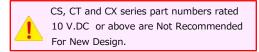


Surface Mount Type

Series: **CS,CT,CX**



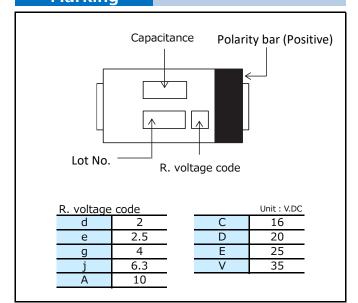


Features

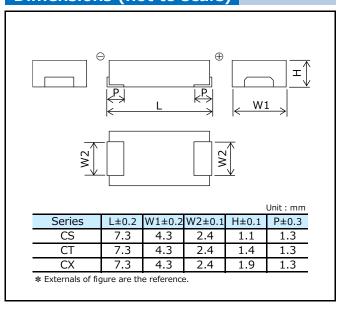
- High voltage (35 V.DC max.)
- Low profile (Height 1.0 mm max.)
- High ripple current (5600 mAr.m.s. max.)
- RoHS compliance, Halogen free

Specifications							
Series	CS	СТ		CX			
Category temp. range	-55 ℃ to +105 ℃						
Rated voltage range	4 V.[DC to 35 V.DC		2 V.DC to 35 V.DC			
Nominal cap. range	10 μF to 120 μF	15 μF to	15 μF to 180 μF		15 μF to 560 μF		
Capacitance tolerance	±20 % (120 Hz / +20 ℃)						
DC leakage current	$I \le 0.1 \text{ CV}(\mu\text{A}) [2 \text{ V.DC to } 6.3 \text{ V.DC}, 2 \text{ min}], I \le 0.3 \text{ CV}(\mu\text{A}) [10 \text{ V.DC to } 35 \text{ V.DC}, 2 \text{ min}]$						
Dissipation factor (tan δ)	≤ 0.06 (120 Hz / + 20 °C)						
Surge voltage (V.DC)	Rated voltage \times 1.25 [2 V.DC to 16 V.DC], \times 1.15 [20 V.DC to 35 V.DC] (15 $^{\circ}$ C to 35 $^{\circ}$ C)						
	$+105~\%~\pm~2~\%$, 2000 h, rated voltage applied						
	Capacitance change Within ±20 % of the initial value						
Endurance	Dissipation factor $(\tan \delta) \le 2$ times of the initial limit						
	DC leakage current	≤ 3 times of the initial limit: 2 V.DC to 6.3 V.DC					
	DC leakage current	Within the initial limit: 10 V.DC to 35 V.DC					
	+60 ℃, 90 %, 500 h, No-applied voltage						
	Capacitance change	2 V.DC to 2.5 V.DC	4 V.DC, 10 V.D0	C to 35 V.DC	6.3 V.DC		
Damp heat	of initial measurd value	+70 %, -20 %	+60 %, -	-20 %	+50 %, -20 %		
(Steady state)	Dissipation factor (tan δ)	$(\tan \delta) \le 2$ times of the initial limit					
	DC loakage current Within the initial limit: 2 V.DC to 6.3 V.DC						
	DC leakage current ≤ 3 times of the initial limit : 10 V.DC to 35 V.DC						

Marking



Dimensions (not to scale)





Characteristics list

■ 2 V.DC to 6.3 V.DC

Reflow*3 <Standard>

	Rated		Case size (mm)		Specification			Min.	
Series	volt. (V.DC)	Cap. (µF)	L	W	I	Ripple current ^{*1} (mAr.m.s.)	ESR ^{*2} (mΩ max.)	Part number	Packaging Q'ty*4 (pcs)
CS	4	120	7.3	4.3	1.1	5100	15	EEFCS0G121R	3500
CS	6.3	68	7.3	4.3	1.1	5100	15	EEFCS0J680R	3500
СТ	4	180	7.3	4.3	1.4	5100	15	EEFCT0G181R	3500
	6.3	100	7.3	4.3	1.4	5100	15	EEFCT0J101R	3500
		220	7.3	4.3	1.9	5100	15	EEFCX0D221R	3500
		270	7.3	4.3	1.9	5600	12	EEFCX0D271XR	3500
		330	7.3	4.3	1.9	5100	15	EEFCX0D331R	3500
	2		7.3	4.3	1.9	5600	12	EEFCX0D331XR	3500
		390	7.3	4.3	1.9	5100	15	EEFCX0D391R	3500
		470	7.3	4.3	1.9	5100	15	EEFCX0D471R	3500
		560	7.3	4.3	1.9	5100	15	EEFCX0D561R	3500
	2.5	220	7.3	4.3	1.9	5100	15	EEFCX0E221R	3500
		330	7.3	4.3	1.9	5100	15	EEFCX0E331R	3500
		390	7.3	4.3	1.9	5100	15	EEFCX0E391R	3500
		470	7.3	4.3	1.9	5100	15	EEFCX0E471R	3500
CX		150	7.3	4.3	1.9	5100	15	EEFCX0G151R	3500
CX		180	7.3	4.3	1.9	5100	15	EEFCX0G181R	3500
		100	7.3	4.3	1.9	5600	12	EEFCX0G181XR	3500
	4	4 220	7.3	4.3	1.9	5100	15	EEFCX0G221R	3500
			7.3	4.3	1.9	5600	12	EEFCX0G221XR	3500
		270	7.3	4.3	1.9	5100	15	EEFCX0G271R	3500
		330	7.3	4.3	1.9	5100	15	EEFCX0G331R	3500
	6.3	100	7.3	4.3	1.9	5100	15	EEFCX0J101R	3500
		120	7.3	4.3	1.9	5100	15	EEFCX0J121R	3500
		150	7.3	4.3	1.9	5100	15	EEFCX0J151R	3500
			7.3	4.3	1.9	5600	12	EEFCX0J151XR	3500
		180	7.3	4.3	1.9	5100	15	EEFCX0J181R	3500
		220	7.3	4.3	1.9	5100	15	EEFCX0J221R	3500

