

## HSC LOW LEAKAGE CURRENT ELECTROLYTIC CAPACITOR

Low leakage current (0.5~3.3 $\mu$ A max.)

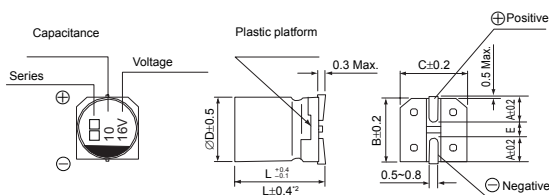
Low cost for replacement of some tantalum applications

RoHS & REACH compliant, Halogen-free

### SPECIFICATIONS

Items	Characteristics							
Operation Temperature Range	-40 ~ +85°C							
Voltage Range	6.3 ~ 50V							
Capacitance Range	0.1 ~ 220 $\mu$ F							
Capacitance Tolerance	$\pm$ 20% at 120Hz, 20°C							
Leakage Current	Leakage current $\leq$ 0.002CV or 0.5 $\mu$ A, whichever is greater (after 2 minutes application of rated voltage at 20°C) C: Nominal capacitance ( $\mu$ F) V: Rated voltage (V)							
Surge Voltage & Dissipation Factor (tan $\delta$ )	Measurement frequency : 120Hz, Temperature : 20°C							
	Rated Voltage (V)	6.3	10	16	25	35	50	
	Surge voltage	8.0	13	20	32	44	63	
	tan $\delta$ (max.)	0.24	0.20	0.16	0.14	0.12	0.10	
Stability at Low Temperature	Measurement frequency : 120Hz							
	Rated Voltage (V)	6.3		10	16, 25		35, 50	
	Impedance Ratio ZT/Z20 (max.)	Z(-25°C) / Z(20°C)		4	3	2		2
		Z(-40°C) / Z(20°C)		8	6	4		3
Load Life	After 2000 hours application of the rated voltage at 85°C, they meet the characteristics listed below.							
	Capacitance Change	Within $\pm$ 25% of initial value						
	Dissipation Factor	200% or less of initial specified value						
	Leakage Current	initial specified value or less						
Resistance to Soldering Heat	After reflow soldering and restored at room temperature, they meet the characteristics listed below.							
	Capacitance Change	Within $\pm$ 10% of initial value						
	Dissipation Factor	initial specified value or less						
	Leakage Current	initial specified value or less						
Marking	Black print on the case top.							

### DRAWING (Unit: mm)



- \*1. Voltage mark for 6.3V is [6V]  
 \*2. Applicable to  $\varnothing$ 6.3x7.7

### DIMENSIONS (Unit: mm)

$\varnothing$ D x L	4 x 5.4	5 x 5.4	6.3 x 5.4	6.3 x 7.7
A	2.0	2.2	2.6	2.6
B	4.3	5.3	6.6	6.6
C	4.3	5.3	6.6	6.6
E $\pm$ 0.2	1.0	1.4	1.9	1.9
L	5.4	5.4	5.4	7.7

**DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & ESR**

WV Parameter μF		6.3			10			16		
		Case size ∅D×L (mm)	E.S.R. (Ω) 20°C, 120Hz	Ripple current (mA rms) at 85°C, 120Hz	Case size ∅D×L (mm)	E.S.R. (Ω) 20°C, 120Hz	Ripple current (mA rms) at 85°C, 120Hz	Case size ∅D×L (mm)	E.S.R. (Ω) 20°C, 120Hz	Ripple current (mA rms) at 85°C, 120Hz
10	106						4 × 5.4	34.5	25	
22	226	4 × 5.4	23.5	31	5 × 5.4	19.6	35	5 × 5.4	15.7	39
33	336	5 × 5.4	15.7	39	5 × 5.4	13.1	43	6.3 × 5.4	10.5	57
47	476	5 × 5.4	11.0	47	6.3 × 5.4	9.2	59	6.3 × 5.4	7.3	68
100	107	6.3 × 5.4	5.2	75	6.3 × 5.4	4.3	76	6.3 × 7.7	3.5	96
220	227	6.3 × 7.7	2.4	85						

WV Parameter μF		25			35			50		
		Case size ∅D×L (mm)	E.S.R. (Ω) 20°C, 120Hz	Ripple current (mA rms) at 85°C, 120Hz	Case size ∅D×L (mm)	E.S.R. (Ω) 20°C, 120Hz	Ripple current (mA rms) at 85°C, 120Hz	Case size ∅D×L (mm)	E.S.R. (Ω) 20°C, 120Hz	Ripple current (mA rms) at 85°C, 120Hz
0.1	104						4 × 5.4	2156	1.0	
0.22	224						4 × 5.4	980	2.3	
0.33	334						4 × 5.4	653	3.5	
0.47	474						4 × 5.4	459	5	
1	105						4 × 5.4	216	10	
2.2	225						4 × 5.4	98	15	
3.3	335						4 × 5.4	65	18	
4.7	475	4 × 5.4	64.2	19	4 × 5.4	55.1	20	5 × 5.4	46	23
10	106	5 × 5.4	30.2	28	5 × 5.4	25.9	30	6.3 × 5.4	22	34
22	226	6.3 × 5.4	13.7	52	6.3 × 5.4	11.8	54	6.3 × 7.7	9.8	85
33	336	6.3 × 5.4	9.1	63	6.3 × 7.7	7.8	105			
47	476	6.3 × 7.7	6.4	100	6.3 × 7.7	5.5	110			

**FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT**

Frequency	~50Hz	120Hz	300Hz	1KHz	10KHz~
Coefficient	0.70	1.00	1.17	1.36	1.50

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5~10°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

**◆ How to order**

<b>HSC</b>	<b>106</b>	<b>M</b>	<b>0035</b>	<b>0405</b>	<b>R</b>	<b>-</b>
↓	↓	↓	↓	↓	↓	↓
<u>Type</u>	<u>Capacitance code</u>	<u>Tolerance</u>	<u>Rated Voltage</u>	<u>Size Code</u>	<u>Package</u>	<u>Additional characters may be added for special requirements</u>
HSC	pF Code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) 106 = 10uF 107 = 100uF	M: +/-20%	Code 0035: 35VDC For DC Voltage 0006: 6.3VDC 0035: 35VDC 0050: 50VDC	Code 0405: Size 4x5.4mm Size for V-chip E-cap 0405: Size 4x5.4mm 0605: Size 6.3x5.4mm 0607: Size 6.3x7.7mm	R: Tape & Reel	