

**TS-ED Series 105°C, 3000 hours**

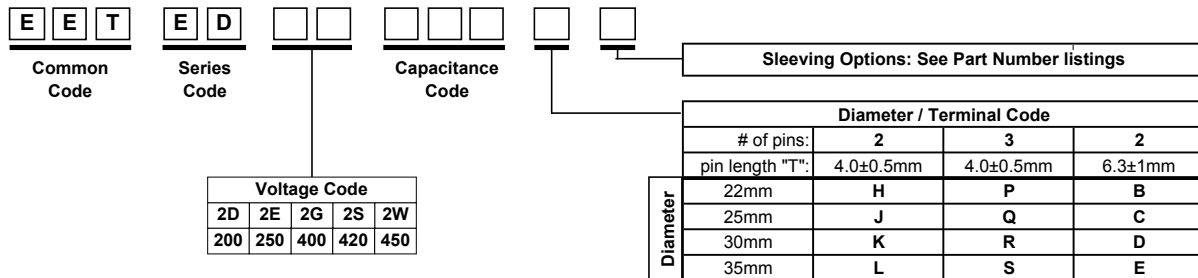
- High ripple current capability for demanding inverter applications
- 2 and 3 pin versions available
- RoHS compliant PVC and RoHS compliant PET sleeve options



Rated Working Voltage:	200 ~ 250 VDC	400 ~ 450 VDC																																						
Operating Temperature:	-40 ~ +105°C	-25 ~ +105°C																																						
Nominal Capacitance:	220~2200 µF	56 ~ 560µF																																						
Capacitance Tolerance:	± 20%																																							
Dissipation Factor: (120 Hz, +20°C)	15% max.																																							
Leakage Current:	3√CV (µA) max. after 5 minutes; C = Capacitance in µF, V = WV																																							
Ripple Current Multipliers:	<table border="1"> <tr> <td>Frequency(Hz):</td> <td>50</td> <td>60</td> <td>100~120</td> <td>500</td> <td>1k</td> <td>10k</td> </tr> <tr> <td>16~100WV:</td> <td>0.93</td> <td>0.95</td> <td>1.0</td> <td>1.05</td> <td>1.08</td> <td>1.15</td> </tr> <tr> <td>160~450WV:</td> <td>0.75</td> <td>0.8</td> <td>1.0</td> <td>1.2</td> <td>1.25</td> <td>1.4</td> </tr> </table>	Frequency(Hz):	50	60	100~120	500	1k	10k	16~100WV:	0.93	0.95	1.0	1.05	1.08	1.15	160~450WV:	0.75	0.8	1.0	1.2	1.25	1.4	<table border="1"> <tr> <td colspan="5">Ripple Current Ambient Temperature Factors*</td> </tr> <tr> <td>Temperature (°C):</td> <td>105°C</td> <td>85°C</td> <td>70°C</td> <td>60°C</td> <td>≤45°C</td> </tr> <tr> <td>Multiplier:</td> <td>1.0</td> <td>1.7</td> <td>2.0</td> <td>2.2</td> <td>2.35</td> </tr> </table>	Ripple Current Ambient Temperature Factors*					Temperature (°C):	105°C	85°C	70°C	60°C	≤45°C	Multiplier:	1.0	1.7	2.0	2.2	2.35
Frequency(Hz):	50	60	100~120	500	1k	10k																																		
16~100WV:	0.93	0.95	1.0	1.05	1.08	1.15																																		
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Multiplier:	1.0	1.7	2.0	2.2	2.35																																			
Endurance:	3000 hours at +105°C with maximum specified ripple current (see page4)																																							

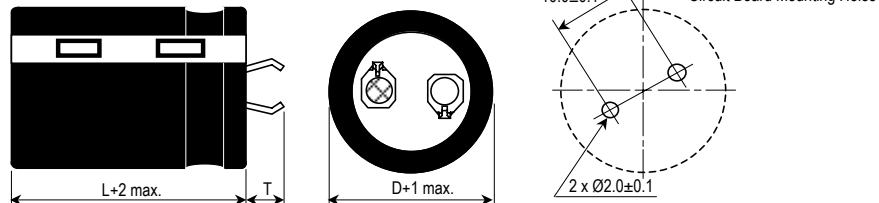
\*Use of temperature ripple current multipliers may limit life to the hours specified for the maximum operating temperature.

