

HL series

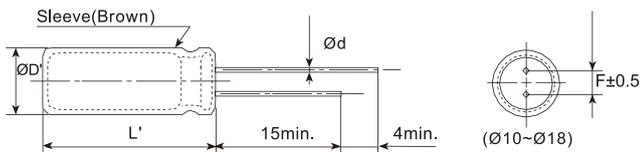
- Long life, downsized, high ripple current; For power supply applications
- Endurance: +105°C 8,000~12,000 hours
- RoHS Compliant



SPECIFICATIONS

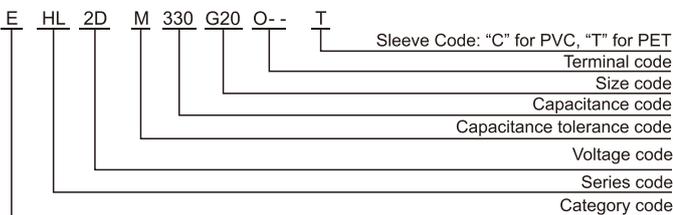
Items	Characteristics									
Category Temperature Range	-40~+105°C(160~400V _{dc})	-25~+105°C(450~500V _{dc})								
Rated Voltage Range	160~500 V _{dc}									
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)									
Leakage Current		Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C)								
	<table border="1"> <tr> <td></td> <td>After 1 minute</td> <td>After 5 minutes</td> </tr> <tr> <td>CV 1000</td> <td>I 0.1CV+40μA</td> <td>I 0.03CV+15μA</td> </tr> <tr> <td>CV>1000</td> <td>I 0.04CV+100μA</td> <td>I 0.02CV+25μA</td> </tr> </table>		After 1 minute	After 5 minutes	CV 1000	I 0.1CV+40μA	I 0.03CV+15μA	CV>1000	I 0.04CV+100μA	I 0.02CV+25μA
	After 1 minute	After 5 minutes								
CV 1000	I 0.1CV+40μA	I 0.03CV+15μA								
CV>1000	I 0.04CV+100μA	I 0.02CV+25μA								
Dissipation Factor (tanδ)	Rated Voltage(V _{dc})	160 200 250 350 400 450 500								
	tanδ (max.)	0.18 0.18 0.18 0.24 0.24 0.24 0.24 (at 20°C, 120Hz)								
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V _{dc})	160 200 250 350 400 450 500								
	Z(-25°C)/Z(+20°C)	3 3 3 6 6 6 6 (at 120Hz)								
	Z(-40°C)/Z(+20°C)	8 8 8 10 10 - -								
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105°C.									
	Capacitance Change	≤±20% of the initial value	Rated Voltage 160 to 450V _{dc} 500V _{dc}							
	D.F. (tanδ)	≤200% of the initial specified value	Life time L 20: 10,000 hours 10: 8,000 hours							
	Leakage Current	≤The initial specified value	L >20: 12,000 hours 12.5: 10,000 hours							
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.									
	Capacitance Change	≤±20% of the initial value								
	D.F. (tanδ)	≤200% of the initial specified value								
	Leakage Current	≤200% of the initial specified value								

DIMENSIONS[mm]



ØD	10	12.5	16	18
Ød	0.6	0.6	0.8	0.8
F	5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.			
L'	L+2max.			

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Freq.(Hz)	120	1k	10k	100k
Cap.(μF)				
<100	1.0	1.75	2.25	2.50
100	1.0	1.67	2.05	2.25

