

RENESAS SEMICONDUCTOR RELIABILITY REPORT

GROUP : 78K0KC2-L
DEVICE : Refer to Product List
APPLICATION : Consumer / Industry

Quality Assurance Div.
Renesas Electronics Corporation

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(Rev.5.0-2 October 2020)

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	
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*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)

$$\lambda_b = 8.19 \text{ FIT}$$

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	78K0KC2-L	UPD78F0581K8(R)-4B4-AX	PWQN0040*	51	78K0KC2-L	UPD78F0586K8(S)-4B4-AX	PWQN0040*
2	78K0KC2-L	UPD78F0581K8(R)-4B4-E1-AX	PWQN0040*	52	78K0KC2-L	UPD78F0586K8(S)-4B4-E1-AX	PWQN0040*
3	78K0KC2-L	UPD78F0581K8(R)-4B4-E2-AX	PWQN0040*	53	78K0KC2-L	UPD78F0586K8(S)-4B4-E2-AX	PWQN0040*
4	78K0KC2-L	UPD78F0581K8(R)-4B4-E3-AX	PWQN0040*	54	78K0KC2-L	UPD78F0586K8(S)-4B4-E3-AX	PWQN0040*
5	78K0KC2-L	UPD78F0581K8(R)-4B4-E4-AX	PWQN0040*	55	78K0KC2-L	UPD78F0586K8(S)-4B4-E4-AX	PWQN0040*
6	78K0KC2-L	UPD78F0581K8(S)-4B4-AX	PWQN0040*	56	78K0KC2-L	UPD78F0586K8-4B4-AX	PWQN0040*
7	78K0KC2-L	UPD78F0581K8(S)-4B4-E1-AX	PWQN0040*	57	78K0KC2-L	UPD78F0586K8-4B4-E1-AX	PWQN0040*
8	78K0KC2-L	UPD78F0581K8(S)-4B4-E2-AX	PWQN0040*	58	78K0KC2-L	UPD78F0586K8-4B4-E2-AX	PWQN0040*
9	78K0KC2-L	UPD78F0581K8(S)-4B4-E3-AX	PWQN0040*	59	78K0KC2-L	UPD78F0586K8-4B4-E3-AX	PWQN0040*
10	78K0KC2-L	UPD78F0581K8(S)-4B4-E4-AX	PWQN0040*	60	78K0KC2-L	UPD78F0586K8-4B4-E4-AX	PWQN0040*
11	78K0KC2-L	UPD78F0581K8-4B4-AX	PWQN0040*	61	78K0KC2-L	UPD78F0587K8(R)-4B4-AX	PWQN0040*
12	78K0KC2-L	UPD78F0581K8-4B4-E1-AX	PWQN0040*	62	78K0KC2-L	UPD78F0587K8(R)-4B4-E1-AX	PWQN0040*
13	78K0KC2-L	UPD78F0581K8-4B4-E2-AX	PWQN0040*	63	78K0KC2-L	UPD78F0587K8(R)-4B4-E2-AX	PWQN0040*
14	78K0KC2-L	UPD78F0581K8-4B4-E3-AX	PWQN0040*	64	78K0KC2-L	UPD78F0587K8(R)-4B4-E3-AX	PWQN0040*
15	78K0KC2-L	UPD78F0581K8-4B4-E4-AX	PWQN0040*	65	78K0KC2-L	UPD78F0587K8(R)-4B4-E4-AX	PWQN0040*
16	78K0KC2-L	UPD78F0582K8(R)-4B4-AX	PWQN0040*	66	78K0KC2-L	UPD78F0587K8(S)-4B4-AX	PWQN0040*