**Part Number System**

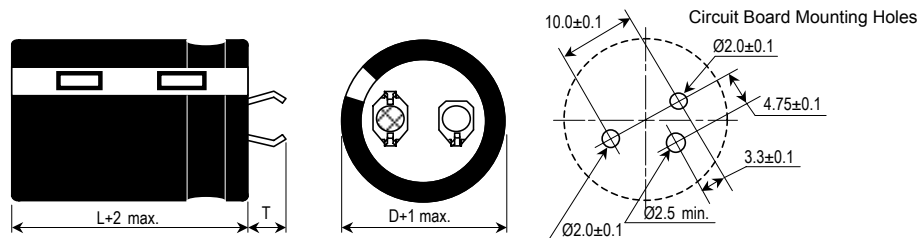


**Dimensions in millimeters**

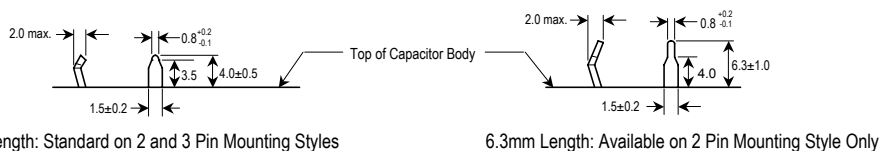
2 Pin Mounting Style



3 Pin Mounting Style



Pin Dimensions



4mm Length: Standard on 2 and 3 Pin Mounting Styles

6.3mm Length: Available on 2 Pin Mounting Style Only

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Contact the factory or your sales representative for technical specifications before purchase and/or use. When safety concerns arise, please contact Panasonic immediately for technical consultation.

