

Surface Mount Type

Series: **S** Type: **V**



■ Features

- Endurance: 85 °C 1000 to 2000 h
- 5.5 mm Max.($\leq\phi 6.3$) height,
- RoHS directive compliant

■ Specifications

Category temp.range	-40°C ~ +85°C										
Rated W.V. Range	4 V.DC ~ 100 V.DC										
Nominal Cap. Range	0.1 μ F ~ 1500										
Capacitance tolerance	$\pm 20\%$ (120Hz/ +20°C)										
DC Leakage current	I \leq 0.01CV or 3(μ A) (Whichever is greater) Bi-Polar I \leq 0.02CV or 6(μ A) after 2 minutes (Whichever is greater)										
tan δ	Please see the attached standard products list										
Characteristics at Low Temperature	W.V.(V)	4	6.3	10	16	25	35	50	63	100	(Impedance ratio at 120Hz)
	Z(-25°C)/Z(+20°C)	7	4	3	2	2	2	2	3	3	
Endurance	Z(-40°C)/Z(+20°C)	15	8	6	4	4	3	3	4	4	
	After applying rated working voltage for 2000 hours (Bi-Polar 1000 hours for each polarity) at +85°C $\pm 2^\circ$ C and then being stabilized at +20°C, Capacitors shall meet the following limits.										
Endurance	Capacitance change	Standard					High temperature Lead-Free reflow type				
		$\pm 20\%$ of inisial measured value					$\pm 20\%$ of inisial measured value				
		Size code	Rated W.V.	Cap. change			Size code	Cap. change			
		A($\phi 3$)	4W.V. ~ 50 W.V.	1000 hours $\pm 30\%$			D8(6.3x7.7)	2000h $\pm 25\%$			
		A($\phi 3$) ~ D8(6.3)	4 W.V.				\leq D($\phi 6.3$) Miniature	1000h $\pm 30\%$			
\leq D($\phi 6.3$) Miniature	6.3 W.V.	\geq 10W.V	1000 hours $\pm 20\%$								
tan δ	$\leq 200\%$ initial specified value										
DC leakage current	\leq initial specified value										
Shelf life	After storage for 1000 hours at +85°C $\pm 2^\circ$ C with no voltage applied and then being stabilized at +20 °C, capacitor shall meet the limits specified in Endurance.(With voltage treatment)										
Resistance to Soldering Heat	After reflow soldering and then being stabilized at +20 °C, capacitor shall meet the following limits.										
	Capacitance change	$\pm 10\%$ of inisial measured value									
	tan δ	\leq initial specified value									
	DC leakage current	\leq initial specified value									

■ Marking

Example: 4V33 μ F (Polarized)
Marking color: BLACK

Negative polarity marking (-)
(No marking for the bi-polar)

Capacitance(μ F)

Series identification (A size=Lot No.)

Mark for Lead-Free Products

Black Dot (Square)

Rated Voltage (V.DC)

Lot No. (No marking=A size)

■ Dimensions in mm (not to scale)

() reference size

(mm)

Size Code	D	L	A, B	H max.	I	W	P	K	
A	3.0	5.4	3.3	4.5	1.5	0.55	0.6	0.35	-0.20 ~ +0.15
B	4.0	5.4	4.3	5.5	1.8	0.65 \pm 0.2	1.0	0.35	-0.20 ~ +0.15
C	5.0	5.4	5.3	6.5	2.2	0.65 \pm 0.2	1.5	0.35	-0.20 ~ +0.15
D	6.3	5.4	6.6	7.8	2.6	0.65 \pm 0.2	1.8	0.35	-0.20 ~ +0.15
※DS	6.3	7.7	6.6	7.8	2.6	0.65 \pm 0.1	1.8	0.35	-0.20 ~ +0.15
※E	8.0	6.2	8.3	9.5	3.4	0.65 \pm 0.1	2.2	0.35	-0.20 ~ +0.15
※F	8.0	10.2	8.3	10.0	3.4	0.90 \pm 0.2	3.1	0.70	± 0.20
※G	10.0	10.2	10.3	12.0	3.5	0.90 \pm 0.2	4.6	0.70	± 0.20