17	78K0KC2-L	UPD78F0582K8(R)-4B4-E1-AX	PWQN0040*	67	78K0KC2-L	UPD78F0587K8(S)-4B4-E1-AX	PWQN0040*
18	78K0KC2-L	UPD78F0582K8(R)-4B4-E2-AX	PWQN0040*	68	78K0KC2-L	UPD78F0587K8(S)-4B4-E2-AX	PWQN0040*
19	78K0KC2-L	UPD78F0582K8(R)-4B4-E3-AX	PWQN0040*	69	78K0KC2-L	UPD78F0587K8(S)-4B4-E3-AX	PWQN0040*
20	78K0KC2-L	UPD78F0582K8(R)-4B4-E4-AX	PWQN0040*	70	78K0KC2-L	UPD78F0587K8(S)-4B4-E4-AX	PWQN0040*
21	78K0KC2-L	UPD78F0582K8(S)-4B4-AX	PWQN0040*	71	78K0KC2-L	UPD78F0587K8-4B4-AX	PWQN0040*
22	78K0KC2-L	UPD78F0582K8(S)-4B4-E1-AX	PWQN0040*	72	78K0KC2-L	UPD78F0587K8-4B4-E1-AX	PWQN0040*
23	78K0KC2-L	UPD78F0582K8(S)-4B4-E2-AX	PWQN0040*	73	78K0KC2-L	UPD78F0587K8-4B4-E2-AX	PWQN0040*
24	78K0KC2-L	UPD78F0582K8(S)-4B4-E3-AX	PWQN0040*	74	78K0KC2-L	UPD78F0587K8-4B4-E3-AX	PWQN0040*
25	78K0KC2-L	UPD78F0582K8(S)-4B4-E4-AX	PWQN0040*	75	78K0KC2-L	UPD78F0587K8-4B4-E4-AX	PWQN0040*
26	78K0KC2-L	UPD78F0582K8-4B4-AX	PWQN0040*	76	78K0KC2-L	UPD78F0588K8(R)-4B4-AX	PWQN0040*
27	78K0KC2-L	UPD78F0582K8-4B4-E1-AX	PWQN0040*	77	78K0KC2-L	UPD78F0588K8(R)-4B4-E1-AX	PWQN0040*
28	78K0KC2-L	UPD78F0582K8-4B4-E2-AX	PWQN0040*	78	78K0KC2-L	UPD78F0588K8(R)-4B4-E2-AX	PWQN0040*
29	78K0KC2-L	UPD78F0582K8-4B4-E3-AX	PWQN0040*	79	78K0KC2-L	UPD78F0588K8(R)-4B4-E3-AX	PWQN0040*
30	78K0KC2-L	UPD78F0582K8-4B4-E4-AX	PWQN0040*	80	78K0KC2-L	UPD78F0588K8(R)-4B4-E4-AX	PWQN0040*
31	78K0KC2-L	UPD78F0583K8(R)-4B4-AX	PWQN0040*	81	78K0KC2-L	UPD78F0588K8(S)-4B4-AX	PWQN0040*
32	78K0KC2-L	UPD78F0583K8(R)-4B4-E1-AX	PWQN0040*	82	78K0KC2-L	UPD78F0588K8(S)-4B4-E1-AX	PWQN0040*
33	78K0KC2-L	UPD78F0583K8(R)-4B4-E2-AX	PWQN0040*	83	78K0KC2-L	UPD78F0588K8(S)-4B4-E2-AX	PWQN0040*
34	78K0KC2-L	UPD78F0583K8(R)-4B4-E3-AX	PWQN0040*	84	78K0KC2-L	UPD78F0588K8(S)-4B4-E3-AX	PWQN0040*
35	78K0KC2-L	UPD78F0583K8(R)-4B4-E4-AX	PWQN0040*	85	78K0KC2-L	UPD78F0588K8(S)-4B4-E4-AX	PWQN0040*
36	78K0KC2-L	UPD78F0583K8(S)-4B4-AX	PWQN0040*	86	78K0KC2-L	UPD78F0588K8-4B4-AX	PWQN0040*
37	78K0KC2-L	UPD78F0583K8(S)-4B4-E1-AX	PWQN0040*	87	78K0KC2-L	UPD78F0588K8-4B4-E1-AX	PWQN0040*
