

RENESAS SEMICONDUCTOR RELIABILITY REPORT

GROUP : 78K0KA2-L
DEVICE : Refer to Product List
APPLICATION : Consumer / Industry

Quality Assurance Div.
Renesas Electronics Corporation

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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 (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 (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)

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

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	78K0KA2-L	UPD78F0560MC(R)-CAA-AX	PLSP0020*	51	78K0KA2-L	UPD78F0565MC-XXX-CAA-E2-AX	PLSP0020*
2	78K0KA2-L	UPD78F0560MC(R)-XXX-CAA-AX	PLSP0020*	52	78K0KA2-L	UPD78F0566MC(R)-XXX-CAA-AX	PLSP0020*
3	78K0KA2-L	UPD78F0560MC(R)-XXX-CAA-E1-AX	PLSP0020*	53	78K0KA2-L	UPD78F0566MC(R)-XXX-CAA-E1-AX	PLSP0020*
4	78K0KA2-L	UPD78F0560MC(R)-XXX-CAA-E2-AX	PLSP0020*	54	78K0KA2-L	UPD78F0566MC(R)-XXX-CAA-E2-AX	PLSP0020*
5	78K0KA2-L	UPD78F0560MC(S)-CAA-AX	PLSP0020*	55	78K0KA2-L	UPD78F0566MC(S)-XXX-CAA-AX	PLSP0020*
6	78K0KA2-L	UPD78F0560MC(S)-XXX-CAA-AX	PLSP0020*	56	78K0KA2-L	UPD78F0566MC(S)-XXX-CAA-E1-AX	PLSP0020*
7	78K0KA2-L	UPD78F0560MC(S)-XXX-CAA-E1-AX	PLSP0020*	57	78K0KA2-L	UPD78F0566MC(S)-XXX-CAA-E2-AX	PLSP0020*
8	78K0KA2-L	UPD78F0560MC(S)-XXX-CAA-E2-AX	PLSP0020*	58	78K0KA2-L	UPD78F0566MC-CAA-AX	PLSP0020*
9	78K0KA2-L	UPD78F0560MC-CAA-AX	PLSP0020*	59	78K0KA2-L	UPD78F0566MC-CAA-E1-AX	PLSP0020*
10	78K0KA2-L	UPD78F0560MC-CAA-E1-AX	PLSP0020*	60	78K0KA2-L	UPD78F0566MC-XXX-CAA-AX	PLSP0020*
11	78K0KA2-L	UPD78F0560MC-XXX-CAA-AX	PLSP0020*	61	78K0KA2-L	UPD78F0566MC-XXX-CAA-E1-AX	PLSP0020*
12	78K0KA2-L	UPD78F0560MC-XXX-CAA-E1-AX	PLSP0020*	62	78K0KA2-L	UPD78F0566MC-XXX-CAA-E2-AX	PLSP0020*
13	78K0KA2-L	UPD78F0560MC-XXX-CAA-E2-AX	PLSP0020*	63	78K0KA2-L	UPD78F0567MC(R)-CAA-AX	PLSP0020*
14	78K0KA2-L	UPD78F0561MC(R)-CAA-AX	PLSP0020*	64	78K0KA2-L	UPD78F0567MC(R)-XXX-CAA-AX	PLSP0020*
15	78K0KA2-L	UPD78F0561MC(R)-CAA-E1-AX	PLSP0020*	65	78K0KA2-L	UPD78F0567MC(R)-XXX-CAA-E1-AX	PLSP0020*
16	78K0KA2-L	UPD78F0561MC(R)-XXX-CAA-AX	PLSP0020*	66	78K0KA2-L	UPD78F0567MC(R)-XXX-CAA-E2-AX	PLSP0020*
17	78K0KA2-L	UPD78F0561MC(R)-XXX-CAA-E1-AX	PLSP0020*	67	78K0KA2-L	UPD78F0567MC(S)-CAA-AX	PLSP0020*
18	78K0KA2-L	UPD78F0561MC(R)-XXX-CAA-E2-AX	PLSP0020*	68	78K0KA2-L	UPD78F0567MC(S)-XXX-CAA-AX	PLSP0020*