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

HL series

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size D×L(mm)	tanδ	Rated ripple current (mA _{rms} /105°C, 120Hz)	Part Number	
160(2C)	33	10×16	0.18	210	EHL2CM330G16OT	
	47	10×20	0.18	300	EHL2CM470G20OT	
	56	10×20	0.18	318	EHL2CM560G20OT	
	68	10×25	0.18	345	EHL2CM680G25OT	
	82	10×25	0.18	416	EHL2CM820G25OT	
		10×30	0.18	448	EHL2CM820G30OT	
	100	12.5×20	0.18	575	EHL2CM101W20OT	
	120	10×35	0.18	572	EHL2CM121G35OT	
		10×40	0.18	668	EHL2CM151G40OT	
	150	10×45	0.18	696	EHL2CM151G45OT	
		12.5×25	0.18	767	EHL2CM151W25OT	
	180	10×50	0.18	788	EHL2CM181G50OT	
		12.5×30	0.18	885	EHL2CM181W30OT	
		16×20	0.18	858	EHL2CM181L20OT	
	220	12.5×35	0.18	1044	EHL2CM221W35OT	
		16×25	0.18	1022	EHL2CM221L25OT	
		18×20	0.18	992	EHL2CM221M20OT	
	270	12.5×40	0.18	1196	EHL2CM271W40OT	
		12.5×45	0.18	1230	EHL2CM271W45OT	
	330	12.5×50	0.18	1404	EHL2CM331W50OT	
		16×30	0.18	1355	EHL2CM331L30OT	
		18×25	0.18	1292	EHL2CM331M25OT	
	390	16×35	0.18	1505	EHL2CM391L35OT	
		16×40	0.18	1708	EHL2CM471L40OT	
	470	16×45	0.18	1730	EHL2CM471L45OT	
		18×30	0.18	1665	EHL2CM471M30OT	
		18×35	0.18	1722	EHL2CM471M35OT	
	560	16×50	0.18	1924	EHL2CM561L50OT	
		18×40	0.18	1910	EHL2CM561M40OT	
	680	18×45	0.18	2135	EHL2CM681M45OT	
		18×50	0.18	2148	EHL2CM681M50OT	
	200(2D)	33	10×20	0.18	255	EHL2DM330G20OT
		39	10×20	0.18	268	EHL2DM390G20OT
		47	10×20	0.18	302	EHL2DM470G20OT
		56	10×25	0.18	346	EHL2DM560G25OT
		68	10×30	0.18	406	EHL2DM680G30OT
82		12.5×20	0.18	522	EHL2DM820W20OT	
100		10×35	0.18	520	EHL2DM101G35OT	
		12.5×25	0.18	628	EHL2DM101W25OT	
120		10×40	0.18	595	EHL2DM121G40OT	
		10×45	0.18	624	EHL2DM121G45OT	
		12.5×30	0.18	728	EHL2DM121W30OT	
		16×20	0.18	698	EHL2DM121L20OT	
150		10×50	0.18	720	EHL2DM151G50OT	
		12.5×35	0.18	862	EHL2DM151W35OT	
180		16×25	0.18	928	EHL2DM181L25OT	
		18×20	0.18	895	EHL2DM181M20OT	
220		12.5×40	0.18	1078	EHL2DM221W40OT	
		12.5×45	0.18	1116	EHL2DM221W45OT	
		18×25	0.18	1050	EHL2DM221M25OT	
270		12.5×50	0.18	1268	EHL2DM271W50OT	
		16×30	0.18	1225	EHL2DM271L30OT	
		16×35	0.18	1252	EHL2DM271L35OT	
330		16×40	0.18	1428	EHL2DM331L40OT	
		18×30	0.18	1402	EHL2DM331M30OT	
390		16×45	0.18	1575	EHL2DM391L45OT	
		18×35	0.18	1570	EHL2DM391M35OT	
470		16×50	0.18	1762	EHL2DM471L50OT	
		18×40	0.18	1748	EHL2DM471M40OT	
		18×45	0.18	1775	EHL2DM471M45OT	
560		18×50	0.18	1952	EHL2DM561M50OT	