38	78K0KC2-L	UPD78F0583K8(S)-4B4-E2-AX	PWQN0040*	88	78K0KC2-L	UPD78F0588K8-4B4-E2-AX	PWQN0040*
39	78K0KC2-L	UPD78F0583K8(S)-4B4-E3-AX	PWQN0040*	89	78K0KC2-L	UPD78F0588K8-4B4-E3-AX	PWQN0040*
40	78K0KC2-L	UPD78F0583K8(S)-4B4-E4-AX	PWQN0040*	90	78K0KC2-L	UPD78F0588K8-4B4-E4-AX	PWQN0040*
41	78K0KC2-L	UPD78F0583K8-4B4-AX	PWQN0040*	91	78K0KC2-L	UPD78F0581GA(R)-GAM-AX	PLQP0048*
42	78K0KC2-L	UPD78F0583K8-4B4-E1-AX	PWQN0040*	92	78K0KC2-L	UPD78F0581GA(R)-XXX-GAM-AX	PLQP0048*
43	78K0KC2-L	UPD78F0583K8-4B4-E2-AX	PWQN0040*	93	78K0KC2-L	UPD78F0581GA(R)-XXX-GAM-E1-AX	PLQP0048*
44	78K0KC2-L	UPD78F0583K8-4B4-E3-AX	PWQN0040*	94	78K0KC2-L	UPD78F0581GA(R)-XXX-GAM-E2-AX	PLQP0048*
45	78K0KC2-L	UPD78F0583K8-4B4-E4-AX	PWQN0040*	95	78K0KC2-L	UPD78F0581GA(R)-XXX-GAM-E3-AX	PLQP0048*
46	78K0KC2-L	UPD78F0586K8(R)-4B4-AX	PWQN0040*	96	78K0KC2-L	UPD78F0581GA(R)-XXX-GAM-E4-AX	PLQP0048*
47	78K0KC2-L	UPD78F0586K8(R)-4B4-E1-AX	PWQN0040*	97	78K0KC2-L	UPD78F0581GA(S)-GAM-AX	PLQP0048*
48	78K0KC2-L	UPD78F0586K8(R)-4B4-E2-AX	PWQN0040*	98	78K0KC2-L	UPD78F0581GA(S)-XXX-GAM-AX	PLQP0048*
49	78K0KC2-L	UPD78F0586K8(R)-4B4-E3-AX	PWQN0040*	99	78K0KC2-L	UPD78F0581GA(S)-XXX-GAM-E1-AX	PLQP0048*
50	78K0KC2-L	UPD78F0586K8(R)-4B4-E4-AX	PWQN0040*	100	78K0KC2-L	UPD78F0581GA(S)-XXX-GAM-E2-AX	PLQP0048*

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MCR-22-0654

No	Group	Product part number	Package code	No	Group	Product part number	Package code
101	78K0KC2-L	UPD78F0581GA(S)-XXX-GAM-E3-AX	PLQP0048*	161	78K0KC2-L	UPD78F0586GA-XXX-GAM-E2-AX	PLQP0048*
102	78K0KC2-L	UPD78F0581GA(S)-XXX-GAM-E4-AX	PLQP0048*	162	78K0KC2-L	UPD78F0586GA-XXX-GAM-E3-AX	PLQP0048*
103	78K0KC2-L	UPD78F0581GA-GAM-AX	PLQP0048*	163	78K0KC2-L	UPD78F0586GA-XXX-GAM-E4-AX	PLQP0048*
104	78K0KC2-L	UPD78F0581GA-XXX-GAM-AX	PLQP0048*	164	78K0KC2-L	UPD78F0587GA(R)-GAM-AX	PLQP0048*
105	78K0KC2-L	UPD78F0581GA-XXX-GAM-E1-AX	PLQP0048*	165	78K0KC2-L	UPD78F0587GA(R)-XXX-GAM-AX	PLQP0048*
106	78K0KC2-L	UPD78F0581GA-XXX-GAM-E2-AX	PLQP0048*	166	78K0KC2-L	UPD78F0587GA(R)-XXX-GAM-E1-AX	PLQP0048*