- Standard
- Size code

Cap.(μF)	4		6.3		10		16		25		35		50		63	100
	Polarized	Polarized	Bi-polar	Polarized	Bi-polar	Polarized	Bi-polar	Polarized	Bi-polar	Polarized	Bi-polar	Polarized	Bi-polar	Polarized	Polarized	
0.1														A,B		
0.22														A,B	B	
0.33														A,B	B	
0.47														A,B	B	
1.0														A,B	B	
2.2											A	B		A,B	C	
3.3										B	A			B	C	E
4.7																
10							B	A,B	B	A,B	C	B	C	(B),C	D	(E),F
22	A	(A),B	C	(B)	B	A,B	C	(B),C	D	(B),C	D	(B),C	D	(C),D		(E),F
33	B	(B)		(B),C	D	(C)		(C),D		(C),D		(C),D		(D),E		(E),F
47	B	(B),C	D	(C)		(C),D		(D)		(D)		(D),E		D8,(E),F	F	G
100	C	(C),D		(C),D		(D),E		D8,(E),F		(F),G		D8,(F),G		(F),G	G	
220	D	(D)		D8,E		D8,F		(F),G		(F),G		(F),G		G		
330	(D)	D8,E		F		(F),G		(F),G		(F),G		G				
470	D8	F		(F),G		(F),G		G								
1000		(F),G		G												
1500		G														

- High temperature Lead-Free reflow
- Size code

Cap.(μF)	V.DC					
	6.3	10	16	25	35	50
0.1						B
0.22						B
0.33						B
0.47						B
1.0						B
2.2						B
3.3						B
4.7				B	B	(B), C
10			B	(B), C	(B), C	(C), D
22	B	(B)	(B), C	(C), D	(C), D	(D), E
33	(B)	(B), C	(C)	(C), D	(D), E	D8,(E),F
47	C	(C)	(C), D	(D)	(D), E	D8,(F),G
100	(C), D	(C), D	(D), E	D8,(E),F	D8,(F),G	(F), G
220		D8, E	D8, (F)	(F), G	(F), G	(G)
330	D8, E	F	(F), G	(F), G	(G)	
470	(F)	(F), G	(F), G	(G)		
1000	G	(G)				
1500	(G)					