^{*1:} Ripple current (100 kHz / +45 $^{\circ}$ C)

Temperature compensation multipliers for ripple current

Temperature	T ≦ 45 °C	45 °C < T ≦ 85 °C	85 °C < T ≦ 105 °C
2 V.DC to 6.3 V.DC	1.0	0.7	0.25

[•] Ripple current should be controlled so that surface temperature of capacitor does not exceed the category temperature.

^{*2:} ESR (100 kHz / +20 $^{\circ}$ C)

^{*3:} Please refer to the page of "Mounting Specifications".

^{*4:} Please contact us when 500 pcs packing is necessary.

[◆] Please refer to each page in this catarog for "Reflow conditions" and "Taping specifications".

Characteristics list

■ 10 V.DC to 35 V.DC

Not Recommended for New Design

Reflow*3 <Standard>

	Rated		Case size (mm)		Specification			Min.	
Series	volt. (V.DC)	Cap. (µF)	L	W	Н	Ripple current ^{*1} (mAr.m.s.)	ESR ^{*2} (mΩ max.)	Part number	Packaging Q'ty*4 (pcs)
	10	47	7.3	4.3	1.1	3200	40	EEFCS1A470R	3500
	16	15	7.3	4.3	1.1	3200	40	EEFCS1C150R	3500
		22	7.3	4.3	1.1	3200	40	EEFCS1C220R	3500
		33	7.3	4.3	1.1	3200	40	EEFCS1C330R	3500
CS		10	7.3	4.3	1.1	3200	40	EEFCS1D100R	3500
CS	20	15	7.3	4.3	1.1	3200	40	EEFCS1D150R	3500
		22	7.3	4.3	1.1	3200	40	EEFCS1D220R	3500
	25	10	7.3	4.3	1.1	3200	40	EEFCS1E100R	3500
	25	15	7.3	4.3	1.1	3200	40	EEFCS1E150R	3500
	35	10	7.3	4.3	1.1	3200	40	EEFCS1V100R	3500
	10	68	7.3	4.3	1.4	3200	40	EEFCT1A680R	3500
	16	47	7.3	4.3	1.4	3200	40	EEFCT1C470R	3500
СТ	20	33	7.3	4.3	1.4	3200	40	EEFCT1D330R	3500
CI		47	7.3	4.3	1.4	3200	40	EEFCT1D470R	3500
	25	22	7.3	4.3	1.4	3200	40	EEFCT1E220R	3500
	35	15	7.3	4.3	1.4	3200	40	EEFCT1V150R	3500
1		47	7.3	4.3	1.9	3200	40	EEFCX1A470R	3500
	10	68	7.3	4.3	1.9	3200	40	EEFCX1A680R	3500
		100	7.3	4.3	1.9	3200	40	EEFCX1A101R	3500
		15	7.3	4.3	1.9	3200	40	EEFCX1C150R	3500
		22	7.3	4.3	1.9	3200	40	EEFCX1C220R	3500
	16	33	7.3	4.3	1.9	3200	40	EEFCX1C330R	3500
		47	7.3	4.3	1.9	3200	40	EEFCX1C470R	3500
		68	7.3	4.3	1.9	3200	40	EEFCX1C680R	3500
CX	20	22	7.3	4.3	1.9	3200	40	EEFCX1D220R	3500
		33	7.3	4.3	1.9	3200	40	EEFCX1D330R	3500
		47	7.3	4.3	1.9	3200	40	EEFCX1D470R	3500
		56	7.3	4.3	1.9	3200	40	EEFCX1D560R	3500
	25	15	7.3	4.3	1.9	3200	40	EEFCX1E150R	3500
		22	7.3	4.3	1.9	3200	40	EEFCX1E220R	3500
		33	7.3	4.3	1.9	3200	40	EEFCX1E330R	3500
	35	15	7.3	4.3	1.9	3200	40	EEFCX1V150R	3500
3	J.J	22	7.3	4.3	1.9	3200	40	EEFCX1V220R	3500

^{*1:} Ripple current (100 kHz / $+45 \, ^{\circ}$ C)

[♦] Please refer to each page in this catarog for "Reflow conditions" and "Taping specifications".

Temperature compensation multipliers for ripple current							
Temperature	T ≦ 45 °C	45 °C < T ≦ 85 °C	85 °C < T ≦ 105 °C				
10 V.DC to 35 V.DC	1.0	0.8	0.5				

[•] Ripple current should be controlled so that surface temperature of capacitor does not exceed the category temperature.

^{*2:} ESR (100 kHz / +20 ℃)

^{*3:} Please refer to the page of "Mounting Specifications".

^{*4:} Please contact us when 500 pcs packing is necessary.



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