107	78K0KC2-L	UPD78F0581GA-XXX-GAM-E3-AX	PLQP0048*	167	78K0KC2-L	UPD78F0587GA(R)-XXX-GAM-E2-AX	PLQP0048*
108	78K0KC2-L	UPD78F0581GA-XXX-GAM-E4-AX	PLQP0048*	168	78K0KC2-L	UPD78F0587GA(R)-XXX-GAM-E3-AX	PLQP0048*
109	78K0KC2-L	UPD78F0582GA(R)-GAM-AX	PLQP0048*	169	78K0KC2-L	UPD78F0587GA(R)-XXX-GAM-E4-AX	PLQP0048*
110	78K0KC2-L	UPD78F0582GA(R)-XXX-GAM-AX	PLQP0048*	170	78K0KC2-L	UPD78F0587GA(S)-XXX-GAM-AX	PLQP0048*
111	78K0KC2-L	UPD78F0582GA(R)-XXX-GAM-E1-AX	PLQP0048*	171	78K0KC2-L	UPD78F0587GA(S)-XXX-GAM-E1-AX	PLQP0048*
112	78K0KC2-L	UPD78F0582GA(R)-XXX-GAM-E2-AX	PLQP0048*	172	78K0KC2-L	UPD78F0587GA(S)-XXX-GAM-E2-AX	PLQP0048*
113	78K0KC2-L	UPD78F0582GA(R)-XXX-GAM-E3-AX	PLQP0048*	173	78K0KC2-L	UPD78F0587GA(S)-XXX-GAM-E3-AX	PLQP0048*
114	78K0KC2-L	UPD78F0582GA(R)-XXX-GAM-E4-AX	PLQP0048*	174	78K0KC2-L	UPD78F0587GA(S)-XXX-GAM-E4-AX	PLQP0048*
115	78K0KC2-L	UPD78F0582GA(S)-GAM-AX	PLQP0048*	175	78K0KC2-L	UPD78F0587GA-GAM-AX	PLQP0048*
116	78K0KC2-L	UPD78F0582GA(S)-XXX-GAM-AX	PLQP0048*	176	78K0KC2-L	UPD78F0587GA-XXX-GAM-AX	PLQP0048*
117	78K0KC2-L	UPD78F0582GA(S)-XXX-GAM-E1-AX	PLQP0048*	177	78K0KC2-L	UPD78F0587GA-XXX-GAM-E1-AX	PLQP0048*
118	78K0KC2-L	UPD78F0582GA(S)-XXX-GAM-E2-AX	PLQP0048*	178	78K0KC2-L	UPD78F0587GA-XXX-GAM-E2-AX	PLQP0048*
119	78K0KC2-L	UPD78F0582GA(S)-XXX-GAM-E3-AX	PLQP0048*	179	78K0KC2-L	UPD78F0587GA-XXX-GAM-E3-AX	PLQP0048*
120	78K0KC2-L	UPD78F0582GA(S)-XXX-GAM-E4-AX	PLQP0048*	180	78K0KC2-L	UPD78F0587GA-XXX-GAM-E4-AX	PLQP0048*
121	78K0KC2-L	UPD78F0582GA-GAM-AX	PLQP0048*	181	78K0KC2-L	UPD78F0588GA(R)-GAM-AX	PLQP0048*
122	78K0KC2-L	UPD78F0582GA-XXX-GAM-AX	PLQP0048*	182	78K0KC2-L	UPD78F0588GA(R)-XXX-GAM-AX	PLQP0048*
123	78K0KC2-L	UPD78F0582GA-XXX-GAM-E1-AX	PLQP0048*	183	78K0KC2-L	UPD78F0588GA(R)-XXX-GAM-E1-AX	PLQP0048*
124	78K0KC2-L	UPD78F0582GA-XXX-GAM-E2-AX	PLQP0048*	184	78K0KC2-L	UPD78F0588GA(R)-XXX-GAM-E2-AX	PLQP0048*
125	78K0KC2-L	UPD78F0582GA-XXX-GAM-E3-AX	PLQP0048*	185	78K0KC2-L	UPD78F0588GA(R)-XXX-GAM-E3-AX	PLQP0048*
126	78K0KC2-L	UPD78F0582GA-XXX-GAM-E4-AX	PLQP0048*	186	78K0KC2-L	UPD78F0588GA(R)-XXX-GAM-E4-AX	PLQP0048*