() Shows miniaturization product type
 Suffix : U or W

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■ Standard Products

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No.(RoHS:compliant)	Reflow	Min. Packaging Qty
		Dia. (mm)	Length (mm)	Size code	Ripple Current (120Hz) (+85°C) (mA r.m.s.)	tanδ (120Hz) (+20°C)	Endurance (hours)			Taping (pcs)
4	22	3	5.4	A	19	0.37	1000	EEE0GS220SR	(1)	2000
	33	4	5.4	B	26	0.35	1000	EEE0GA330SR	(1)	2000
	47	4	5.4	B	34	0.35	1000	EEE0GA470SR	(1)	2000
	100	5	5.4	C	61	0.35	1000	EEE0GA101SR	(1)	1000
	220	6.3	5.4	D	82	0.35	1000	EEE0GA221SP	(1)	1000
	330	6.3	5.4	D	80	0.50	1000	EEE0GA331WP	(1)	1000
	470	6.3	7.7	D8	200	0.35	1000	EEE0GA471XP	(1)	900
6.3	22	3	5.4	A	20	0.35	1000	EEE0JS220WR	(1)	2000
		4	5.4	B	29	0.26	2000	EEE0JA220SR	(1)	2000
	33	4	5.4	B	22	0.35	1000	EEE0JA330WR	(1)	2000
		4	5.4	B	36	0.35	1000	EEE0JA470WR	(1)	2000
	47	5	5.4	C	46	0.26	2000	EEE0JA470SR	(1)	1000
		5	5.4	C	47	0.35	1000	EEE0JA101WR	(1)	1000
	100	6.3	5.4	D	71	0.26	2000	EEE0JA101SP	(1)	1000
		6.3	5.4	D	74	0.35	1000	EEE0JA221WP	(1)	1000
	330	6.3	7.7	D8	188	0.26	2000	EEE0JA331XP	(1)	900
		8	6.2	E	300	0.35	2000	EEE0JA331P	(2)	1000
	470	8	10.2	F	380	0.35	2000	EEE0JA471P	(2)	500
		8	10.2	F	500	0.35	2000	EEE0JA102UP	(2)	500
1000	10	10.2	G	700	0.35	2000	EEE0JA102P	(2)	500	
	10	10.2	G	750	0.35	2000	EEE0JA152P	(2)	500	
10	22	4	5.4	B	28	0.30	1000	EEE1AA220WR	(1)	2000
		4	5.4	B	29	0.30	1000	EEE1AA330WR	(1)	2000
	33	5	5.4	C	43	0.20	2000	EEE1AA330SR	(1)	1000
		5	5.4	C	43	0.30	1000	EEE1AA470WR	(1)	1000
	100	5	5.4	C	50	0.30	1000	EEE1AA101WR	(1)	1000
		6.3	5.4	D	70	0.26	2000	EEE1AA101SP	(1)	1000
	220	6.3	7.7	D8	173	0.20	2000	EEE1AA221XP	(1)	900
		8	6.2	E	250	0.26	2000	EEE1AA221P	(2)	1000
	330	8	10.2	F	390	0.26	2000	EEE1AA331P	(2)	500
		8	10.2	F	390	0.26	2000	EEE1AA471UP	(2)	500
	470	10	10.2	G	400	0.26	2000	EEE1AA471P	(2)	500
		10	10.2	G	580	0.26	2000	EEE1AA102P	(2)	500
16	10	3	5.4	A	20	0.18	1000	EEE1CS100SR	(1)	2000
		4	5.4	B	28	0.16	2000	EEE1CA100SR	(1)	2000
	22	4	5.4	B	28	0.26	1000	EEE1CA220WR	(1)	2000
		5	5.4	C	39	0.16	2000	EEE1CA220SR	(1)	1000
	33	5	5.4	C	35	0.26	1000	EEE1CA330WR	(1)	1000
		5	5.4	C	39	0.26	1000	EEE1CA470WR	(1)	1000
	47	6.3	5.4	D	70	0.16	2000	EEE1CA470SP	(1)	1000
		6.3	5.4	D	70	0.26	1000	EEE1CA101WP	(1)	1000
	100	8	6.2	E	200	0.20	2000	EEE1CA101P	(2)	1000
		6.3	7.7	D8	162	0.16	2000	EEE1CA221XP	(1)	900
	220	8	10.2	F	280	0.20	2000	EEE1CA221P	(2)	500
		8	10.2	F	320	0.20	2000	EEE1CA331UP	(2)	500
330	10	10.2	G	380	0.20	2000	EEE1CA331P	(2)	500	
	8	10.2	F	350	0.20	2000	EEE1CA471UP	(2)	500	
470	10	10.2	G	420	0.20	2000	EEE1CA471P	(2)	500	

Reflow Profile (Fig-1 to Fig-7) listed on the last page of this datasheet.