19	78K0KA2-L	UPD78F0561MC(S)-CAA-AX	PLSP0020*	69	78K0KA2-L	UPD78F0567MC(S)-XXX-CAA-E1-AX	PLSP0020*
20	78K0KA2-L	UPD78F0561MC(S)-CAA-E1-AX	PLSP0020*	70	78K0KA2-L	UPD78F0567MC(S)-XXX-CAA-E2-AX	PLSP0020*
21	78K0KA2-L	UPD78F0561MC(S)-XXX-CAA-AX	PLSP0020*	71	78K0KA2-L	UPD78F0567MC-CAA-AX	PLSP0020*
22	78K0KA2-L	UPD78F0561MC(S)-XXX-CAA-E1-AX	PLSP0020*	72	78K0KA2-L	UPD78F0567MC-XXX-CAA-AX	PLSP0020*
23	78K0KA2-L	UPD78F0561MC(S)-XXX-CAA-E2-AX	PLSP0020*	73	78K0KA2-L	UPD78F0567MC-XXX-CAA-E1-AX	PLSP0020*
24	78K0KA2-L	UPD78F0561MC-CAA-AX	PLSP0020*	74	78K0KA2-L	UPD78F0567MC-XXX-CAA-E2-AX	PLSP0020*
25	78K0KA2-L	UPD78F0561MC-XXX-CAA-AX	PLSP0020*	75	78K0KA2-L	UPD78F0560K8(R)-3B4-E3-AX	PWQN0032*
26	78K0KA2-L	UPD78F0561MC-XXX-CAA-E1-AX	PLSP0020*	76	78K0KA2-L	UPD78F0560K8(R)-3B4-E4-AX	PWQN0032*
27	78K0KA2-L	UPD78F0561MC-XXX-CAA-E2-AX	PLSP0020*	77	78K0KA2-L	UPD78F0560K8(R)-XXX-3B4-E3-AX	PWQN0032*
28	78K0KA2-L	UPD78F0562MC(R)-CAA-AX	PLSP0020*	78	78K0KA2-L	UPD78F0560K8(R)-XXX-3B4-E4-AX	PWQN0032*
29	78K0KA2-L	UPD78F0562MC(R)-CAA-E1-AX	PLSP0020*	79	78K0KA2-L	UPD78F0560K8(S)-3B4-E3-AX	PWQN0032*
30	78K0KA2-L	UPD78F0562MC(R)-XXX-CAA-AX	PLSP0020*	80	78K0KA2-L	UPD78F0560K8(S)-3B4-E4-AX	PWQN0032*
31	78K0KA2-L	UPD78F0562MC(R)-XXX-CAA-E1-AX	PLSP0020*	81	78K0KA2-L	UPD78F0560K8(S)-XXX-3B4-E3-AX	PWQN0032*
32	78K0KA2-L	UPD78F0562MC(R)-XXX-CAA-E2-AX	PLSP0020*	82	78K0KA2-L	UPD78F0560K8(S)-XXX-3B4-E4-AX	PWQN0032*
33	78K0KA2-L	UPD78F0562MC(S)-CAA-AX	PLSP0020*	83	78K0KA2-L	UPD78F0560K8-3B4-AX	PWQN0032*
34	78K0KA2-L	UPD78F0562MC(S)-XXX-CAA-AX	PLSP0020*	84	78K0KA2-L	UPD78F0560K8-3B4-E3-AX	PWQN0032*
35	78K0KA2-L	UPD78F0562MC(S)-XXX-CAA-E1-AX	PLSP0020*	85	78K0KA2-L	UPD78F0560K8-3B4-E4-AX	PWQN0032*
36	78K0KA2-L	UPD78F0562MC(S)-XXX-CAA-E2-AX	PLSP0020*	86	78K0KA2-L	UPD78F0560K8-XXX-3B4-E3-AX	PWQN0032*
37	78K0KA2-L	UPD78F0562MC-CAA-AX	PLSP0020*	87	78K0KA2-L	UPD78F0560K8-XXX-3B4-E4-AX	PWQN0032*
38	78K0KA2-L	UPD78F0562MC-CAA-E1-AX	PLSP0020*	88	78K0KA2-L	UPD78F0561K8(R)-3B4-AX	PWQN0032*
39	78K0KA2-L	UPD78F0562MC-XXX-CAA-AX	PLSP0020*	89	78K0KA2-L	UPD78F0561K8(R)-3B4-E1-AX	PWQN0032*
40	78K0KA2-L	UPD78F0562MC-XXX-CAA-E1-AX	PLSP0020*	90	78K0KA2-L	UPD78F0561K8(R)-3B4-E2-AX	PWQN0032*
41	78K0KA2-L	UPD78F0562MC-XXX-CAA-E2-AX	PLSP0020*	91	78K0KA2-L	UPD78F0561K8(R)-3B4-E3-AX	PWQN0032*
