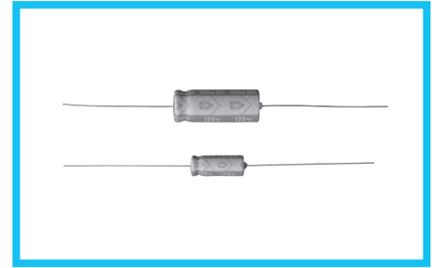


## TBE (02type)

High Temperature Range, For -40 to +125°C Use

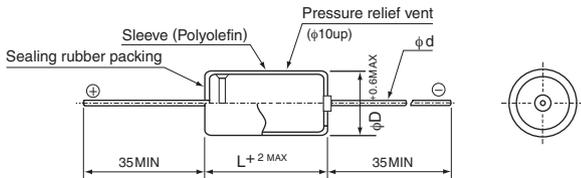
- Highly dependable reliability withstanding load life of 2000 hours at 125°C.
- Suited for automobile electronics, space equipment and communication appliances, where heavy duty services and indispensable.
- Compliant to the RoHS directive (2011/65/EU).



### Specifications

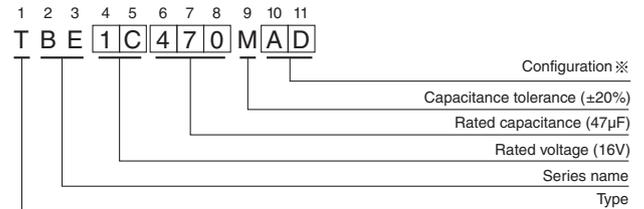
Item	Performance Characteristics																			
Category Temperature Range	-40 to +125°C																			
Rated Voltage Range	10 to 50V																			
Rated Capacitance Range	0.47 to 470μF																			
Capacitance Tolerance	±20% at 120Hz, 20°C																			
Leakage Current	After 5 minutes' application of rated voltage at 20°C, leakage current is not more than 0.002CV or 2 (μA), whichever is greater.																			
Tangent of loss angle (tan δ)	Measurement frequency : 120Hz at 20°C																			
	<table border="1"> <tr> <td>Rated voltage (V)</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.15</td> <td>0.12</td> <td>0.10</td> <td>0.10</td> <td>0.08</td> </tr> </table>	Rated voltage (V)	10	16	25	35	50	tan δ (MAX.)	0.15	0.12	0.10	0.10	0.08							
Rated voltage (V)	10	16	25	35	50															
tan δ (MAX.)	0.15	0.12	0.10	0.10	0.08															
Stability at Low Temperature	Measurement frequency : 120Hz																			
	<table border="1"> <tr> <td colspan="2">Rated voltage (V)</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td rowspan="2">Impedance ratio ZT / Z20 (MAX.)</td> <td>Z-25°C / Z+20°C</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C / Z+20°C</td> <td>6</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> </table>	Rated voltage (V)		10	16	25	35	50	Impedance ratio ZT / Z20 (MAX.)	Z-25°C / Z+20°C	3	2	2	2	2	Z-40°C / Z+20°C	6	4	4	4
Rated voltage (V)		10	16	25	35	50														
Impedance ratio ZT / Z20 (MAX.)	Z-25°C / Z+20°C	3	2	2	2	2														
	Z-40°C / Z+20°C	6	4	4	4	4														
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 125°C.																			
	Capacitance change	Within ±20% of the initial capacitance value																		
	tan δ	200% or less than the initial specified value																		
Shelf Life	After storing the capacitors under no load at 125°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above.																			
		Leakage current	Less than or equal to the initial specified value																	
Marking	Printed with white color letter on blue sleeve.																			

### Axial Lead Type



	(mm)	
φD	6.3 to 13	16
φd	0.6	0.8

### Type numbering system (Example : 16V 47μF)



※ Configuration

φ D	Pb-free leadwire Pb-free Polyolefin sleeve
6.3 · 8	AD
10 to 16	CD

### Dimensions

Cap.(μF)	Code	V				
		10	16	25	35	50
0.47	R47	1A	1C	1E	1V	1H
1	010					6.3 × 16
2.2	2R2					6.3 × 16
3.3	3R3					6.3 × 16
4.7	4R7					6.3 × 16
10	100				6.3 × 16	6.3 × 16
22	220			6.3 × 16	8 × 16	8 × 20
33	330	6.3 × 16	8 × 16	8 × 20	8 × 20	10 × 21
47	470	6.3 × 16	8 × 16	8 × 20	10 × 21	10 × 26
100	101	8 × 20	10 × 21	10 × 21	10 × 26	13 × 26
220	221	10 × 21	10 × 26	13 × 26	13 × 31.5	16 × 31.5
330	331	13 × 26	13 × 26	13 × 31.5	16 × 31.5	
470	471	13 × 31.5	13 × 31.5	16 × 31.5		

Please refer to page 22 about the formed or taped product spec.  
Please refer to page 4 for the minimum order quantity.