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Standard Products

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No. (RoHS:compliant)	Reflow	Min. Packaging
		Dia. (mm)	Length (mm)	Size code	Ripple Current (120Hz) (+85°C) (mA r.m.s.)	tanδ (120Hz) (+20°C)	Endurance (hours)			Qty
25	4.7	3	5.4	A	12	0.16	1000	EEE1ES4R7SR	(1)	2000
		4	5.4	B	22	0.14	2000	EEE1EA4R7SR	(1)	2000
	10	4	5.4	B	22	0.20	1000	EEE1EA100WR	(1)	2000
		5	5.4	C	28	0.14	2000	EEE1EA100SR	(1)	1000
	22	5	5.4	C	35	0.20	1000	EEE1EA220WR	(1)	1000
		6.3	5.4	D	55	0.14	2000	EEE1EA220SP	(1)	1000
	33	5	5.4	C	42	0.20	1000	EEE1EA330WR	(1)	1000
		6.3	5.4	D	65	0.14	2000	EEE1EA330SP	(1)	1000
	47	6.3	5.4	D	70	0.20	1000	EEE1EA470WP	(1)	1000
		6.3	7.7	D8	143	0.14	2000	EEE1EA101XP	(1)	900
	100	8	6.2	E	91	0.16	2000	EEE1EA101UP	(2)	1000
		8	10.2	F	180	0.16	2000	EEE1EA101P	(2)	500
	220	8	10.2	F	230	0.16	2000	EEE1EA221UP	(2)	500
		10	10.2	G	310	0.16	2000	EEE1EA221P	(2)	500
	330	8	10.2	F	270	0.16	2000	EEE1EA331UP	(2)	500
		10	10.2	G	340	0.16	2000	EEE1EA331P	(2)	500
470	10	10.2	G	380	0.16	2000	EEE1EA471P	(2)	500	
35	2.2	3	5.4	A	8	0.14	1000	EEE1VS2R2SR	(1)	2000
	3.3	3	5.4	A	10	0.14	1000	EEE1VS3R3SR	(1)	2000
	4.7	4	5.4	B	22	0.12	2000	EEE1VA4R7SR	(1)	2000
		4	5.4	B	22	0.16	1000	EEE1VA100WR	(1)	2000
	10	5	5.4	C	30	0.12	2000	EEE1VA100SR	(1)	1000
		5	5.4	C	36	0.16	1000	EEE1VA220WR	(1)	1000
	22	6.3	5.4	D	60	0.12	2000	EEE1VA220SP	(1)	1000
		6.3	5.4	D	60	0.16	1000	EEE1VA330WP	(1)	1000
	33	8	6.2	E	130	0.14	2000	EEE1VA330P	(2)	1000
		6.3	5.4	D	70	0.16	1000	EEE1VA470WP	(1)	1000
	47	8	6.2	E	165	0.14	2000	EEE1VA470P	(2)	1000
		6.3	7.7	D8	132	0.12	2000	EEE1VA101XP	(1)	900
	100	8	10.2	F	140	0.14	2000	EEE1VA101UP	(2)	500
		10	10.2	G	210	0.14	2000	EEE1VA101P	(2)	500
	200	8	10.2	F	200	0.14	2000	EEE1VA221UP	(2)	500
		10	10.2	G	310	0.14	2000	EEE1VA221P	(2)	500
330	10	10.2	G	350	0.14	2000	EEE1VA331P	(2)	500	

Reflow Profile (Fig-1 to Fig-7) listed on the last page of this datasheet.