## TS-ED Standard Ratings

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. ( $\mu$ F)	Size (mm) D x L	Max 105°C R.C. ( $A_{rms}$ )		20°C ESR ( $\Omega$ , max.)		Panasonic Part Number (By Sleeve Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
<b>200 VDC Working, 250 VDC Surge</b>							
270	22 x 25	1.42	2.03	0.553	0.249	EETED2D271HA	EETED2D271HJ
330	22 x 30	1.56	2.23	0.452	0.203	EETED2D331HA	EETED2D331HJ
390	22 x 30	1.71	2.44	0.383	0.172	EETED2D391HA	EETED2D391HJ
	25 x 25	1.71	2.44	0.383	0.172	EETED2D391JA	EETED2D391JJ
470	22 x 35	1.85	2.64	0.317	0.143	EETED2D471HA	EETED2D471HJ
	25 x 30	1.85	2.64	0.317	0.143	EETED2D471JA	EETED2D471JJ
560	22 x 40	2.14	3.05	0.266	0.120	EETED2D561HA	EETED2D561HJ
	25 x 30	2.14	3.05	0.266	0.120	EETED2D561JA	EETED2D561JJ
	30 x 25	2.14	3.05	0.266	0.120	EETED2D561KA	EETED2D561KJ
680	22 x 45	2.42	3.45	0.219	0.099	EETED2D681HA	EETED2D681HJ
	25 x 35	2.42	3.45	0.219	0.099	EETED2D681JA	EETED2D681JJ
	30 x 30	2.42	3.45	0.219	0.099	EETED2D681KA	EETED2D681KJ
820	22 x 50	2.63	3.76	0.182	0.082	EETED2D821HA	EETED2D821HJ
	25 x 40	2.63	3.76	0.182	0.082	EETED2D821JA	EETED2D821JJ
	30 x 30	2.63	3.76	0.182	0.082	EETED2D821KA	EETED2D821KJ
	35 x 25	2.63	3.76	0.182	0.091	EETED2D821LA	EETED2D821LJ
1000	25 x 45	2.84	4.06	0.149	0.067	EETED2D102JA	EETED2D102JJ
	30 x 35	2.84	4.06	0.149	0.067	EETED2D102KA	EETED2D102KJ
	35 x 30	2.84	4.06	0.149	0.067	EETED2D102LA	EETED2D102LJ
1200	30 x 40	3.13	4.47	0.124	0.062	EETED2D122KA	EETED2D122KJ
	35 x 35	3.13	4.47	0.124	0.062	EETED2D122LA	EETED2D122LJ
1500	30 x 50	3.56	5.08	0.099	0.050	EETED2D152KA	EETED2D152KJ
	35 x 40	3.56	5.08	0.099	0.050	EETED2D152LA	EETED2D152LJ
1800	35 x 45	3.84	5.48	0.083	0.041	EETED2D182LA	EETED2D182LJ
2200	35 x 50	4.12	5.89	0.068	0.033	EETED2D222LA	EETED2D222LJ
<b>250 VDC Working, 300 VDC Surge</b>							
220	22 x 30	1.28	1.83	0.678	0.305	EETED2E221HA	EETED2E221HJ
270	22 x 30	1.42	2.03	0.553	0.249	EETED2E271HA	EETED2E271HJ
	25 x 25	1.42	2.03	0.553	0.249	EETED2E271JA	EETED2E271JJ
330	22 x 35	1.64	2.34	0.452	0.203	EETED2E331HA	EETED2E331HJ
	25 x 30	1.56	2.23	0.452	0.203	EETED2E331JA	EETED2E331JJ
390	22 x 40	1.72	2.45	0.383	0.172	EETED2E391HA	EETED2E391HJ
	25 x 30	1.71	2.44	0.383	0.172	EETED2E391JA	EETED2E391JJ
	30 x 25	1.71	2.44	0.383	0.172	EETED2E391KA	EETED2E391KJ
470	22 x 45	1.85	2.64	0.317	0.143	EETED2E471HA	EETED2E471HJ
	25 x 35	1.85	2.64	0.317	0.143	EETED2E471JA	EETED2E471JJ
	30 x 30	1.85	2.64	0.317	0.143	EETED2E471KA	EETED2E471KJ
560	25 x 40	2.14	3.05	0.266	0.120	EETED2E561JA	EETED2E561JJ
	30 x 30	2.14	3.05	0.266	0.120	EETED2E561KA	EETED2E561KJ
	35 x 25	2.14	3.05	0.266	0.133	EETED2E561LA	EETED2E561LJ
680	25 x 45	2.42	3.45	0.219	0.099	EETED2E681JA	EETED2E681JJ
	30 x 35	2.42	3.45	0.219	0.099	EETED2E681KA	EETED2E681KJ
	35 x 30	2.42	3.45	0.219	0.110	EETED2E681LA	EETED2E681LJ
820	30 x 40	2.63	3.76	0.182	0.082	EETED2E821KA	EETED2E821KJ
	35 x 35	2.63	3.76	0.182	0.091	EETED2E821LA	EETED2E821LJ
1000	30 x 50	2.84	4.06	0.149	0.067	EETED2E102KA	EETED2E102KJ
	35 x 40	2.84	4.06	0.149	0.067	EETED2E102LA	EETED2E102LJ
1200	35 x 45	3.13	4.47	0.124	0.062	EETED2E122LA	EETED2E122LJ
1500	35 x 50	3.56	5.08	0.099	0.050	EETED2E152LA	EETED2E152LJ
<b>400 VDC Working, 450 VDC Surge</b>							
82	22 x 25	0.80	1.14	1.617	0.728	EETED2G820HA	EETED2G820HJ
100	22 x 30	0.91	1.30	1.326	0.597	EETED2G101HA	EETED2G101HJ
	25 x 25	0.91	1.30	1.326	0.597	EETED2G101JA	EETED2G101JJ
120	22 x 35	1.02	1.46	1.105	0.497	EETED2G121HA	EETED2G121HJ
	25 x 30	1.02	1.46	1.105	0.497	EETED2G121JA	EETED2G121JJ
150	22 x 40	1.07	1.53	0.884	0.398	EETED2G151HA	EETED2G151HJ
	25 x 30	1.07	1.53	0.884	0.398	EETED2G151JA	EETED2G151JJ
	30 x 25	1.07	1.53	0.884	0.398	EETED2G151KA	EETED2G151KJ
180	22 x 45	1.12	1.60	0.737	0.332	EETED2G181HA	EETED2G181HJ
	25 x 35	1.12	1.60	0.737	0.332	EETED2G181JA	EETED2G181JJ
	30 x 30	1.12	1.60	0.737	0.332	EETED2G181KA	EETED2G181KJ
220	22 x 50	1.42	2.03	0.603	0.271	EETED2G221HA	EETED2G221HJ
	25 x 40	1.42	2.03	0.603	0.271	EETED2G221JA	EETED2G221JJ
	30 x 30	1.42	2.03	0.603	0.271	EETED2G221KA	EETED2G221KJ