127	78K0KC2-L	UPD78F0583GA(R)-GAM-AX	PLQP0048*	187	78K0KC2-L	UPD78F0588GA(S)-GAM-AX	PLQP0048*
128	78K0KC2-L	UPD78F0583GA(R)-XXX-GAM-AX	PLQP0048*	188	78K0KC2-L	UPD78F0588GA(S)-XXX-GAM-AX	PLQP0048*
129	78K0KC2-L	UPD78F0583GA(R)-XXX-GAM-E1-AX	PLQP0048*	189	78K0KC2-L	UPD78F0588GA(S)-XXX-GAM-E1-AX	PLQP0048*
130	78K0KC2-L	UPD78F0583GA(R)-XXX-GAM-E2-AX	PLQP0048*	190	78K0KC2-L	UPD78F0588GA(S)-XXX-GAM-E2-AX	PLQP0048*
131	78K0KC2-L	UPD78F0583GA(R)-XXX-GAM-E3-AX	PLQP0048*	191	78K0KC2-L	UPD78F0588GA(S)-XXX-GAM-E3-AX	PLQP0048*
132	78K0KC2-L	UPD78F0583GA(R)-XXX-GAM-E4-AX	PLQP0048*	192	78K0KC2-L	UPD78F0588GA(S)-XXX-GAM-E4-AX	PLQP0048*
133	78K0KC2-L	UPD78F0583GA(S)-GAM-AX	PLQP0048*	193	78K0KC2-L	UPD78F0588GA-GAM-AX	PLQP0048*
134	78K0KC2-L	UPD78F0583GA(S)-GAM-E1-AX	PLQP0048*	194	78K0KC2-L	UPD78F0588GA-XXX-GAM-AX	PLQP0048*
135	78K0KC2-L	UPD78F0583GA(S)-XXX-GAM-AX	PLQP0048*	195	78K0KC2-L	UPD78F0588GA-XXX-GAM-E1-AX	PLQP0048*
136	78K0KC2-L	UPD78F0583GA(S)-XXX-GAM-E1-AX	PLQP0048*	196	78K0KC2-L	UPD78F0588GA-XXX-GAM-E2-AX	PLQP0048*
137	78K0KC2-L	UPD78F0583GA(S)-XXX-GAM-E2-AX	PLQP0048*	197	78K0KC2-L	UPD78F0588GA-XXX-GAM-E3-AX	PLQP0048*
138	78K0KC2-L	UPD78F0583GA(S)-XXX-GAM-E3-AX	PLQP0048*	198	78K0KC2-L	UPD78F0588GA-XXX-GAM-E4-AX	PLQP0048*
139	78K0KC2-L	UPD78F0583GA(S)-XXX-GAM-E4-AX	PLQP0048*	199	78K0KC2-L	UPD78F0581GB(R)-GAF-AX	PLQP0044*
140	78K0KC2-L	UPD78F0583GA-GAM-AX	PLQP0048*	200	78K0KC2-L	UPD78F0581GB(R)-XXX-GAF-AX	PLQP0044*
141	78K0KC2-L	UPD78F0583GA-GAM-E1-AX	PLQP0048*	201	78K0KC2-L	UPD78F0581GB(R)-XXX-GAF-E1-AX	PLQP0044*
142	78K0KC2-L	UPD78F0583GA-XXX-GAM-AX	PLQP0048*	202	78K0KC2-L	UPD78F0581GB(R)-XXX-GAF-E2-AX	PLQP0044*
143	78K0KC2-L	UPD78F0583GA-XXX-GAM-E1-AX	PLQP0048*	203	78K0KC2-L	UPD78F0581GB(R)-XXX-GAF-E3-AX	PLQP0044*
144	78K0KC2-L	UPD78F0583GA-XXX-GAM-E2-AX	PLQP0048*	204	78K0KC2-L	UPD78F0581GB(R)-XXX-GAF-E4-AX	PLQP0044*
145	78K0KC2-L	UPD78F0583GA-XXX-GAM-E3-AX	PLQP0048*	205	78K0KC2-L	UPD78F0581GB(S)-GAF-AX	PLQP0044*
146	78K0KC2-L	UPD78F0583GA-XXX-GAM-E4-AX	PLQP0048*	206	78K0KC2-L	UPD78F0581GB(S)-XXX-GAF-AX	PLQP0044*