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■ Standard Products

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No. (RoHS:compliant)	Reflow	Min. Packaging
		Dia. (mm)	Length (mm)	Size code	Ripple Current (120Hz) (+85°C) (mA r.m.s.)	tanδ (120Hz) (+20°C)	Endurance (hours)			Qty
50	0.1	3	5.4	A	1	0.14	1000	EEE1HS0R1SR	(1)	2000
		4	5.4	B	1	0.12	2000	EEE1HA0R1SR	(1)	2000
	0.22	3	5.4	A	2	0.14	1000	EEE1HSR22SR	(1)	2000
		4	5.4	B	2	0.12	2000	EEE1HAR22SR	(1)	2000
	0.33	3	5.4	A	3	0.14	1000	EEE1HSR33SR	(1)	2000
		4	5.4	B	3	0.12	2000	EEE1HAR33SR	(1)	2000
	0.47	3	5.4	A	5	0.14	1000	EEE1HSR47SR	(1)	2000
		4	5.4	B	5	0.12	2000	EEE1HAR47SR	(1)	2000
	1	3	5.4	A	8	0.14	1000	EEE1HS010SR	(1)	2000
		4	5.4	B	10	0.12	2000	EEE1HA010SR	(1)	2000
	2.2	3	5.4	A	8	0.14	1000	EEE1HS2R2SR	(1)	2000
		4	5.4	B	16	0.12	2000	EEE1HA2R2SR	(1)	2000
	3.3	4	5.4	B	16	0.12	2000	EEE1HA3R3SR	(1)	2000
	4.7	4	5.4	B	18	0.14	1000	EEE1HA4R7WR	(1)	2000
		5	5.4	C	23	0.12	2000	EEE1HA4R7SR	(1)	1000
	10	5	5.4	C	27	0.14	1000	EEE1HA100WR	(1)	1000
		6.3	5.4	D	35	0.12	2000	EEE1HA100SP	(1)	1000
	22	6.3	5.4	D	40	0.14	1000	EEE1HA220WP	(1)	1000
		8	6.2	E	120	0.12	2000	EEE1HA220P	(2)	1000
	33	6.3	7.7	D8	85	0.12	2000	EEE1HA330XP	(1)	900
8		6.2	E	65	0.12	2000	EEE1HA330UP	(2)	1000	
8		10.2	F	110	0.12	2000	EEE1HA330P	(2)	500	
47	6.3	7.7	D8	105	0.12	2000	EEE1HA470XP	(1)	900	
	8	10.2	F	110	0.12	2000	EEE1HA470UP	(2)	500	
	10	10.2	G	130	0.12	2000	EEE1HA470P	(2)	500	
100	8	10.2	F	200	0.12	2000	EEE1HA101UP	(2)	500	
	10	10.2	G	250	0.12	2000	EEE1HA101P	(2)	500	
220	10	10.2	G	300	0.12	2000	EEE1HA221P	(2)	500	
63	22	8	6.2	E	40	0.18	2000	EEE1JA220UP	(2)	1000
		8	10.2	F	40	0.18	2000	EEE1JA220P	(2)	500
	33	8	10.2	F	45	0.18	2000	EEE1JA330P	(2)	500
	47	8	10.2	F	45	0.18	2000	EEE1JA470UP	(2)	500
		10	10.2	G	45	0.18	2000	EEE1JA470P	(2)	500
100	10	10.2	G	60	0.18	2000	EEE1JA101P	(2)	500	
100	3.3	8	6.2	E	50	0.18	2000	EEE2AA3R3P	(2)	1000
	4.7	8	6.2	E	50	0.18	2000	EEE2AA4R7UP	(2)	1000
		8	10.2	F	80	0.18	2000	EEE2AA4R7P	(2)	500
	10	8	6.2	E	50	0.18	2000	EEE2AA100UP	(2)	1000
		8	10.2	F	85	0.18	2000	EEE2AA100P	(2)	500
	22	8	10.2	F	55	0.18	2000	EEE2AA220UP	(2)	500
		10	10.2	G	85	0.18	2000	EEE2AA220P	(2)	500
	33	10	10.2	G	90	0.18	2000	EEE2AA330P	(2)	500

Reflow Profile (Fig-1 to Fig-7) listed on the last page of this datasheet.

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■ Standard Products(Bi-polar)

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No. (RoHS:compliant)	Reflow	Min. Packaging Qty
		Dia. (mm)	Length (mm)	Size code	Ripple Current (120Hz) (+85°C) (mA r.m.s.)	tanδ (120Hz) (+20°C)	Endurance (hours)			Taping (pcs)
6.3	22	5	5.4	C	29	0.52	2000	EEE0JA220NR	(1)	1000
	47	6.3	5.4	D	46	0.52	2000	EEE0JA470NP	(1)	1000
10	10	4	5.4	B	25	0.40	2000	EEE1AA100NR	(1)	2000
	33	6.3	5.4	D	43	0.40	2000	EEE1AA330NP	(1)	1000
16	4.7	4	5.4	B	20	0.32	2000	EEE1CA4R7NR	(1)	2000
	10	5	5.4	C	25	0.32	2000	EEE1CA100NR	(1)	1000
	22	6.3	5.4	D	39	0.32	2000	EEE1CA220NP	(1)	1000
25	3.3	4	5.4	B	12	0.28	2000	EEE1EA3R3NR	(1)	2000
	4.7	5	5.4	C	21	0.28	2000	EEE1EA4R7NR	(1)	1000
	10	6.3	5.4	D	28	0.28	2000	EEE1EA100NP	(1)	1000
35	2.2	4	5.4	B	12	0.24	2000	EEE1VA2R2NR	(1)	2000
	4.7	5	5.4	C	22	0.24	2000	EEE1VA4R7NR	(1)	1000
	10	6.3	5.4	D	30	0.24	2000	EEE1VA100NP	(1)	1000
50	0.22	4	5.4	B	2	0.24	2000	EEE1HAR22NR	(1)	2000
	0.33	4	5.4	B	3	0.24	2000	EEE1HAR33NR	(1)	2000
	0.47	4	5.4	B	5	0.24	2000	EEE1HAR47NR	(1)	2000
	1	4	5.4	B	10	0.24	2000	EEE1HA010NR	(1)	2000
	2.2	5	5.4	C	16	0.24	2000	EEE1HA2R2NR	(1)	1000
	3.3	5	5.4	C	21	0.24	2000	EEENZ1H3R3R	(1)	1000
	4.7	6.3	5.4	D	31	0.24	2000	EEE1HA4R7NP	(1)	1000

Reflow Profile (Fig-1 to Fig-7) listed on the last page of this datasheet.

