFAFA	PLQP0052J*	289	RL78/G13	R5F100LJAFA	PLQP0064K*
230	RL78/G13	R5F100JKDFA	PLQP0052J*	290	RL78/G13	R5F100LJDBG	PVBG0064L*
231	RL78/G13	R5F100JLAFA	PLQP0052J*	291	RL78/G13	R5F100LJDFA	PLQP0064J*
232	RL78/G13	R5F100JLDFA	PLQP0052J*	292	RL78/G13	R5F100LJDFB	PLQP0064K*
233	RL78/G13	R5F100LCABG	PVBG0064L*	293	RL78/G13	R5F100LJGBG	PVBG0064L*
234	RL78/G13	R5F100LCAFA	PLQP0064J*	294	RL78/G13	R5F100LJGFA	PLQP0064J*
235	RL78/G13	R5F100LCAFB	PLQP0064K*	295	RL78/G13	R5F100LJGFB	PLQP0064K*
236	RL78/G13	R5F100LCDBG	PVBG0064L*	296	RL78/G13	R5F100LKFAFA	PLQP0064J*
237	RL78/G13	R5F100LCDFA	PLQP0064J*	297	RL78/G13	R5F100LKAFB	PLQP0064K*
238	RL78/G13	R5F100LCDFB	PLQP0064K*	298	RL78/G13	R5F100LKDFA	PLQP0064J*
239	RL78/G13	R5F100LCGBG	PVBG0064L*	299	RL78/G13	R5F100LKDFB	PLQP0064K*
240	RL78/G13	R5F100LCGFA	PLQP0064J*	300	RL78/G13	R5F100LKGFB	PLQP0064K*
241	RL78/G13	R5F100LCGFB	PLQP0064K*	301	RL78/G13	R5F100LLAFA	PLQP0064J*
242	RL78/G13	R5F100LDABG	PVBG0064L*	302	RL78/G13	R5F100LLAFB	PLQP0064K*
243	RL78/G13	R5F100LDAFA	PLQP0064J*	303	RL78/G13	R5F100LLDFA	PLQP0064J*
244	RL78/G13	R5F100LDAFA	PLQP0064K*	304	RL78/G13	R5F100LLDFB	PLQP0064K*
245	RL78/G13	R5F100LDDBG	PVBG0064L*	305	RL78/G13	R5F100LLGFB	PLQP0064K*
246	RL78/G13	R5F100LDDFA	PLQP0064J*	306	RL78/G13	R5F100MFAFA	PLQP0080J*
247	RL78/G13	R5F100LDDFB	PLQP0064K*	307	RL78/G13	R5F100MFAFB	PLQP0080K*
248	RL78/G13	R5F100LDGBG	PVBG0064L*	308	RL78/G13	R5F100MFDFA	PLQP0080J*
249	RL78/G13	R5F100LDGFA	PLQP0064J*	309	RL78/G13	R5F100MDFB	PLQP0080K*
250	RL78/G13	R5F100LDGFB	PLQP0064K*	310	RL78/G13	R5F100MFGFA	PLQP0080J*
251	RL78/G13	R5F100LEABG	PVBG0064L*	311	RL78/G13	R5F100MFGFB	PLQP0080K*
252	RL78/G13	R5F100LEAFA	PLQP0064J*	312	RL78/G13	R5F100MGFAFA	PLQP0080J*
253	RL78/G13	R5F100LEAFB	PLQP0064K*	313	RL78/G13	R5F100MGAFB	PLQP0080K*
254	RL78/G13	R5F100LEDBG	PVBG0064L*	314	RL78/G13	R5F100MGDFA	PLQP0080J*
255	RL78/G13	R5F100LEDFA	PLQP0064J*	315	RL78/G13	R5F100MGDFB	PLQP0080K*
256	RL78/G13	R5F100LEDFB	PLQP0064K*	316	RL78/G13	R5F100MGGFA	PLQP0080J*
257	RL78/G13	R5F100LEGBG	PVBG0064L*	317	RL78/G13	R5F100MGGFB	PLQP0080K*
258	RL78/G13	R5F100LEGFA	PLQP0064J*	318	RL78/G13	R5F100MHFAFA	PLQP0080J*
259	RL78/G13	R5F100LEGFB	PLQP0064K*	319	RL78/G13	R5F100MHAFB	PLQP0080K*
260	RL78/G13	R5F100LFABG	PVBG0064L*	320	RL78/G13	R5F100MHDFA	PLQP0080J*
261	RL78/G13	R5F100LFAFA	PLQP0064J*	321	RL78/G13	R5F100MHDFB	PLQP0080K*
262	RL78/G13	R5F100LFAFB	PLQP0064K*	322	RL78/G13	R5F100MHGFA	PLQP0080J*
263	RL78/G13	R5F100LFDBG	PVBG0064L*	323	RL78/G13	R5F100MHGFB	PLQP0080K*
264	RL78/G13	R5F100LFDFA	PLQP0064J*	324	RL78/G13	R5F100MJFAFA	PLQP0080J*
265	RL78/G13	R5F100LFDFA	PLQP0064K*	325	RL78/G13	R5F100MJAFB	PLQP0080K*
266	RL78/G13	R5F100LFGFB	PVBG0064L*	326	RL78/G13	R5F100MJDFA	PLQP0080J*
267	RL78/G13	R5F100LFGFA	PLQP0064J*	327	RL78/G13	R5F100MJDFB	PLQP0080K*
268	RL78/G13	R5F100LFGFB	PLQP0064K*	328	RL78/G13	R5F100MJGFA	PLQP0080J*