42	78K0KA2-L	UPD78F0565MC(R)-XXX-CAA-AX	PLSP0020*	92	78K0KA2-L	UPD78F0561K8(R)-3B4-E4-AX	PWQN0032*
43	78K0KA2-L	UPD78F0565MC(R)-XXX-CAA-E1-AX	PLSP0020*	93	78K0KA2-L	UPD78F0561K8(R)-XXX-3B4-AX	PWQN0032*
44	78K0KA2-L	UPD78F0565MC(R)-XXX-CAA-E2-AX	PLSP0020*	94	78K0KA2-L	UPD78F0561K8(R)-XXX-3B4-E1-AX	PWQN0032*
45	78K0KA2-L	UPD78F0565MC(S)-XXX-CAA-AX	PLSP0020*	95	78K0KA2-L	UPD78F0561K8(R)-XXX-3B4-E2-AX	PWQN0032*
46	78K0KA2-L	UPD78F0565MC(S)-XXX-CAA-E1-AX	PLSP0020*	96	78K0KA2-L	UPD78F0561K8(R)-XXX-3B4-E3-AX	PWQN0032*
47	78K0KA2-L	UPD78F0565MC(S)-XXX-CAA-E2-AX	PLSP0020*	97	78K0KA2-L	UPD78F0561K8(R)-XXX-3B4-E4-AX	PWQN0032*
48	78K0KA2-L	UPD78F0565MC-CAA-AX	PLSP0020*	98	78K0KA2-L	UPD78F0561K8(S)-3B4-AX	PWQN0032*
49	78K0KA2-L	UPD78F0565MC-XXX-CAA-AX	PLSP0020*	99	78K0KA2-L	UPD78F0561K8(S)-3B4-E1-AX	PWQN0032*
50	78K0KA2-L	UPD78F0565MC-XXX-CAA-E1-AX	PLSP0020*	100	78K0KA2-L	UPD78F0561K8(S)-3B4-E2-AX	PWQN0032*

Table. Product list

MCR-22-0652

No	Group	Product part number	Package code	No	Group	Product part number	Package code
101	78K0KA2-L	UPD78F0561K8(S)-3B4-E3-AX	PWQN0032*	161	78K0KA2-L	UPD78F0565K8-XXX-3B4-E1-AX	PWQN0032*
102	78K0KA2-L	UPD78F0561K8(S)-3B4-E4-AX	PWQN0032*	162	78K0KA2-L	UPD78F0565K8-XXX-3B4-E2-AX	PWQN0032*
103	78K0KA2-L	UPD78F0561K8(S)-XXX-3B4-AX	PWQN0032*	163	78K0KA2-L	UPD78F0565K8-XXX-3B4-E3-AX	PWQN0032*
104	78K0KA2-L	UPD78F0561K8(S)-XXX-3B4-E1-AX	PWQN0032*	164	78K0KA2-L	UPD78F0565K8-XXX-3B4-E4-AX	PWQN0032*
105	78K0KA2-L	UPD78F0561K8(S)-XXX-3B4-E2-AX	PWQN0032*	165	78K0KA2-L	UPD78F0566K8(R)-3B4-AX	PWQN0032*
106	78K0KA2-L	UPD78F0561K8(S)-XXX-3B4-E3-AX	PWQN0032*	166	78K0KA2-L	UPD78F0566K8(R)-3B4-E1-AX	PWQN0032*
107	78K0KA2-L	UPD78F0561K8(S)-XXX-3B4-E4-AX	PWQN0032*	167	78K0KA2-L	UPD78F0566K8(R)-3B4-E2-AX	PWQN0032*
108	78K0KA2-L	UPD78F0561K8-3B4-AX	PWQN0032*	168	78K0KA2-L	UPD78F0566K8(R)-3B4-E3-AX	PWQN0032*
109	78K0KA2-L	UPD78F0561K8-3B4-E1-AX	PWQN0032*	169	78K0KA2-L	UPD78F0566K8(R)-3B4-E4-AX	PWQN0032*
110	78K0KA2-L	UPD78F0561K8-3B4-E2-AX	PWQN0032*	170	78K0KA2-L	UPD78F0566K8(R)-XXX-3B4-AX	PWQN0032*
111	78K0KA2-L	UPD78F0561K8-3B4-E3-AX	PWQN0032*	171	78K0KA2-L	UPD78F0566K8(R)-XXX-3B4-E1-AX	PWQN0032*
112	78K0KA2-L	UPD78F0561K8-3B4-E4-AX	PWQN0032*	172	78K0KA2-L	UPD78F0566K8(R)-XXX-3B4-E2-AX	PWQN0032*
113	78K0KA2-L	UPD78F0561K8-XXX-3B4-AX	PWQN0032*	173	78K0KA2-L	UPD78F0566K8(R)-XXX-3B4-E3-AX	PWQN0032*