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■ High temperature Lead-Free reflow Products (Suffix : *A)

W.V. (V)	Cap. (±20%) (µF)	Case size			Specification			Part No. (RoHS:compliant)	Reflow	Min. Packaging
		Dia. (mm)	Length (mm)	Size code	Ripple Current (120Hz) (+85°C) (mA r.m.s.)	tanδ (120Hz) (+20°C)	Endurance (hours)			Q'tv
6.3	22	4	5.4	B	29	0.30	2000	EEE0JA220AR	(5)	2000
	33	4	5.4	B	22	0.35	1000	EEE0JA330WAR	(5)	2000
	47	5	5.4	C	46	0.30	2000	EEE0JA470AR	(5)	1000
		5	5.4	C	47	0.40	1000	EEE0JA101WAR	(5)	1000
	100	6.3	5.4	D	71	0.30	2000	EEE0JA101AP	(5)	1000
		6.3	7.7	D8	188	0.30	2000	EEE0JA331XAP	(5)	900
	330	8	6.2	E	300	0.35	2000	EEE0JA331AP	(7)	1000
		8	10.2	F	380	0.35	1000	EEE0JA471UAP	(5)	500
	1000	10	10.2	G	700	0.35	2000	EEE0JA102AP	(7)	500
1500	10	10.2	G	750	0.50	1000	EEE0JA152UAP	(7)	500	
10	22	4	5.4	B	28	0.30	1000	EEE1AA220WAR	(5)	2000
	33	4	5.4	B	29	0.30	1000	EEE1AA330WAR	(5)	2000
		5	5.4	C	43	0.22	2000	EEE1AA330AR	(5)	1000
	47	5	5.4	C	47	0.30	1000	EEE1AA470WAR	(5)	1000
		5	5.4	C	50	0.30	1000	EEE1AA101WAR	(5)	1000
	100	6.3	5.4	D	70	0.26	2000	EEE1AA101AP	(5)	1000
		6.3	7.7	D8	173	0.22	2000	EEE1AA221XAP	(5)	900
	220	8	6.2	E	250	0.26	2000	EEE1AA221AP	(7)	1000
		8	10.2	F	390	0.26	2000	EEE1AA331AP	(5)	500
	470	8	10.2	F	390	0.26	1000	EEE1AA471UAP	(5)	500
10		10.2	G	400	0.26	2000	EEE1AA471AP	(7)	500	
1000	10	10.2	G	580	0.35	1000	EEE1AA102UAP	(7)	500	
16	10	4	5.4	B	28	0.16	2000	EEE1CA100AR	(5)	2000
	22	4	5.4	B	28	0.26	1000	EEE1CA220WAR	(5)	2000
		5	5.4	C	39	0.16	2000	EEE1CA220AR	(5)	1000
	33	5	5.4	C	35	0.26	1000	EEE1CA330WAR	(5)	1000
		5	5.4	C	39	0.26	1000	EEE1CA470WAR	(5)	1000
	47	6.3	5.4	D	70	0.16	2000	EEE1CA470AP	(5)	1000
		6.3	5.4	D	70	0.26	1000	EEE1CA101WAP	(5)	1000
	100	8	6.2	E	200	0.20	2000	EEE1CA101AP	(7)	1000
		6.3	7.7	D8	162	0.20	2000	EEE1CA221XAP	(5)	900
	220	8	10.2	F	280	0.20	1000	EEE1CA221UAP	(5)	500
		8	10.2	F	320	0.20	1000	EEE1CA331UAP	(5)	500
	330	10	10.2	G	380	0.20	2000	EEE1CA331AP	(7)	500
		8	10.2	F	350	0.26	1000	EEE1CA471UAP	(5)	500
470	10	10.2	G	420	0.20	2000	EEE1CA471AP	(7)	500	
	4.7	4	5.4	B	22	0.14	2000	EEE1EA4R7AR	(5)	2000
25	10	4	5.4	B	22	0.20	1000	EEE1EA100WAR	(5)	2000
		5	5.4	C	28	0.14	2000	EEE1EA100AR	(5)	1000
	22	5	5.4	C	35	0.20	1000	EEE1EA220WAR	(5)	1000
		6.3	5.4	D	55	0.14	2000	EEE1EA220AP	(5)	1000
	33	5	5.4	C	42	0.20	1000	EEE1EA330WAR	(5)	1000
		6.3	5.4	D	65	0.14	2000	EEE1EA330AP	(5)	1000
	47	6.3	5.4	D	70	0.20	1000	EEE1EA470WAP	(5)	1000
		8	6.2	E	91	0.16	1000	EEE1EA101UAP	(7)	1000
	100	6.3	7.7	D8	143	0.16	2000	EEE1EA101XAP	(5)	900
		8	10.2	F	180	0.16	2000	EEE1EA101AP	(5)	500
	220	8	10.2	F	230	0.20	1000	EEE1EA221UAP	(5)	500
		10	10.2	G	310	0.16	2000	EEE1EA221AP	(7)	500
	330	8	10.2	F	270	0.20	1000	EEE1EA331UAP	(5)	500
		10	10.2	G	340	0.16	2000	EEE1EA331AP	(7)	500
	470	10	10.2	G	380	0.25	1000	EEE1EA471UAP	(7)	500

