

HXE Series

- High reliability and high voltage are realized by hybrid electrolyte
- Endurance with ripple current : 2,000 to 4,000 hours at 135°C
- Rated voltage range : 16 to 35V_{dc}, Capacitance range : 47 to 470μF
- For high temperature and high reliability applications. (Automotive equipment, Base station equipment, etc.)
- Halogen Free.



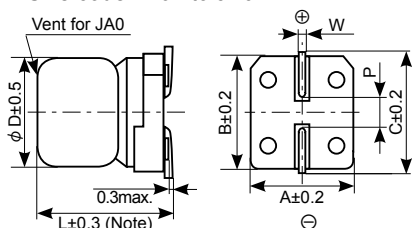
◆ SPECIFICATIONS

Items	Characteristics			
Category				
Temperature Range	-55 to +135°C			
Rated Voltage Range	16 to 35V _{dc}			
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)			
Leakage Current	I=0.01CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 2 minutes)			
Dissipation Factor (tan δ)	Rated voltage (V _{dc})	16V	25V	35V
	tan δ (Max.)	0.16	0.14	0.12
Low Temperature Characteristics (Max. Impedance Ratio)	Z(-25°C) / Z(+20°C) ≤ 1.5 Z(-55°C) / Z(+20°C) ≤ 2.0 (at 100kHz)			
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 4,000 hours (2,000 hours for F61 and F80 size) at 125°C or 135°C.			
	Capacitance change	≤ ±30% of the initial value		
	D.F. (tan δ)	≤ 200% of the initial specified value		
	ESR	≤ 200% of the initial specified value		
	Leakage current	≤ The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 135°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.			
	Capacitance change	≤ ±30% of the initial value		
	D.F. (tan δ)	≤ 200% of the initial specified value		
	ESR	≤ 200% of the initial specified value		
	Leakage current	≤ The initial specified value		
Bias Humidity Test	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjecting them to the DC rated voltage at 85°C, 85% RH for 2,000 hours.			
	Appearance	No significant damage		
	Capacitance change	≤ ±30% of the initial value		
	D.F. (tan δ)	≤ 200% of the initial specified value		
	ESR	≤ 200% of the initial specified value		
	Leakage current	≤ The initial specified value		

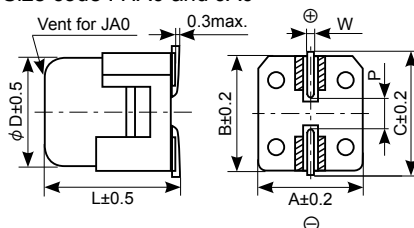
◆ DIMENSIONS [mm]

- Terminal Code : A
- Size code : F61 to JA0

- Terminal Code : G (Vibration resistant structure)
- Size code : HA0 and JA0



Note : L±0.5 for HA0 and JA0



▨ : Dummy terminals

Size Code	φ D	L	A	B	C	W	P
F61	6.3	5.8	6.6	6.6	7.2	0.5 to 0.8	1.9
F80	6.3	7.7	6.6	6.6	7.2	0.5 to 0.8	1.9
HA0	8	10.0	8.3	8.3	9.0	0.7 to 1.1	3.1
JA0	10	10.0	10.3	10.3	11.0	0.7 to 1.1	4.5

◆ MARKING

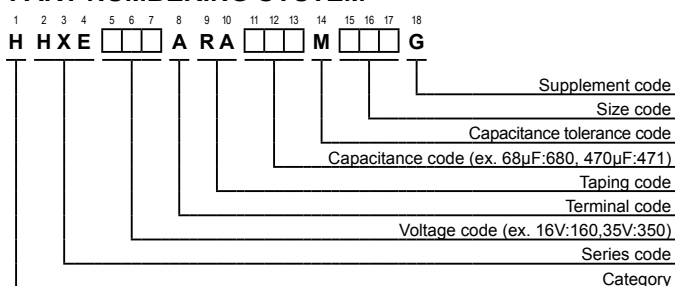
EX) 35V150μF



- Rated voltage symbol

Rated voltage (V _{dc})	Symbol
16	C
25	E
35	V

◆ PART NUMBERING SYSTEM



Product specifications in this bulletin are subject to change without notice. Request our product specifications before purchase and/or use. Please use our products based on the information contained in this bulletin and product specifications. Please contact us for mass production schedule.

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◆ STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Size code	ESR (mΩ max./20°C, 100kHz)	Rated ripple current (mA rms/100kHz)		Part No.
				125°C	135°C	
16	82	F61	45	1,700	950	HHXE160ARA820MF61G
	150	F80	27	2,500	1,450	HHXE160ARA151MF80G
	270	HA0	20	3,050	1,700	HHXE160ARA271MHA0G
	470	JA0	18	3,400	2,100	HHXE160ARA471MJA0G
25	56	F61	50	1,400	900	HHXE250ARA560MF61G
	100	F80	30	2,100	1,400	HHXE250ARA101MF80G
	220	HA0	22	2,900	1,600	HHXE250ARA221MHA0G
	330	JA0	20	3,300	2,000	HHXE250ARA331MJA0G
35	47	F61	60	1,400	900	HHXE350ARA470MF61G
	68	F80	35	2,100	1,400	HHXE350ARA680MF80G
	150	HA0	22	2,900	1,600	HHXE350ARA151MHA0G
	270	JA0	20	3,300	2,000	HHXE350ARA271MJA0G

◆ RECOMMENDED REFLOW SOLDERING CONDITIONS

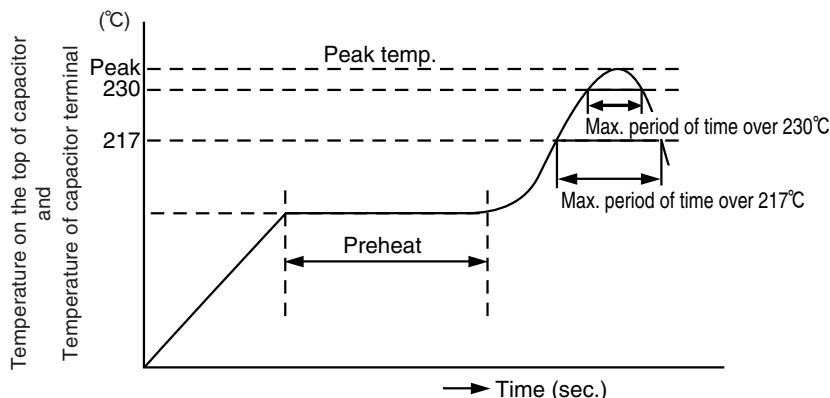
The following conditions are recommended for air convection and infrared reflow soldering on the SMD products on to a glass epoxy circuit boards by cream solder. The dimensions of the glass epoxy boards with resist are 90×50×0.8mm.

The temperatures shown are the surface temperature values on the top of the can and on the capacitor terminals.

Reflow should be performed twice or less.

Please ensure that the capacitor became cold enough to the room temperature (5 to 35°C) before the second reflow.

● Reflow Profile



Size Code	Preheat	Time maintained above 217°C	Time maintained above 230°C	Peak temp.	Reflow number
F61, F80	150 to 180°C 120 sec. max.	50 sec. max.	40 sec. max.	260°C max.	2-cycles allowed
HA0, JA0		50 sec. max.	40 sec. max.	260°C max. 245°C max.	1-cycle only 2-cycles allowed