114	78K0KA2-L	UPD78F0561K8-XXX-3B4-E1-AX	PWQN0032*	174	78K0KA2-L	UPD78F0566K8(R)-XXX-3B4-E4-AX	PWQN0032*
115	78K0KA2-L	UPD78F0561K8-XXX-3B4-E2-AX	PWQN0032*	175	78K0KA2-L	UPD78F0566K8(S)-3B4-AX	PWQN0032*
116	78K0KA2-L	UPD78F0561K8-XXX-3B4-E3-AX	PWQN0032*	176	78K0KA2-L	UPD78F0566K8(S)-3B4-E1-AX	PWQN0032*
117	78K0KA2-L	UPD78F0561K8-XXX-3B4-E4-AX	PWQN0032*	177	78K0KA2-L	UPD78F0566K8(S)-3B4-E2-AX	PWQN0032*
118	78K0KA2-L	UPD78F0562K8(R)-3B4-AX	PWQN0032*	178	78K0KA2-L	UPD78F0566K8(S)-3B4-E3-AX	PWQN0032*
119	78K0KA2-L	UPD78F0562K8(R)-3B4-E1-AX	PWQN0032*	179	78K0KA2-L	UPD78F0566K8(S)-3B4-E4-AX	PWQN0032*
120	78K0KA2-L	UPD78F0562K8(R)-3B4-E3-AX	PWQN0032*	180	78K0KA2-L	UPD78F0566K8(S)-XXX-3B4-AX	PWQN0032*
121	78K0KA2-L	UPD78F0562K8(R)-3B4-E4-AX	PWQN0032*	181	78K0KA2-L	UPD78F0566K8(S)-XXX-3B4-E1-AX	PWQN0032*
122	78K0KA2-L	UPD78F0562K8(R)-XXX-3B4-AX	PWQN0032*	182	78K0KA2-L	UPD78F0566K8(S)-XXX-3B4-E2-AX	PWQN0032*
123	78K0KA2-L	UPD78F0562K8(R)-XXX-3B4-E3-AX	PWQN0032*	183	78K0KA2-L	UPD78F0566K8(S)-XXX-3B4-E3-AX	PWQN0032*
124	78K0KA2-L	UPD78F0562K8(R)-XXX-3B4-E4-AX	PWQN0032*	184	78K0KA2-L	UPD78F0566K8(S)-XXX-3B4-E4-AX	PWQN0032*
125	78K0KA2-L	UPD78F0562K8(S)-3B4-AX	PWQN0032*	185	78K0KA2-L	UPD78F0566K8-3B4-AX	PWQN0032*
126	78K0KA2-L	UPD78F0562K8(S)-3B4-E3-AX	PWQN0032*	186	78K0KA2-L	UPD78F0566K8-3B4-E1-AX	PWQN0032*
127	78K0KA2-L	UPD78F0562K8(S)-3B4-E4-AX	PWQN0032*	187	78K0KA2-L	UPD78F0566K8-3B4-E2-AX	PWQN0032*
128	78K0KA2-L	UPD78F0562K8(S)-XXX-3B4-E3-AX	PWQN0032*	188	78K0KA2-L	UPD78F0566K8-3B4-E3-AX	PWQN0032*
129	78K0KA2-L	UPD78F0562K8(S)-XXX-3B4-E4-AX	PWQN0032*	189	78K0KA2-L	UPD78F0566K8-3B4-E4-AX	PWQN0032*
130	78K0KA2-L	UPD78F0562K8-3B4-AX	PWQN0032*	190	78K0KA2-L	UPD78F0566K8-XXX-3B4-AX	PWQN0032*
131	78K0KA2-L	UPD78F0562K8-3B4-E3-AX	PWQN0032*	191	78K0KA2-L	UPD78F0566K8-XXX-3B4-E1-AX	PWQN0032*
132	78K0KA2-L	UPD78F0562K8-3B4-E4-AX	PWQN0032*	192	78K0KA2-L	UPD78F0566K8-XXX-3B4-E2-AX	PWQN0032*
133	78K0KA2-L	UPD78F0562K8-XXX-3B4-E3-AX	PWQN0032*	193	78K0KA2-L	UPD78F0566K8-XXX-3B4-E3-AX	PWQN0032*
134	78K0KA2-L	UPD78F0562K8-XXX-3B4-E4-AX	PWQN0032*	194	78K0KA2-L	UPD78F0566K8-XXX-3B4-E4-AX	PWQN0032*
135	78K0KA2-L	UPD78F0565K8(R)-3B4-AX	PWQN0032*	195	78K0KA2-L	UPD78F0567K8(R)-3B4-AX	PWQN0032*