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## TS-ED Standard Ratings (continued)

Part numbers shown with 2 pins and 4.0mm length terminals

Cap. ( $\mu$ F)	Size (mm) D x L	Max 105°C R.C. ( $A_{rms}$ )		20°C ESR ( $\Omega$ , max.)		Panasonic Part Number (By Sleeveing Style)	
		120Hz	10kHz~	120Hz	20kHz	PVC with Top Plate	PET without Top Plate
<b>400 VDC Working, 450 VDC Surge (continued)</b>							
220	35 x 25	1.42	2.03	0.603	0.271	EETED2G221LA	EETED2G221LJ
270	25 x 45	1.56	2.23	0.491	0.221	EETED2G271JA	EETED2G271JJ
	30 x 35	1.56	2.23	0.491	0.221	EETED2G271KA	EETED2G271KJ
	35 x 30	1.56	2.23	0.491	0.221	EETED2G271LA	EETED2G271LJ
330	30 x 40	1.71	2.44	0.402	0.181	EETED2G331KA	EETED2G331KJ
	35 x 30	1.71	2.44	0.402	0.181	EETED2G331LA	EETED2G331LJ
390	30 x 45	1.85	2.64	0.340	0.153	EETED2G391KA	EETED2G391KJ
	35 x 35	1.85	2.64	0.340	0.153	EETED2G391LA	EETED2G391LJ
470	35 x 40	2.01	2.87	0.282	0.127	EETED2G471LA	EETED2G471LJ
560	35 x 45	2.35	3.36	0.237	0.107	EETED2G561LA	EETED2G561LJ
<b>420 VDC Working, 470 VDC Surge</b>							
68	22 x 25	0.67	0.95	1.950	0.878	EETED2S680HA	EETED2S680HJ
82	22 x 30	0.76	1.08	1.617	0.728	EETED2S820HA	EETED2S820HJ
	25 x 25	0.76	1.08	1.617	0.728	EETED2S820JA	EETED2S820JJ
100	22 x 30	0.80	1.14	1.326	0.597	EETED2S101HA	EETED2S101HJ
	25 x 25	0.80	1.14	1.326	0.597	EETED2S101JA	EETED2S101JJ
120	22 x 35	0.91	1.30	1.105	0.497	EETED2S121HA	EETED2S121HJ
	25 x 30	0.91	1.30	1.105	0.497	EETED2S121JA	EETED2S121JJ
150	22 x 40	1.02	1.46	0.884	0.398	EETED2S151HA	EETED2S151HJ
	25 x 35	1.02	1.46	0.884	0.398	EETED2S151JA	EETED2S151JJ
	30 x 25	1.02	1.46	0.884	0.398	EETED2S151KA	EETED2S151KJ
180	22 x 45	1.07	1.53	0.737	0.332	EETED2S181HA	EETED2S181HJ
	25 x 40	1.07	1.53	0.737	0.332	EETED2S181JA	EETED2S181JJ
	30 x 30	1.07	1.53	0.737	0.332	EETED2S181KA	EETED2S181KJ
	35 x 25	1.07	1.53	0.737	0.332	EETED2S181LA	EETED2S181LJ
220	25 x 45	1.12	1.60	0.603	0.271	EETED2S221JA	EETED2S221JJ
	30 x 35	1.12	1.60	0.603	0.271	EETED2S221KA	EETED2S221KJ
	35 x 30	1.12	1.60	0.603	0.271	EETED2S221LA	EETED2S221LJ
270	25 x 50	1.42	2.03	0.491	0.221	EETED2S271JA	EETED2S271JJ
