

Surface Mount Type

Halogen-free FH series

High temperature Lead-Free reflow (except 50 V)



Features

- Endurance : 105 °C 10000 h (ø6x8 : 7000 h, 50 V : 7000 h)
- Long life : 40 % to 100% higher than series FK (suffix G*)
- RoHS compliant
- Not AEC-Q200 compliant

Country of origin

- Malaysia

Specifications

Category temp. range	-55 °C to +105 °C							
Rated voltage range	6.3 V to 50 V							
Capacitance range	10 µF to 680 µF							
Capacitance tolerance	±20 % (120 Hz / +20 °C)							
Leakage current	I ≤ 0.01 CV or 3 (µA) After 2 minutes (Whichever is greater)							
Dissipation factor (tan δ)	Please see the attached characteristics list							
Characteristics at low temperature	Rated voltage (V)	6.3	10	16	25	35	50	(Impedance ratio at 120 Hz)
	Z (-25 °C) / Z (+20 °C)	3	3	2	2	2	2	
	Z (-40 °C) / Z (+20 °C)	4	4	3	3	3	3	
	Z (-55 °C) / Z (+20 °C)	8	8	6	5	4	3	
Endurance	After applying rated working voltage for 10000 hours(ø6 x 8 : 7000 h, 50V : 7000 h) at +105 °C ± 2 °C and then being stabilized at +20 °C, capacitors shall meet the following limits.							
	Capacitance change		Within ±30 % of the initial value (50 V size code F&G : ±35%)					
	Dissipation factor (tan δ)		≤ 300 % of the initial limit (50 V size code F&G : ≤ 350%)					
	Leakage current		Within the initial limit					
Shelf life	After storage for 1000 hours at +105 °C ± 2 °C with no voltage applied and then being stabilized at +20 °C, capacitors shall meet the limits specified in endurance. (With voltage treatment)							
Resistance to soldering heat	After reflow soldering and then being stabilized at +20 °C, capacitors shall meet the following limits.							
	Capacitance change		Within ±10 % of the initial value					
	Dissipation factor (tan δ)		Within the initial limit					
	Leakage current		Within the initial limit					

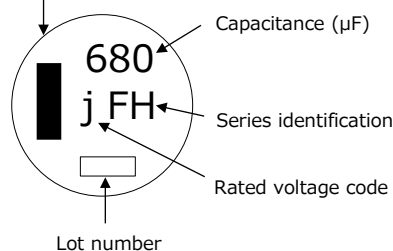
Frequency correction factor for ripple current

Frequency (Hz)	120	1 k	10 k	100 k to
Correction factor	0.65	0.85	0.95	1.00

Marking

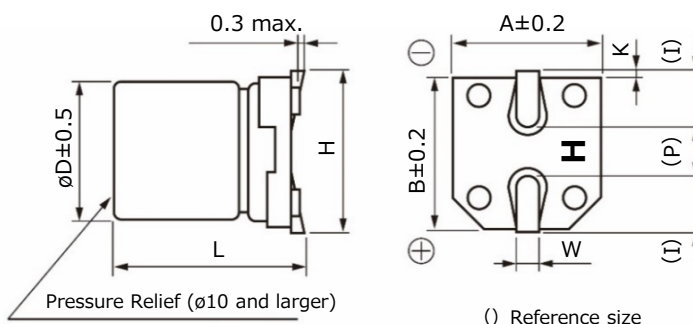
Example : 6.3 V 680 µF
Marking color : BLACK

Negative polarity marking (-)



R.voltage code		Unit : V	
j	6.3	E	25
A	10	V	35
C	16	H	50

Dimensions



Unit : mm								
Size code	øD	L	A, B	H	I	W	P	K
D8	6.3	7.7±0.3	6.6	7.8 max.	2.6	0.65±0.1	1.8	0.35 ^{+0.15} _{-0.20}
F	8.0	10.2±0.3	8.3	10.0 max.	3.4	0.90±0.2	3.1	0.70±0.2
G	10.0	10.2±0.3	10.3	12.0 max.	3.5	0.90±0.2	4.6	0.70±0.2