147	78K0KC2-L	UPD78F0586GA(R)-GAM-AX	PLQP0048*	207	78K0KC2-L	UPD78F0581GB(S)-XXX-GAF-E1-AX	PLQP0044*
148	78K0KC2-L	UPD78F0586GA(R)-XXX-GAM-AX	PLQP0048*	208	78K0KC2-L	UPD78F0581GB(S)-XXX-GAF-E2-AX	PLQP0044*
149	78K0KC2-L	UPD78F0586GA(R)-XXX-GAM-E1-AX	PLQP0048*	209	78K0KC2-L	UPD78F0581GB(S)-XXX-GAF-E3-AX	PLQP0044*
150	78K0KC2-L	UPD78F0586GA(R)-XXX-GAM-E2-AX	PLQP0048*	210	78K0KC2-L	UPD78F0581GB(S)-XXX-GAF-E4-AX	PLQP0044*
151	78K0KC2-L	UPD78F0586GA(R)-XXX-GAM-E3-AX	PLQP0048*	211	78K0KC2-L	UPD78F0581GB-GAF-AX	PLQP0044*
152	78K0KC2-L	UPD78F0586GA(R)-XXX-GAM-E4-AX	PLQP0048*	212	78K0KC2-L	UPD78F0581GB-XXX-GAF-AX	PLQP0044*
153	78K0KC2-L	UPD78F0586GA(S)-XXX-GAM-AX	PLQP0048*	213	78K0KC2-L	UPD78F0581GB-XXX-GAF-E1-AX	PLQP0044*
154	78K0KC2-L	UPD78F0586GA(S)-XXX-GAM-E1-AX	PLQP0048*	214	78K0KC2-L	UPD78F0581GB-XXX-GAF-E2-AX	PLQP0044*
155	78K0KC2-L	UPD78F0586GA(S)-XXX-GAM-E2-AX	PLQP0048*	215	78K0KC2-L	UPD78F0581GB-XXX-GAF-E3-AX	PLQP0044*
156	78K0KC2-L	UPD78F0586GA(S)-XXX-GAM-E3-AX	PLQP0048*	216	78K0KC2-L	UPD78F0581GB-XXX-GAF-E4-AX	PLQP0044*
157	78K0KC2-L	UPD78F0586GA(S)-XXX-GAM-E4-AX	PLQP0048*	217	78K0KC2-L	UPD78F0582GB(R)-GAF-AX	PLQP0044*
158	78K0KC2-L	UPD78F0586GA-GAM-AX	PLQP0048*	218	78K0KC2-L	UPD78F0582GB(R)-XXX-GAF-AX	PLQP0044*
159	78K0KC2-L	UPD78F0586GA-XXX-GAM-AX	PLQP0048*	219	78K0KC2-L	UPD78F0582GB(R)-XXX-GAF-E1-AX	PLQP0044*
160	78K0KC2-L	UPD78F0586GA-XXX-GAM-E1-AX	PLQP0048*	220	78K0KC2-L	UPD78F0582GB(R)-XXX-GAF-E2-AX	PLQP0044*

Table. Product list

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No	Group	Product part number	Package code	No	Group	Product part number	Package code
221	78K0KC2-L	UPD78F0582GB(R)-XXX-GAF-E3-AX	PLQP0044*	281	78K0KC2-L	UPD78F0587GB-XXX-GAF-AX	PLQP0044*
222	78K0KC2-L	UPD78F0582GB(R)-XXX-GAF-E4-AX	PLQP0044*	282	78K0KC2-L	UPD78F0587GB-XXX-GAF-E1-AX	PLQP0044*
223	78K0KC2-L	UPD78F0582GB(S)-XXX-GAF-AX	PLQP0044*	283	78K0KC2-L	UPD78F0587GB-XXX-GAF-E2-AX	PLQP0044*
224	78K0KC2-L	UPD78F0582GB(S)-XXX-GAF-E1-AX	PLQP0044*	284	78K0KC2-L	UPD78F0587GB-XXX-GAF-E3-AX	PLQP0044*
