

## HBO Series

### Features

- 125°C, 4,000 hours assured
- Low ESR and High ripple current
- RoHS compliance
- AEC-Q200 qualified

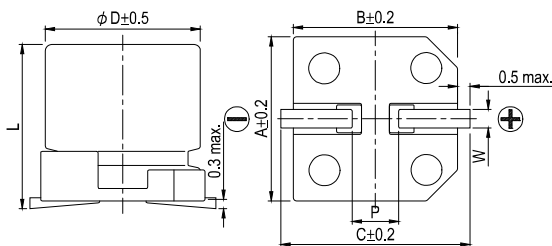


Marking color: Dark Green

### Specifications

Items	Performance				
Category Temperature Range	-55°C ~ +125°C				
Capacitance Tolerance	±20%			(at 120 Hz, 20°C)	
Leakage Current (at 20°C)	I = 0.01CV or 3 (μA) whichever is greater (after 2 minutes) Where, C = rated capacitance in μF, V = rated DC working voltage in V				
Tanδ (at 120 Hz, 20°C)	See Standard Ratings				
Low Temperature Characteristics (at 100k Hz)	Impedance ratio shall not exceed the values given in the table below				
	Rated Voltage		25	35	
	Impedance ratio	Z (-25°C) / Z (+20°C)	1.5	1.5	
		Z (-55°C) / Z (+20°C)	2.0	2.0	
Endurance	Test Time	4,000 Hrs			
	Capacitance Change	Within ±30% of initial value			
	Tanδ	Less than 200% of specified value			
	ESR	Less than 200% of specified value			
	Leakage Current	Within specified value			
	* The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied with rated ripple current for 4,000 hours at 125°C.				
Shelf Life Test	* After storage for 1,000 hours at 125 ± 2°C with no voltage applied and then being stabilized at 20°C, capacitors shall meet the limits specified in Endurance. (With voltage treatment)				
Resistance to Soldering Heat (Please refer to page 15 for reflowsoldering conditions)	Capacitance Change	Within ±10% of initial value			
	Tanδ	Within specified value			
	ESR	Within specified value			
	Leakage Current	Within specified value			
Ripple Current and Frequency Multipliers	Frequency (Hz)	120 ≤ f < 1k	1k ≤ f < 10k	10k ≤ f < 100k	100k ≤ f < 500k
	Multiplier	0.1	0.3	0.6	1.0

### Diagram of Dimensions



### Lead Spacing and Diameter

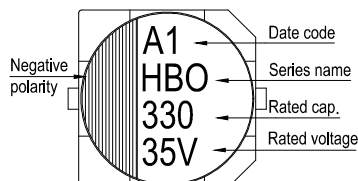
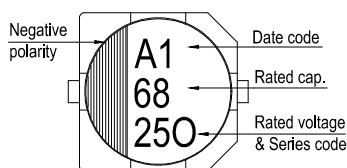
Unit: mm

φ D	L	A	B	C	W	P ± 0.2
6.3	5.8 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
6.3	7.7 ± 0.3	6.6	6.6	7.2	0.5 ~ 0.8	2.0
8	10.0 ± 0.5	8.3	8.3	9.0	0.7 ~ 1.1	3.1
10	10.0 ± 0.5	10.3	10.3	11.0	0.7 ~ 1.3	4.7

### Marking

φ D = 6.3

φ D = 8 ~ 10





Dimension:  $\phi D \times L$  (mm)

Ripple Current: mA/rms at 100k Hz, 125°C

## Standard Ratings

Rated Voltage (V)	Surge Voltage (V)	Capacitance ( $\mu F$ )	Size $\phi D \times L$ (mm)	Tan $\delta$ (120 Hz, 20°C)	L C ( $\mu A$ )	E S R (m $\Omega$ /at 100kHz, 20°C max.)	Rated R. C. (mA/rms at 100k Hz, 125°C)
25V (1E)	28.8	68	6.3 $\times$ 5.8	0.14	17.0	50	1,300
		82	6.3 $\times$ 5.8		20.5	50	1,300
		150	6.3 $\times$ 7.7		37.5	30	1,800
		270	8 $\times$ 10		67.5	27	2,000
		470	10 $\times$ 10		117	20	2,800
35V (1V)	40.3	56	6.3 $\times$ 5.8	0.12	19.6	60	1,200
		100	6.3 $\times$ 7.7		35.0	35	1,700
		180	8 $\times$ 10		63.0	27	2,000
		330	10 $\times$ 10		115	20	2,800

## Part Numbering System

HBO Series	270 $\mu F$	$\pm 20\%$	25V	Carrier Tape		8 $\phi \times 10L$	Pb-free and Coated Case
<b>HBO</b>	<b>271</b>	<b>M</b>	<b>1E</b>	<b>TR</b>	-	<b>0810</b>	
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Package Type	Terminal Type	Case Size	Lead Wire and Case Type

Note: For more details, please refer to "Part Numbering System" on page 87.