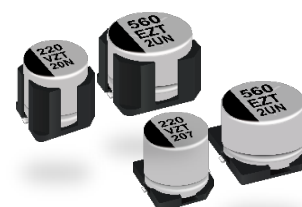


Conductive Polymer Hybrid Aluminum Electrolytic Capacitors

Surface Mount Type

ZTU series

High temperature lead-free reflow



Features

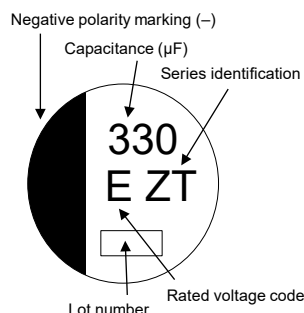
- Endurance: 4000 h at 125 °C / 135 °C
- Higher ripple current (max 180 % of ZC series)
- Larger capacitance (max 170 % of ZT series)
- AEC-Q200 compliant
- RoHS compliant

Specifications

Size code	F	G
Category temp. range	-55 °C to +135 °C	
Rated voltage range	25 V to 35 V	
Nominal cap.range	220 µF to 330 µF	390 µF to 560 µF
Capacitance tolerance	±20 % (120 Hz / +20 °C)	
Leakage current	$I \leq 0.01 CV$ (µA), 2 minutes after reaching rated voltage, 20 °C *CV = (Capacitance in µF) x (Rated voltage in V)	
Dissipation factor (tan δ)	Please see the attached characteristics list	
Surge voltage (V)	Rated voltage × 1.25 (15 °C to 35 °C)	
Endurance 1	+125 °C ± 2 °C, 4000 h, apply the rated ripple current without exceeding the rated voltage	
	Capacitance change	Within ±30% of the initial value
	Dissipation factor (tan δ)	≤ 200 % of the initial limit
	E.S.R.	≤ 200 % of the initial limit
	Leakage current	Within the initial limit
	ESR after endurance (Ω / 100 kHz)(-40 °C)	Size code F: 0.4, G: 0.3
Endurance 2	+135 °C ± 2 °C, 4000 h, apply the rated ripple current without exceeding the rated voltage.	
	Capacitance change	Within ±30% of the initial value
	Dissipation factor (tan δ)	≤ 200 % of the initial limit
	E.S.R.	≤ 200 % of the initial limit
	Leakage current	Within the initial limit
	ESR after endurance (Ω / 100 kHz)(-40 °C)	Size code F: 0.4, G: 0.3
Shelf life	After storage for 1000 hours at +135 °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)	
Damp heat (Load)	85 °C ± 2 °C, 85 % to 90 %RH, 2000 h, rated voltage applied	
	Capacitance change	Within ±30% of the initial value
	Dissipation factor (tan δ)	≤ 200 % of the initial limit
	E.S.R.	≤ 200 % of the initial limit
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

Marking

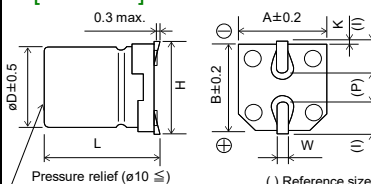
Example : 25 V 330 µF
Marking color : BLACK



R. voltage code	Unit : V
E	25
V	35

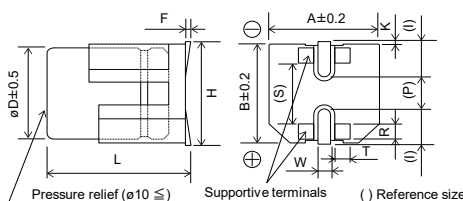
Dimensions (not to scale)

[Standard]



Size code	øD	L	A, B	H max.	I	W	P	K
F	8.0	10.2±0.3	8.3	10.0	3.4	0.90±0.2	3.1	0.70±0.2
G	10.0	10.2±0.3	10.3	12.0	3.5	0.90±0.2	4.6	0.70±0.2

[Vibration-proof product]



Size code	øD	L	A, B	H max.	F	I	W	P	K	R	S	T
F	8.0	10.5±0.3	8.3	10.0	0 to +0.15	3.4	1.2±0.2	3.1	0.70±0.2	0.70±0.2	5.3	1.3±0.2
G	10.0	10.5±0.3	10.3	12.0	0 to +0.15	3.5	1.2±0.2	4.6	0.70±0.2	0.70±0.2	6.9	1.3±0.2

Characteristics list

Endurance 1 : 125 °C 4000 h

Endurance 2 : 135 °C 4000 h

Rated voltage (V)	Capacitance (±20 %) (μF)	Case size (mm)			Size code	Specification				Part number		Min. packaging
		øD	L			Ripple current ^{*1} (mA rms)		ESR ^{*2} (mΩ)	tan δ ^{*3}	Standard product	Vibration-proof product	q'ty (pcs)
			Standard	Vibration -proof								Taping
25	330	8.0	10.2	10.5	F	2900	1800	22	0.14	EEHZT1E331UP	EEHZT1E331UV	500
	560	10.0	10.2	10.5	G	3500	2200	16	0.14	EEHZT1E561UP	EEHZT1E561UV	500
35	220	8.0	10.2	10.5	F	2900	1800	22	0.12	EEHZT1V221UP	EEHZT1V221UV	500
	390	10.0	10.2	10.5	G	3500	2200	16	0.12	EEHZT1V391UP	EEHZT1V391UV	500

*1: Ripple current (100 kHz / +125 °C or +135 °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".

Frequency correction factor for ripple current

Rated capacitance (C)	Frequency (f)			
	$100 \text{ Hz} \leq f < 200 \text{ Hz}$	$200 \text{ Hz} \leq f < 300 \text{ Hz}$	$300 \text{ Hz} \leq f < 500 \text{ Hz}$	$500 \text{ Hz} \leq f < 1 \text{ kHz}$
$150 \mu\text{F} \leq C$	0.15	0.25	0.25	0.30

Rated capacitance (C)	Frequency (f)			
	$1 \text{ kHz} \leq f < 2 \text{ kHz}$	$2 \text{ kHz} \leq f < 3 \text{ kHz}$	$3 \text{ kHz} \leq f < 5 \text{ kHz}$	$5 \text{ kHz} \leq f < 10 \text{ kHz}$
$150 \mu\text{F} \leq C$	0.45	0.50	0.60	0.65

Rated capacitance (C)	Frequency (f)			
	$10 \text{ kHz} \leq f < 15 \text{ kHz}$	$15 \text{ kHz} \leq f < 20 \text{ kHz}$	$20 \text{ kHz} \leq f < 30 \text{ kHz}$	$30 \text{ kHz} \leq f < 40 \text{ kHz}$
$150 \mu\text{F} \leq C$	0.75	0.80	0.85	0.85

Rated capacitance (C)	Frequency (f)			
	$40 \text{ kHz} \leq f < 50 \text{ kHz}$	$50 \text{ kHz} \leq f < 100 \text{ kHz}$	$100 \text{ kHz} \leq f < 500 \text{ kHz}$	$500 \text{ kHz} \leq f < 1000 \text{ kHz}$
$150 \mu\text{F} \leq C$	0.85	0.90	1.00	1.00