225	78K0KC2-L	UPD78F0582GB(S)-XXX-GAF-E2-AX	PLQP0044*	285	78K0KC2-L	UPD78F0587GB-XXX-GAF-E4-AX	PLQP0044*
226	78K0KC2-L	UPD78F0582GB(S)-XXX-GAF-E3-AX	PLQP0044*	286	78K0KC2-L	UPD78F0588GB(R)-GAF-AX	PLQP0044*
227	78K0KC2-L	UPD78F0582GB(S)-XXX-GAF-E4-AX	PLQP0044*	287	78K0KC2-L	UPD78F0588GB(R)-XXX-GAF-AX	PLQP0044*
228	78K0KC2-L	UPD78F0582GB-GAF-AX	PLQP0044*	288	78K0KC2-L	UPD78F0588GB(R)-XXX-GAF-E1-AX	PLQP0044*
229	78K0KC2-L	UPD78F0582GB-XXX-GAF-AX	PLQP0044*	289	78K0KC2-L	UPD78F0588GB(R)-XXX-GAF-E2-AX	PLQP0044*
230	78K0KC2-L	UPD78F0582GB-XXX-GAF-E1-AX	PLQP0044*	290	78K0KC2-L	UPD78F0588GB(R)-XXX-GAF-E3-AX	PLQP0044*
231	78K0KC2-L	UPD78F0582GB-XXX-GAF-E2-AX	PLQP0044*	291	78K0KC2-L	UPD78F0588GB(R)-XXX-GAF-E4-AX	PLQP0044*
232	78K0KC2-L	UPD78F0582GB-XXX-GAF-E3-AX	PLQP0044*	292	78K0KC2-L	UPD78F0588GB(S)-XXX-GAF-AX	PLQP0044*
233	78K0KC2-L	UPD78F0582GB-XXX-GAF-E4-AX	PLQP0044*	293	78K0KC2-L	UPD78F0588GB(S)-XXX-GAF-E1-AX	PLQP0044*
234	78K0KC2-L	UPD78F0583GB(R)-GAF-AX	PLQP0044*	294	78K0KC2-L	UPD78F0588GB(S)-XXX-GAF-E2-AX	PLQP0044*
235	78K0KC2-L	UPD78F0583GB(R)-XXX-GAF-AX	PLQP0044*	295	78K0KC2-L	UPD78F0588GB(S)-XXX-GAF-E3-AX	PLQP0044*
236	78K0KC2-L	UPD78F0583GB(R)-XXX-GAF-E1-AX	PLQP0044*	296	78K0KC2-L	UPD78F0588GB(S)-XXX-GAF-E4-AX	PLQP0044*
237	78K0KC2-L	UPD78F0583GB(R)-XXX-GAF-E2-AX	PLQP0044*	297	78K0KC2-L	UPD78F0588GB-GAF-AX	PLQP0044*
238	78K0KC2-L	UPD78F0583GB(R)-XXX-GAF-E3-AX	PLQP0044*	298	78K0KC2-L	UPD78F0588GB-XXX-GAF-AX	PLQP0044*
239	78K0KC2-L	UPD78F0583GB(R)-XXX-GAF-E4-AX	PLQP0044*	299	78K0KC2-L	UPD78F0588GB-XXX-GAF-E1-AX	PLQP0044*
240	78K0KC2-L	UPD78F0583GB(S)-GAF-AX	PLQP0044*	300	78K0KC2-L	UPD78F0588GB-XXX-GAF-E2-AX	PLQP0044*
241	78K0KC2-L	UPD78F0583GB(S)-XXX-GAF-AX	PLQP0044*	301	78K0KC2-L	UPD78F0588GB-XXX-GAF-E3-AX	PLQP0044*
242	78K0KC2-L	UPD78F0583GB(S)-XXX-GAF-E1-AX	PLQP0044*	302	78K0KC2-L	UPD78F0588GB-XXX-GAF-E4-AX	PLQP0044*
243	78K0KC2-L	UPD78F0583GB(S)-XXX-GAF-E2-AX	PLQP0044*	303			
244	78K0KC2-L	UPD78F0583GB(S)-XXX-GAF-E3-AX	PLQP0044*	304			
245	78K0KC2-L	UPD78F0583GB(S)-XXX-GAF-E4-AX	PLQP0044*	305			