Characteristics list

Endurance : 105 °C 10000 h (ø6x8 : 7000 h, 50 V : 7000 h)

Rated voltage (V)	Capacitance (±20 %) (μF)	Case size (mm)		Size code	Specification			Part number	Reflow	Min. Packaging Q'ty (pcs)
		øD	L		Ripple current* ¹ (mA rms)	ESR* ² (Ω)	tanδ* ³			Taping
6.3	100	6.3	7.7	D8	300	0.45	0.32	EEEFH0J101XL	(8)	900
	330	8.0	10.2	F	600	0.20	0.32	EEEFH0J331L	(8)	500
	470	8.0	10.2	F	600	0.20	0.32	EEEFH0J471L	(8)	500
	560	8.0	10.2	F	600	0.20	0.32	EEEFH0J561L	(8)	500
	680	10.0	10.2	G	850	0.15	0.32	EEEFH0J681L	(8)	500
10	100	6.3	7.7	D8	300	0.45	0.30	EEEFH1A101XL	(8)	900
	330	8.0	10.2	F	600	0.20	0.30	EEEFH1A331L	(8)	500
	470	8.0	10.2	F	600	0.20	0.30	EEEFH1A471L	(8)	500
	560	8.0	10.2	F	600	0.20	0.30	EEEFH1A561L	(8)	500
	680	10.0	10.2	G	850	0.15	0.30	EEEFH1A681L	(8)	500
16	47	6.3	7.7	D8	300	0.45	0.23	EEEFH1C470XL	(8)	900
	100	6.3	7.7	D8	300	0.45	0.23	EEEFH1C101XL	(8)	900
	220	8.0	10.2	F	600	0.20	0.23	EEEFH1C221L	(8)	500
	330	8.0	10.2	F	600	0.20	0.23	EEEFH1C331L	(8)	500
	390	8.0	10.2	F	600	0.20	0.23	EEEFH1C391L	(8)	500
	470	10.0	10.2	G	850	0.15	0.23	EEEFH1C471L	(8)	500
	680	10.0	10.2	G	850	0.15	0.23	EEEFH1C681L	(8)	500
25	33	6.3	7.7	D8	300	0.45	0.18	EEEFH1E330XL	(8)	900
	47	6.3	7.7	D8	300	0.45	0.18	EEEFH1E470XL	(8)	900
	100	6.3	7.7	D8	300	0.45	0.18	EEEFH1E101XL	(8)	900
	220	8.0	10.2	F	600	0.20	0.18	EEEFH1E221L	(8)	500
	330	8.0	10.2	F	600	0.20	0.18	EEEFH1E331UL	(8)	500
	330	10.0	10.2	G	850	0.15	0.18	EEEFH1E331L	(8)	500
	470	10.0	10.2	G	850	0.15	0.18	EEEFH1E471L	(8)	500
35	10	6.3	7.7	D8	300	0.45	0.16	EEEFH1V100XL	(8)	900
	22	6.3	7.7	D8	300	0.45	0.16	EEEFH1V220XL	(8)	900
	33	6.3	7.7	D8	300	0.45	0.16	EEEFH1V330XL	(8)	900
	47	6.3	7.7	D8	300	0.45	0.16	EEEFH1V470XL	(8)	900
	100	8.0	10.2	F	600	0.20	0.16	EEEFH1V101L	(8)	500
	220	8.0	10.2	F	600	0.20	0.16	EEEFH1V221UL	(8)	500
	220	10.0	10.2	G	850	0.15	0.16	EEEFH1V221L	(8)	500
	330	10.0	10.2	G	850	0.15	0.16	EEEFH1V331L	(8)	500
	390	10.0	10.2	G	850	0.15	0.16	EEEFH1V391L	(8)	500
50	47	8.0	10.2	F	350	0.75	0.14	EEEFH1H470L	(2)	500
	100	10.0	10.2	G	670	0.50	0.14	EEEFH1H101L	(2)	500

*1: Ripple current (100 kHz / +105 °C)

*2: ESR (100 kHz / +20 °C)

*3: tan δ (120 Hz / +20 °C)

• Please refer to the page of "Reflow Profile" and "The Taping Dimensions".