136	78K0KA2-L	UPD78F0565K8(R)-3B4-E1-AX	PWQN0032*	196	78K0KA2-L	UPD78F0567K8(R)-3B4-E1-AX	PWQN0032*
137	78K0KA2-L	UPD78F0565K8(R)-3B4-E2-AX	PWQN0032*	197	78K0KA2-L	UPD78F0567K8(R)-3B4-E2-AX	PWQN0032*
138	78K0KA2-L	UPD78F0565K8(R)-3B4-E3-AX	PWQN0032*	198	78K0KA2-L	UPD78F0567K8(R)-3B4-E3-AX	PWQN0032*
139	78K0KA2-L	UPD78F0565K8(R)-3B4-E4-AX	PWQN0032*	199	78K0KA2-L	UPD78F0567K8(R)-3B4-E4-AX	PWQN0032*
140	78K0KA2-L	UPD78F0565K8(R)-XXX-3B4-AX	PWQN0032*	200	78K0KA2-L	UPD78F0567K8(R)-XXX-3B4-AX	PWQN0032*
141	78K0KA2-L	UPD78F0565K8(R)-XXX-3B4-E1-AX	PWQN0032*	201	78K0KA2-L	UPD78F0567K8(R)-XXX-3B4-E1-AX	PWQN0032*
142	78K0KA2-L	UPD78F0565K8(R)-XXX-3B4-E2-AX	PWQN0032*	202	78K0KA2-L	UPD78F0567K8(R)-XXX-3B4-E2-AX	PWQN0032*
143	78K0KA2-L	UPD78F0565K8(R)-XXX-3B4-E3-AX	PWQN0032*	203	78K0KA2-L	UPD78F0567K8(R)-XXX-3B4-E3-AX	PWQN0032*
144	78K0KA2-L	UPD78F0565K8(R)-XXX-3B4-E4-AX	PWQN0032*	204	78K0KA2-L	UPD78F0567K8(R)-XXX-3B4-E4-AX	PWQN0032*
145	78K0KA2-L	UPD78F0565K8(S)-3B4-AX	PWQN0032*	205	78K0KA2-L	UPD78F0567K8(S)-3B4-AX	PWQN0032*
146	78K0KA2-L	UPD78F0565K8(S)-3B4-E1-AX	PWQN0032*	206	78K0KA2-L	UPD78F0567K8(S)-3B4-E1-AX	PWQN0032*
147	78K0KA2-L	UPD78F0565K8(S)-3B4-E2-AX	PWQN0032*	207	78K0KA2-L	UPD78F0567K8(S)-3B4-E2-AX	PWQN0032*
148	78K0KA2-L	UPD78F0565K8(S)-3B4-E3-AX	PWQN0032*	208	78K0KA2-L	UPD78F0567K8(S)-3B4-E3-AX	PWQN0032*
149	78K0KA2-L	UPD78F0565K8(S)-3B4-E4-AX	PWQN0032*	209	78K0KA2-L	UPD78F0567K8(S)-3B4-E4-AX	PWQN0032*
150	78K0KA2-L	UPD78F0565K8(S)-XXX-3B4-AX	PWQN0032*	210	78K0KA2-L	UPD78F0567K8(S)-XXX-3B4-AX	PWQN0032*
151	78K0KA2-L	UPD78F0565K8(S)-XXX-3B4-E1-AX	PWQN0032*	211	78K0KA2-L	UPD78F0567K8(S)-XXX-3B4-E1-AX	PWQN0032*
152	78K0KA2-L	UPD78F0565K8(S)-XXX-3B4-E2-AX	PWQN0032*	212	78K0KA2-L	UPD78F0567K8(S)-XXX-3B4-E2-AX	PWQN0032*
153	78K0KA2-L	UPD78F0565K8(S)-XXX-3B4-E3-AX	PWQN0032*	213	78K0KA2-L	UPD78F0567K8(S)-XXX-3B4-E3-AX	PWQN0032*
154	78K0KA2-L	UPD78F0565K8(S)-XXX-3B4-E4-AX	PWQN0032*	214	78K0KA2-L	UPD78F0567K8(S)-XXX-3B4-E4-AX	PWQN0032*
155	78K0KA2-L	UPD78F0565K8-3B4-AX	PWQN0032*	215	78K0KA2-L	UPD78F0567K8-3B4-AX	PWQN0032*
156	78K0KA2-L	UPD78F0565K8-3B4-E1-AX	PWQN0032*	216	78K0KA2-L	UPD78F0567K8-3B4-E1-AX	PWQN0032*
157	78K0KA2-L	UPD78F0565K8-3B4-E2-AX	PWQN0032*	217	78K0KA2-L	UPD78F0567K8-3B4-E2-AX	PWQN0032*
158	78K0KA2-L	UPD78F0565K8-3B4-E3-AX	PWQN0032*	218	78K0KA2-L	UPD78F0567K8-3B4-E3-AX	PWQN0032*