246	78K0KC2-L	UPD78F0583GB-GAF-AX	PLQP0044*	306			
247	78K0KC2-L	UPD78F0583GB-XXX-GAF-AX	PLQP0044*	307			
248	78K0KC2-L	UPD78F0583GB-XXX-GAF-E1-AX	PLQP0044*	308			
249	78K0KC2-L	UPD78F0583GB-XXX-GAF-E2-AX	PLQP0044*	309			
250	78K0KC2-L	UPD78F0583GB-XXX-GAF-E3-AX	PLQP0044*	310			
251	78K0KC2-L	UPD78F0583GB-XXX-GAF-E4-AX	PLQP0044*	311			
252	78K0KC2-L	UPD78F0586GB(R)-GAF-AX	PLQP0044*	312			
253	78K0KC2-L	UPD78F0586GB(R)-XXX-GAF-AX	PLQP0044*	313			
254	78K0KC2-L	UPD78F0586GB(R)-XXX-GAF-E1-AX	PLQP0044*	314			
255	78K0KC2-L	UPD78F0586GB(R)-XXX-GAF-E2-AX	PLQP0044*	315			
256	78K0KC2-L	UPD78F0586GB(R)-XXX-GAF-E3-AX	PLQP0044*	316			
257	78K0KC2-L	UPD78F0586GB(R)-XXX-GAF-E4-AX	PLQP0044*	317			
258	78K0KC2-L	UPD78F0586GB(S)-XXX-GAF-AX	PLQP0044*	318			
259	78K0KC2-L	UPD78F0586GB(S)-XXX-GAF-E1-AX	PLQP0044*	319			
260	78K0KC2-L	UPD78F0586GB(S)-XXX-GAF-E2-AX	PLQP0044*	320			
261	78K0KC2-L	UPD78F0586GB(S)-XXX-GAF-E3-AX	PLQP0044*	321			
262	78K0KC2-L	UPD78F0586GB(S)-XXX-GAF-E4-AX	PLQP0044*	322			
263	78K0KC2-L	UPD78F0586GB-GAF-AX	PLQP0044*	323			
264	78K0KC2-L	UPD78F0586GB-XXX-GAF-AX	PLQP0044*	324			
265	78K0KC2-L	UPD78F0586GB-XXX-GAF-E1-AX	PLQP0044*	325			
266	78K0KC2-L	UPD78F0586GB-XXX-GAF-E2-AX	PLQP0044*	326			
267	78K0KC2-L	UPD78F0586GB-XXX-GAF-E3-AX	PLQP0044*	327			
268	78K0KC2-L	UPD78F0586GB-XXX-GAF-E4-AX	PLQP0044*	328			
269	78K0KC2-L	UPD78F0587GB(R)-GAF-AX	PLQP0044*	329			
270	78K0KC2-L	UPD78F0587GB(R)-XXX-GAF-AX	PLQP0044*	330			
271	78K0KC2-L	UPD78F0587GB(R)-XXX-GAF-E1-AX	PLQP0044*	331			
272	78K0KC2-L	UPD78F0587GB(R)-XXX-GAF-E2-AX	PLQP0044*	332			
273	78K0KC2-L	UPD78F0587GB(R)-XXX-GAF-E3-AX	PLQP0044*	333			
274	78K0KC2-L	UPD78F0587GB(R)-XXX-GAF-E4-AX	PLQP0044*	334			
275	78K0KC2-L	UPD78F0587GB(S)-XXX-GAF-AX	PLQP0044*	335			
276	78K0KC2-L	UPD78F0587GB(S)-XXX-GAF-E1-AX	PLQP0044*	336			
277	78K0KC2-L	UPD78F0587GB(S)-XXX-GAF-E2-AX	PLQP0044*	337			
278	78K0KC2-L	UPD78F0587GB(S)-XXX-GAF-E3-AX	PLQP0044*	338			
279	78K0KC2-L	UPD78F0587GB(S)-XXX-GAF-E4-AX	PLQP0044*	339			
280	78K0KC2-L	UPD78F0587GB-GAF-AX	PLQP0044*	340			