Reflow Profile (Fig-1 to Fig-7) listed on the last page of this datasheet.

Design and specifications are each subject to change without notice.
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 Should a safety concern arise regarding this product, please be sure to contact us immediately.

■ High temperature Lead-Free reflow Products (Suffix : *A)

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No. (RoHS:compliant)	Reflow	Min. Packaging Q'ty
		Dia. (mm)	Length (mm)	Size cude	Ripple Current (120Hz) (+85°C) (mA r.m.s.)	tanδ (120Hz) (+20°C)	Endurance (hours)			Taping (pcs)
35	4.7	4	5.4	B	22	0.12	2000	EEE1VA4R7AR	(5)	2000
	10	4	5.4	B	22	0.16	1000	EEE1VA100WAR	(5)	2000
		5	5.4	C	30	0.12	2000	EEE1VA100AR	(5)	1000
	22	5	5.4	C	36	0.16	1000	EEE1VA220WAR	(5)	1000
		6.3	5.4	D	60	0.12	2000	EEE1VA220AP	(5)	1000
	33	6.3	5.4	D	60	0.16	1000	EEE1VA330WAP	(5)	1000
		8	6.2	E	130	0.14	2000	EEE1VA330AP	(7)	1000
	47	6.3	5.4	D	70	0.16	1000	EEE1VA470WAR	(5)	1000
		8	6.2	E	165	0.14	2000	EEE1VA470AP	(7)	1000
	100	6.3	7.7	D8	132	0.14	2000	EEE1VA101XAP	(5)	900
		8	10.2	F	140	0.14	1000	EEE1VA101UAP	(5)	500
		10	10.2	G	210	0.14	2000	EEE1VA101AP	(7)	500
	220	8	10.2	F	200	0.14	1000	EEE1VA221UAP	(5)	500
		10	10.2	G	310	0.14	2000	EEE1VA221AP	(7)	500
330	10	10.2	G	350	0.30	1000	EEE1VA470UAP	(7)	500	
50	0.1	4	5.4	B	1	0.12	2000	EEE1HAR10AR	(5)	2000
	0.22	4	5.4	B	2	0.12	2000	EEE1HAR22AR	(5)	2000
	0.33	4	5.4	B	3	0.12	2000	EEE1HAR33AR	(5)	2000
	0.47	4	5.4	B	5	0.12	2000	EEE1HAR47AR	(5)	2000
	1	4	5.4	B	10	0.12	2000	EEE1HA1R0AR	(5)	2000
	2.2	4	5.4	B	16	0.12	2000	EEE1HA2R2AR	(5)	2000
	3.3	4	5.4	B	16	0.12	2000	EEE1HA3R3AR	(5)	2000
	4.7	4	5.4	B	18	0.14	1000	EEE1HA4R7WAR	(5)	2000
		5	5.4	C	23	0.12	2000	EEE1HA4R7AR	(5)	1000
	10	5	5.4	C	27	0.14	1000	EEE1HA100WAR	(5)	1000
		6.3	5.4	D	35	0.12	2000	EEE1HA100AP	(5)	1000
	22	6.3	5.4	D	40	0.14	1000	EEE1HA220WAP	(5)	1000
		8	6.2	E	120	0.12	2000	EEE1HA220AP	(7)	1000
	33	8	6.2	E	65	0.12	1000	EEE1HA330UAP	(7)	1000
		6.3	7.7	D8	65	0.14	2000	EEE1HA330XAP	(5)	900
		8	10.2	F	110	0.12	2000	EEE1HA330AP	(5)	500
	47	6.3	7.7	D8	105	0.14	2000	EEE1HA470XAP	(5)	900
		8	10.2	F	110	0.12	1000	EEE1HA470UAP	(5)	500
		10	10.2	G	130	0.12	2000	EEE1HA470AP	(7)	500
	100	8	10.2	F	200	0.18	1000	EEE1HA101UAP	(5)	500
		10	10.2	G	250	0.12	2000	EEE1HA101AP	(7)	500
	220	10	10.2	G	300	0.18	1000	EEE1HA221UAP	(7)	500