159	78K0KA2-L	UPD78F0565K8-3B4-E4-AX	PWQN0032*	219	78K0KA2-L	UPD78F0567K8-3B4-E4-AX	PWQN0032*
160	78K0KA2-L	UPD78F0565K8-XXX-3B4-AX	PWQN0032*	220	78K0KA2-L	UPD78F0567K8-XXX-3B4-AX	PWQN0032*

Table. Product list

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No	Group	Product part number	Package code	No	Group	Product part number	Package code
221	78K0KA2-L	UPD78F0567K8-XXX-3B4-E1-AX	PWQN0032*	281	78K0KA2-L	UPD78F0562FC-XXX-2N2-E1-A	PWLG0025*
222	78K0KA2-L	UPD78F0567K8-XXX-3B4-E2-AX	PWQN0032*	282	78K0KA2-L	UPD78F0562FC-XXX-2N2-E2-A	PWLG0025*
223	78K0KA2-L	UPD78F0567K8-XXX-3B4-E3-AX	PWQN0032*	283	78K0KA2-L	UPD78F0562FC-XXX-2N2-E3-A	PWLG0025*
224	78K0KA2-L	UPD78F0567K8-XXX-3B4-E4-AX	PWQN0032*	284	78K0KA2-L	UPD78F0562FC-XXX-2N2-E4-A	PWLG0025*
225	78K0KA2-L	UPD78F0560FC(S)-2N2-A	PWLG0025*	285	78K0KA2-L	UPD78F0565FC(S)-2N2-A	PWLG0025*
226	78K0KA2-L	UPD78F0560FC(S)-2N2-E1-A	PWLG0025*	286	78K0KA2-L	UPD78F0565FC(S)-2N2-E1-A	PWLG0025*
227	78K0KA2-L	UPD78F0560FC(S)-2N2-E2-A	PWLG0025*	287	78K0KA2-L	UPD78F0565FC(S)-2N2-E2-A	PWLG0025*
228	78K0KA2-L	UPD78F0560FC(S)-2N2-E3-A	PWLG0025*	288	78K0KA2-L	UPD78F0565FC(S)-2N2-E3-A	PWLG0025*
229	78K0KA2-L	UPD78F0560FC(S)-2N2-E4-A	PWLG0025*	289	78K0KA2-L	UPD78F0565FC(S)-2N2-E4-A	PWLG0025*
230	78K0KA2-L	UPD78F0560FC(S)-XXX-2N2-A	PWLG0025*	290	78K0KA2-L	UPD78F0565FC(S)-XXX-2N2-A	PWLG0025*
231	78K0KA2-L	UPD78F0560FC(S)-XXX-2N2-E1-A	PWLG0025*	291	78K0KA2-L	UPD78F0565FC(S)-XXX-2N2-E1-A	PWLG0025*
232	78K0KA2-L	UPD78F0560FC(S)-XXX-2N2-E2-A	PWLG0025*	292	78K0KA2-L	UPD78F0565FC(S)-XXX-2N2-E2-A	PWLG0025*
233	78K0KA2-L	UPD78F0560FC(S)-XXX-2N2-E3-A	PWLG0025*	293	78K0KA2-L	UPD78F0565FC(S)-XXX-2N2-E3-A	PWLG0025*
234	78K0KA2-L	UPD78F0560FC(S)-XXX-2N2-E4-A	PWLG0025*	294	78K0KA2-L	UPD78F0565FC(S)-XXX-2N2-E4-A	PWLG0025*
235	78K0KA2-L	UPD78F0560FC-2N2-A	PWLG0025*	295	78K0KA2-L	UPD78F0565FC-2N2-A	PWLG0025*
236	78K0KA2-L	UPD78F0560FC-2N2-E1-A	PWLG0025*	296	78K0KA2-L	UPD78F0565FC-2N2-E1-A	PWLG0025*
237	78K0KA2-L	UPD78F0560FC-2N2-E2-A	PWLG0025*	297	78K0KA2-L	UPD78F0565FC-2N2-E2-A	PWLG0025*
238	78K0KA2-L	UPD78F0560FC-2N2-E3-A	PWLG0025*	298	78K0KA2-L	UPD78F0565FC-2N2-E3-A	PWLG0025*
239	78K0KA2-L	UPD78F0560FC-2N2-E4-A	PWLG0025*	299	78K0KA2-L	UPD78F0565FC-2N2-E4-A	PWLG0025*
