

## FEATURES

- Directly mountable on printed circuit board without holders.
- Terminal spacing fixed at 10mm for PC board plug in.
- Aluminum case designed with explosion-proof vent.
- Load life: 10,000 hours.



## SPECIFICATIONS

Item	Performance Characteristics		
Operating Temperature Range	-25 to +85°C		
Rated Working Voltage Range	200 to 450V		
Nominal Capacitance Range	56 to 2200µF		
Capacitance Tolerance	±20% at 120Hz, +20°C		
Leakage Current	$I \leq 3\sqrt{CV}$ (µA) after 5 minutes application of rated working voltage at +20°C		
tan δ (120Hz, +20°C)	Working Voltage (V)	200~250	400~450
	tan δ (max.)	0.15	0.15
Low Temperature Characteristics	Impedance ratio max. at 120Hz		
	Working Voltage (V)	200~250	400~450
	Z-25°C / Z+20°C	3	8
High Temperature Loading	Test time	: 10,000 hours	Post test requirements at +20°C
	Test temperature	: +85°C	Leakage current : ≤Initial specified value
	Test conditions	: Rated DC working voltage with rated ripple current	Cap. change : within ±30% of the initial measured value
			tan δ : ≤300% of the initial specified value
Shelf Life	At +85°C no voltage applied after 1,000 hours and then being stabilized at +20°C the capacitors shall meet the following limits		
	Leakage current	: ≤Initial specified value	
	Cap. change	: within ±15% of the initial measured value	
	tan δ	: ≤150% of the initial specified value	
Industrial Standard	JIS C - 5101-4 (IEC 60384-4)		

## RIPPLE CURRENT MULTIPLIER

### Frequency Coefficient

Coefficient	Freq. (Hz)	Rated Voltage			
		60	120	1k	10k~50k
Rated Voltage	200~250V	0.80	1.00	1.15	1.47
	400~450V	0.80	1.00	1.15	1.47

## PART NUMBER SYSTEM (EXAMPLE : 200V 470µF)

1	2 3	4 5 6	7	8 9	10	11 12	13 14
E	TP	477	M	2D	O	30	SW

Type (Terminal Code)  
 Case Length (30mm)  
 Diameter (25mm)  
 Voltage (200V)  
 Tolerance (±20%)  
 Capacitance (470µF)  
 Series  
 E-CAP

## STANDARD RATINGS

Voltage (Code)		200V (2D)		250V (2E)		400V (2G)		450V (2W)	
Cap. (µF)	Code	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
56	566							20 x 25	0.58
68	686					20 x 25	0.71	20 x 30	0.67
								22 x 25	0.68
82	826					20 x 30	0.78	20 x 35	0.76
						22 x 25	0.80	22 x 30	0.82
100	107					20 x 30	0.90	20 x 35	0.84
						22 x 30	0.94	22 x 35	0.90
120	127					20 x 35	1.02	20 x 40	0.94
						22 x 30	1.04	22 x 35	1.02
						25 x 25	1.08	25 x 30	1.04
150	157					20 x 40	1.16	22 x 40	1.12
						22 x 35	1.18	25 x 35	1.19
180	187			20 x 25	1.14	25 x 30	1.21	30 x 30	1.23
						22 x 40	1.34	22 x 50	1.26
						25 x 35	1.37	25 x 40	1.33
220	227	20 x 25	1.13	20 x 30	1.20	30 x 25	1.45	30 x 30	1.38
				22 x 25	1.18	22 x 45	1.50	25 x 45	1.51
						25 x 35	1.56	30 x 35	1.56
270	277	20 x 30	1.32	20 x 30	1.35	30 x 30	1.58	35 x 30	1.58
		22 x 25	1.30	22 x 30	1.43	25 x 40	1.70	25 x 50	1.65
330	337			20 x 35	1.60	30 x 35	1.73	35 x 35	1.81
				22 x 30	1.58	25 x 50	1.90	30 x 45	2.02
				25 x 25	1.53	30 x 40	1.95	30 x 45	2.02
390	397	20 x 35	1.66	20 x 40	1.83	35 x 30	1.95	35 x 35	2.05
		22 x 30	1.65	22 x 35	1.79	30 x 40	2.15	30 x 50	2.24
		25 x 25	1.63	25 x 30	1.79	35 x 35	2.17	35 x 40	2.27
470	477	20 x 40	1.93	22 x 40	2.05	30 x 50	2.39		
		22 x 35	1.88	25 x 35	2.05	35 x 40	2.42	35 x 45	2.55
		25 x 30	1.86	30 x 25	1.94				
560	567	22 x 40	2.08	22 x 45	2.36				
		25 x 30	2.05	25 x 35	2.24	35 x 45	2.71		
		30 x 25	2.05	30 x 30	2.24				
680	687	22 x 45	2.36	25 x 40	2.54				
		25 x 35	2.36	30 x 35	2.58	35 x 50	2.95		
820	827	30 x 30	2.36						
		22 x 50	2.68	25 x 50	2.87				
		25 x 40	2.66	30 x 35	2.84				
1000	108	30 x 30	2.62	35 x 30	2.82				
		25 x 45	3.12	30 x 45	3.39				
		30 x 35	3.00						
1200	128	35 x 30	2.96	35 x 35	3.31				
		25 x 50	3.44	30 x 50	3.80				
		30 x 40	3.44	35 x 40	3.66				
1500	158	35 x 35	3.40						
		30 x 50	3.93	35 x 45	4.12				
1800	188	35 x 40	3.87						
		35 x 45	4.37	35 x 50	4.31				
2200	228	35 x 50	5.00						

Maximum Allowable Ripple Current (Arms) at 85°C 120Hz

Case Size  $\Phi D \times L$  (mm)

Specifications are subject to change without notice. Should a safety or technical concern arise regarding the product, please be sure to contact our sales offices or agents immediately.