Reflow Profile (Fig-1 to Fig-7) listed on the last page of this datasheet.

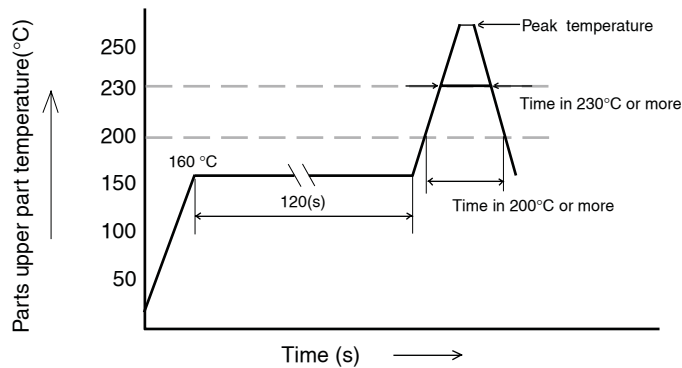
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■ Reflow guaranteed condition

● RoHS compliant



Lead-Free reflow

Reflow No	Fig.(1)	Fig.(2)	Fig.(3)	Fig.(4)
Category	φ 3 to φ 6.3	φ 8 to φ 10	φ 12.5 to φ 18	EB series only (φ 10 to φ 18)
Peak temperature	250°C	235°C	230°C (220°C)	230°C
Time in peak temperature	5s	5s	5s (s)	5s
Time in 200°C or more	60s	60s	20s (30s)	20s
Time of reflow	1 time	1 time	1 time	1 time

High temperature Lead-Free reflow

Reflow No	Fig.(5)	Fig.(6)		Fig.(7)	
		Condition 1	Condition 2	Condition 1	Condition 2
Category	φ 4 to φ 6.3, φ 8x10.2	φ 8x6.2, φ 10x10.2 (E, G)	φ 8x6.2, φ 10x10.2 (E, G)	φ 8x6.2, φ 10x10.2 (E, G)	φ 8x6.2, φ 10x10.2 (E, G)
Peak temperature	260°C	260°C	245°C	260°C	250°C
Time around peak temperature	5s in 255°C or more	5s in 255°C or more	10s in 240°C or more	5s in 255°C or more	10s in 245°C or more
Time in 230°C or more	60s	60s	30s	60s	
Time of reflow	2 times	1 time	2 times	1 time	2 times

● RoHS not compliant

Category	Dia. φ3 to φ 6.3 EEV-, ECEV- Part No.	Dia. φ 8 to φ 10 EEV-, ECEV- Part No.
Reflow condition	<p>Peak temperature/ Time in 200°C or more</p>	<p>Peak temperature/ Time in 200°C or more</p>

- ※ For reflow, use athermal condition system such as infrared radiation(IR) or hot blast.
- ※ Vapor heat transfer systems(VPS) are not recommended.

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