240	78K0KA2-L	UPD78F0560FC-XXX-2N2-A	PWLG0025*	300	78K0KA2-L	UPD78F0565FC-XXX-2N2-A	PWLG0025*
241	78K0KA2-L	UPD78F0560FC-XXX-2N2-E1-A	PWLG0025*	301	78K0KA2-L	UPD78F0565FC-XXX-2N2-E1-A	PWLG0025*
242	78K0KA2-L	UPD78F0560FC-XXX-2N2-E2-A	PWLG0025*	302	78K0KA2-L	UPD78F0565FC-XXX-2N2-E2-A	PWLG0025*
243	78K0KA2-L	UPD78F0560FC-XXX-2N2-E3-A	PWLG0025*	303	78K0KA2-L	UPD78F0565FC-XXX-2N2-E3-A	PWLG0025*
244	78K0KA2-L	UPD78F0560FC-XXX-2N2-E4-A	PWLG0025*	304	78K0KA2-L	UPD78F0565FC-XXX-2N2-E4-A	PWLG0025*
245	78K0KA2-L	UPD78F0561FC(S)-2N2-A	PWLG0025*	305	78K0KA2-L	UPD78F0566FC(S)-2N2-A	PWLG0025*
246	78K0KA2-L	UPD78F0561FC(S)-2N2-E1-A	PWLG0025*	306	78K0KA2-L	UPD78F0566FC(S)-2N2-E1-A	PWLG0025*
247	78K0KA2-L	UPD78F0561FC(S)-2N2-E2-A	PWLG0025*	307	78K0KA2-L	UPD78F0566FC(S)-2N2-E2-A	PWLG0025*
248	78K0KA2-L	UPD78F0561FC(S)-2N2-E3-A	PWLG0025*	308	78K0KA2-L	UPD78F0566FC(S)-2N2-E3-A	PWLG0025*
249	78K0KA2-L	UPD78F0561FC(S)-2N2-E4-A	PWLG0025*	309	78K0KA2-L	UPD78F0566FC(S)-2N2-E4-A	PWLG0025*
250	78K0KA2-L	UPD78F0561FC(S)-XXX-2N2-A	PWLG0025*	310	78K0KA2-L	UPD78F0566FC(S)-XXX-2N2-A	PWLG0025*
251	78K0KA2-L	UPD78F0561FC(S)-XXX-2N2-E1-A	PWLG0025*	311	78K0KA2-L	UPD78F0566FC(S)-XXX-2N2-E1-A	PWLG0025*
252	78K0KA2-L	UPD78F0561FC(S)-XXX-2N2-E2-A	PWLG0025*	312	78K0KA2-L	UPD78F0566FC(S)-XXX-2N2-E2-A	PWLG0025*
253	78K0KA2-L	UPD78F0561FC(S)-XXX-2N2-E3-A	PWLG0025*	313	78K0KA2-L	UPD78F0566FC(S)-XXX-2N2-E3-A	PWLG0025*
254	78K0KA2-L	UPD78F0561FC(S)-XXX-2N2-E4-A	PWLG0025*	314	78K0KA2-L	UPD78F0566FC(S)-XXX-2N2-E4-A	PWLG0025*
255	78K0KA2-L	UPD78F0561FC-2N2-A	PWLG0025*	315	78K0KA2-L	UPD78F0566FC-2N2-A	PWLG0025*
256	78K0KA2-L	UPD78F0561FC-2N2-E1-A	PWLG0025*	316	78K0KA2-L	UPD78F0566FC-2N2-E1-A	PWLG0025*
257	78K0KA2-L	UPD78F0561FC-2N2-E2-A	PWLG0025*	317	78K0KA2-L	UPD78F0566FC-2N2-E2-A	PWLG0025*
258	78K0KA2-L	UPD78F0561FC-2N2-E3-A	PWLG0025*	318	78K0KA2-L	UPD78F0566FC-2N2-E3-A	PWLG0025*
259	78K0KA2-L	UPD78F0561FC-2N2-E4-A	PWLG0025*	319	78K0KA2-L	UPD78F0566FC-2N2-E4-A	PWLG0025*
260	78K0KA2-L	UPD78F0561FC-XXX-2N2-A	PWLG0025*	320	78K0KA2-L	UPD78F0566FC-XXX-2N2-A	PWLG0025*
261	78K0KA2-L	UPD78F0561FC-XXX-2N2-E1-A	PWLG0025*	321	78K0KA2-L	UPD78F0566FC-XXX-2N2-E1-A	PWLG0025*
262	78K0KA2-L	UPD78F0561FC-XXX-2N2-E2-A	PWLG0025*	322	78K0KA2-L	UPD78F0566FC-XXX-2N2-E2-A	PWLG0025*
263	78K0KA2-L	UPD78F0561FC-XXX-2N2-E3-A	PWLG0025*	323	78K0KA2-L	UPD78F0566FC-XXX-2N2-E3-A	PWLG0025*