269	RL78/G13	R5F100LGABG	PVBG0064L*	329	RL78/G13	R5F100MJGFB	PLQP0080K*
270	RL78/G13	R5F100LGAFA	PLQP0064J*	330	RL78/G13	R5F100MKFAFA	PLQP0080J*
271	RL78/G13	R5F100LGAFA	PLQP0064K*	331	RL78/G13	R5F100MKAFB	PLQP0080K*
272	RL78/G13	R5F100LGDBG	PVBG0064L*	332	RL78/G13	R5F100MKDFA	PLQP0080J*
273	RL78/G13	R5F100LGDFB	PLQP0064J*	333	RL78/G13	R5F100MKDFB	PLQP0080K*
274	RL78/G13	R5F100LGDFB	PLQP0064K*	334	RL78/G13	R5F100MKGFB	PLQP0080K*
275	RL78/G13	R5F100LGGBG	PVBG0064L*	335	RL78/G13	R5F100MLAFA	PLQP0080J*
276	RL78/G13	R5F100LGGFA	PLQP0064J*	336	RL78/G13	R5F100MLAFB	PLQP0080K*
277	RL78/G13	R5F100LGGFB	PLQP0064K*	337	RL78/G13	R5F100MLDFA	PLQP0080J*
278	RL78/G13	R5F100LHABG	PVBG0064L*	338	RL78/G13	R5F100MLDFB	PLQP0080K*
279	RL78/G13	R5F100LHAFA	PLQP0064J*	339	RL78/G13	R5F100MLGFB	PLQP0080K*
280	RL78/G13	R5F100LHAFB	PLQP0064K*	340	RL78/G13	R5F100PFAFA	PLQP0100J*

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No	Group	Product part number	Package code	No	Group	Product part number	Package code
341	RL78/G13	R5F100PFAFB	PLQP0100K*	401			
342	RL78/G13	R5F100PFDFA	PLQP0100J*	402			
343	RL78/G13	R5F100PFDFA	PLQP0100K*	403			
344	RL78/G13	R5F100PFGFA	PLQP0100J*	404			
345	RL78/G13	R5F100PFGFB	PLQP0100K*	405			
346	RL78/G13	R5F100PGAFA	PLQP0100J*	406			
347	RL78/G13	R5F100PGAFA	PLQP0100K*	407			
348	RL78/G13	R5F100PGDFA	PLQP0100J*	408			
349	RL78/G13	R5F100PGDFB	PLQP0100K*	409			
350	RL78/G13	R5F100PGGFA	PLQP0100J*	410			
351	RL78/G13	R5F100PGGFB	PLQP0100K*	411			
352	RL78/G13	R5F100PHAFA	PLQP0100J*	412			
353	RL78/G13	R5F100PHAFA	PLQP0100K*	413			
354	RL78/G13	R5F100PHDFA	PLQP0100J*	414			
355	RL78/G13	R5F100PHDFB	PLQP0100K*	415			
356	RL78/G13	R5F100PHGFA	PLQP0100J*	416			
357	RL78/G13	R5F100PHGFB	PLQP0100K*	417			
358	RL78/G13	R5F100PJFAFA	PLQP0100J*	418			
359	RL78/G13	R5F100PJFAFB	PLQP0100K*	419			
360	RL78/G13	R5F100PJDFB	PLQP0100J*	420			
361	RL78/G13	R5F100PJDFB	PLQP0100K*	421			
362	RL78/G13	R5F100PJGFA	PLQP0100J*	422			
363	RL78/G13	R5F100PJGFB	PLQP0100K*	423			
364	RL78/G13	R5F100PKAFA	PLQP0100J*	424			
365	RL78/G13	R5F100PKAFA	PLQP0100K*	425			
366	RL78/G13	R5F100PKDFA	PLQP0100J*	426			
367	RL78/G13	R5F100PKDFB	PLQP0100K*	427			
368	RL78/G13	R5F100PKGFB	PLQP0100K*	428			
369	RL78/G13	R5F100PLAFA	PLQP0100J*	429			
370	RL78/G13	R5F100PLAFA	PLQP0100K*	430			
371	RL78/G13	R5F100PLDFA	PLQP0100J*	431			
372	RL78/G13	R5F100PLDFB	PLQP0100K*	432			
373	RL78/G13	R5F100PLGFB	PLQP0100K*	433			
374	RL78/G13	R5F100SHAFA	PLQP0128K*	434			
375	RL78/G13	R5F100SHDFB	PLQP0128K*	435			
376	RL78/G13	R5F100SJFAFB	PLQP0128K*	436			
377	RL78/G13	R5F100SJDFB	PLQP0128K*	437			
378	RL78/G13	R5F100SKAFA	PLQP0128K*	438			
379	RL78/G13	R5F100SKDFB	PLQP0128K*	439			
380	RL78/G13	R5F100SLAFA	PLQP0128K*	440			
381	RL78/G13	R5F100SLDFB	PLQP0128K*	441			
382				442			
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