	30 x 40	1.42	2.03	0.491	0.221	EETED2S271KA	EETED2S271KJ
	35 x 30	1.42	2.03	0.491	0.221	EETED2S271LA	EETED2S271LJ
330	30 x 45	1.72	2.45	0.402	0.181	EETED2S331KA	EETED2S331KJ
	35 x 35	1.72	2.45	0.402	0.181	EETED2S331LA	EETED2S331LJ
390	30 x 50	1.85	2.64	0.340	0.153	EETED2S391KA	EETED2S391KJ
	35 x 40	1.85	2.64	0.340	0.153	EETED2S391LA	EETED2S391LJ
470	35 x 45	1.97	2.82	0.282	0.127	EETED2S471LA	EETED2S471LJ
<b>450 VDC Working, 500 VDC Surge</b>							
56	22 x 25	0.67	0.95	2.368	1.066	EETED2W560HA	EETED2W560HJ
68	22 x 30	0.76	1.08	1.950	0.878	EETED2W680HA	EETED2W680HJ
	25 x 25	0.76	1.08	1.950	0.878	EETED2W680JA	EETED2W680JJ
82	22 x 30	0.80	1.14	1.617	0.728	EETED2W820HA	EETED2W820HJ
	25 x 25	0.80	1.14	1.617	0.728	EETED2W820JA	EETED2W820JJ
100	22 x 35	0.91	1.30	1.326	0.597	EETED2W101HA	EETED2W101HJ
	25 x 30	0.91	1.30	1.326	0.597	EETED2W101JA	EETED2W101JJ
120	22 x 40	1.02	1.46	1.105	0.497	EETED2W121HA	EETED2W121HJ
	25 x 35	1.02	1.46	1.105	0.497	EETED2W121JA	EETED2W121JJ
	30 x 25	1.02	1.46	1.105	0.497	EETED2W121KA	EETED2W121KJ
150	22 x 45	1.07	1.53	0.884	0.398	EETED2W151HA	EETED2W151HJ
	25 x 40	1.07	1.53	0.884	0.398	EETED2W151JA	EETED2W151JJ
	30 x 30	1.07	1.53	0.884	0.398	EETED2W151KA	EETED2W151KJ
	35 x 25	1.07	1.53	0.884	0.398	EETED2W151LA	EETED2W151LJ
180	22 x 50	1.12	1.60	0.737	0.332	EETED2W181HA	EETED2W181HJ
	25 x 40	1.12	1.60	0.737	0.332	EETED2W181JA	EETED2W181JJ
	30 x 30	1.12	1.60	0.737	0.332	EETED2W181KA	EETED2W181KJ
	35 x 25	1.12	1.60	0.737	0.332	EETED2W181LA	EETED2W181LJ
220	25 x 45	1.42	2.03	0.603	0.271	EETED2W221JA	EETED2W221JJ
	30 x 35	1.42	2.03	0.603	0.271	EETED2W221KA	EETED2W221KJ
	35 x 30	1.42	2.03	0.603	0.271	EETED2W221LA	EETED2W221LJ
270	30 x 40	1.72	2.45	0.491	0.221	EETED2W271KA	EETED2W271KJ
	35 x 35	1.72	2.45	0.491	0.221	EETED2W271LA	EETED2W271LJ
330	30 x 50	1.85	2.64	0.402	0.181	EETED2W331KA	EETED2W331KJ
	35 x 40	1.85	2.64	0.402	0.181	EETED2W331LA	EETED2W331LJ
390	35 x 40	1.97	2.82	0.340	0.153	EETED2W391LA	EETED2W391LJ
470	35 x 50	2.47	3.53	0.282	0.127	EETED2W471LA	EETED2W471LJ

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