264	78K0KA2-L	UPD78F0561FC-XXX-2N2-E4-A	PWLG0025*	324	78K0KA2-L	UPD78F0566FC-XXX-2N2-E4-A	PWLG0025*
265	78K0KA2-L	UPD78F0562FC(S)-2N2-A	PWLG0025*	325	78K0KA2-L	UPD78F0567FC(S)-2N2-A	PWLG0025*
266	78K0KA2-L	UPD78F0562FC(S)-2N2-E1-A	PWLG0025*	326	78K0KA2-L	UPD78F0567FC(S)-2N2-E1-A	PWLG0025*
267	78K0KA2-L	UPD78F0562FC(S)-2N2-E2-A	PWLG0025*	327	78K0KA2-L	UPD78F0567FC(S)-2N2-E2-A	PWLG0025*
268	78K0KA2-L	UPD78F0562FC(S)-2N2-E3-A	PWLG0025*	328	78K0KA2-L	UPD78F0567FC(S)-2N2-E3-A	PWLG0025*
269	78K0KA2-L	UPD78F0562FC(S)-2N2-E4-A	PWLG0025*	329	78K0KA2-L	UPD78F0567FC(S)-2N2-E4-A	PWLG0025*
270	78K0KA2-L	UPD78F0562FC(S)-XXX-2N2-A	PWLG0025*	330	78K0KA2-L	UPD78F0567FC(S)-XXX-2N2-A	PWLG0025*
271	78K0KA2-L	UPD78F0562FC(S)-XXX-2N2-E1-A	PWLG0025*	331	78K0KA2-L	UPD78F0567FC(S)-XXX-2N2-E1-A	PWLG0025*
272	78K0KA2-L	UPD78F0562FC(S)-XXX-2N2-E2-A	PWLG0025*	332	78K0KA2-L	UPD78F0567FC(S)-XXX-2N2-E2-A	PWLG0025*
273	78K0KA2-L	UPD78F0562FC(S)-XXX-2N2-E3-A	PWLG0025*	333	78K0KA2-L	UPD78F0567FC(S)-XXX-2N2-E3-A	PWLG0025*
274	78K0KA2-L	UPD78F0562FC(S)-XXX-2N2-E4-A	PWLG0025*	334	78K0KA2-L	UPD78F0567FC(S)-XXX-2N2-E4-A	PWLG0025*
275	78K0KA2-L	UPD78F0562FC-2N2-A	PWLG0025*	335	78K0KA2-L	UPD78F0567FC-2N2-A	PWLG0025*
276	78K0KA2-L	UPD78F0562FC-2N2-E1-A	PWLG0025*	336	78K0KA2-L	UPD78F0567FC-2N2-E1-A	PWLG0025*
277	78K0KA2-L	UPD78F0562FC-2N2-E2-A	PWLG0025*	337	78K0KA2-L	UPD78F0567FC-2N2-E2-A	PWLG0025*
278	78K0KA2-L	UPD78F0562FC-2N2-E3-A	PWLG0025*	338	78K0KA2-L	UPD78F0567FC-2N2-E3-A	PWLG0025*
279	78K0KA2-L	UPD78F0562FC-2N2-E4-A	PWLG0025*	339	78K0KA2-L	UPD78F0567FC-2N2-E4-A	PWLG0025*
280	78K0KA2-L	UPD78F0562FC-XXX-2N2-A	PWLG0025*	340	78K0KA2-L	UPD78F0567FC-XXX-2N2-A	PWLG0025*

Table. Product list

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No	Group	Product part number	Package code	No	Group	Product part number	Package code
341	78K0KA2-L	UPD78F0567FC-XXX-2N2-E1-A	PWLG0025*	401			
342	78K0KA2-L	UPD78F0567FC-XXX-2N2-E2-A	PWLG0025*	402			
343	78K0KA2-L	UPD78F0567FC-XXX-2N2-E3-A	PWLG0025*	403			
344	78K0KA2-L	UPD78F0567FC-XXX-2N2-E4-A	PWLG0025*	404			
345				405			
346				406			
347				407			
348				408			
349				409			
350				410			
351				411			
352				412			
353				413			
354				414			
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400				460			