WV (Vdc)	Cap (µF)	Size D×L(mm)	tanδ	Rated ripple current (mA _{rms} /105°C, 120Hz)	Part Number	
250(2E)	27	10×20	0.18	205	EHL2EM270G20OT	
	33	10×20	0.18	242	EHL2EM330G20OT	
	47	10×25	0.18	316	EHL2EM470G25OT	
		10×30	0.18	342	EHL2EM470G30OT	
	56	12.5×20	0.18	430	EHL2EM560W20OT	
	68	10×35	0.18	432	EHL2EM680G35OT	
		10×40	0.18	495	EHL2EM820G40OT	
		10×45	0.18	518	EHL2EM820G45OT	
	82	12.5×25	0.18	565	EHL2EM820W25OT	
		12.5×30	0.18	575	EHL2EM820W30OT	
		10×50	0.18	586	EHL2EM101G50OT	
	100	12.5×30	0.18	662	EHL2EM101W30OT	
		16×20	0.18	638	EHL2EM101L20OT	
	120	12.5×35	0.18	770	EHL2EM121W35OT	
		16×25	0.18	758	EHL2EM121L25OT	
		18×20	0.18	732	EHL2EM121M20OT	
	150	12.5×40	0.18	892	EHL2EM151W40OT	
		12.5×45	0.18	922	EHL2EM151W45OT	
	180	12.5×50	0.18	1040	EHL2EM181W50OT	
		16×30	0.18	995	EHL2EM181L30OT	
	220	18×25	0.18	955	EHL2EM181M25OT	
		16×35	0.18	1130	EHL2EM221L35OT	
	270	18×30	0.18	1138	EHL2EM221M30OT	
		16×40	0.18	1290	EHL2EM271L40OT	
		16×45	0.18	1315	EHL2EM271L45OT	
	330	18×35	0.18	1300	EHL2EM271M35OT	
		16×50	0.18	1480	EHL2EM331L50OT	
		18×40	0.18	1466	EHL2EM331M40OT	
	390	18×45	0.18	1488	EHL2EM331M45OT	
		18×50	0.18	1630	EHL2EM391M50OT	
	350(2V)	15	10×16	0.24	150	EHL2VM150G16OT
		18	10×20	0.24	165	EHL2VM180G20OT
		22	10×20	0.24	200	EHL2VM220G20OT
		27	10×25	0.24	242	EHL2VM270G25OT
			10×30	0.24	256	EHL2VM270G30OT
		33	12.5×20	0.24	332	EHL2VM330W20OT
39		10×35	0.24	326	EHL2VM390G35OT	
47		10×40	0.24	376	EHL2VM470G40OT	
		12.5×25	0.24	425	EHL2VM470W25OT	
56		10×45	0.24	426	EHL2VM560G45OT	
		12.5×30	0.24	498	EHL2VM560W30OT	
		16×20	0.24	476	EHL2VM560L20OT	
68		10×50	0.24	486	EHL2VM680G50OT	
		12.5×35	0.24	583	EHL2VM680W35OT	
82		18×20	0.24	550	EHL2VM680M20OT	
		12.5×40	0.24	658	EHL2VM820W40OT	
100		16×25	0.24	628	EHL2VM820L25OT	
		12.5×45	0.24	752	EHL2VM101W45OT	
		12.5×50	0.24	772	EHL2VM101W50OT	
120		16×30	0.24	744	EHL2VM101L30OT	
		18×25	0.24	710	EHL2VM101M25OT	
		16×35	0.24	832	EHL2VM121L35OT	
150		16×40	0.24	964	EHL2VM151L40OT	
		16×45	0.24	978	EHL2VM151L45OT	
		18×30	0.24	944	EHL2VM151M30OT	
180		16×50	0.24	1095	EHL2VM181L50OT	
		18×35	0.24	1065	EHL2VM181M35OT	
220		18×40	0.24	1086	EHL2VM181M40OT	
		18×45	0.24	1215	EHL2VM221M45OT	
		18×50	0.24	1222	EHL2VM221M50OT	

Radial Type

HL series

■ STANDARD RATINGS

WV (V _{dc})	Cap (μF)	Size DxL(mm)	tanδ	Rated ripple current (mA _{rms} /105°C, 120Hz)	Part Number
400(2G)	12	10×16	0.24	135	EHL2GM120G16OT
	15	10×20	0.24	155	EHL2GM150G20OT
	18	10×20	0.24	180	EHL2GM180G20OT
	22	10×25	0.24	216	EHL2GM220G25OT
	27	10×30	0.24	256	EHL2GM270G30OT
		12.5×20	0.24	300	EHL2GM270W20OT
	33	10×35	0.24	300	EHL2GM330G35OT
	39	10×40	0.24	342	EHL2GM390G40OT
		10×45	0.24	358	EHL2GM390G45OT
		12.5×25	0.24	390	EHL2GM390W25OT
	47	12.5×30	0.24	456	EHL2GM470W30OT
		16×20	0.24	438	EHL2GM470L20OT
	56	10×50	0.24	440	EHL2GM560G50OT
		12.5×35	0.24	528	EHL2GM560W35OT
		18×20	0.24	502	EHL2GM560M20OT
	68	12.5×40	0.24	600	EHL2GM680W40OT
		16×25	0.24	572	EHL2GM680L25OT
	82	12.5×45	0.24	684	EHL2GM820W45OT
		12.5×50	0.24	700	EHL2GM820W50OT
		16×30	0.24	672	EHL2GM820L30OT
		18×25	0.24	644	EHL2GM820M25OT
	100	16×35	0.24	760	EHL2GM101L35OT
	120	16×40	0.24	864	EHL2GM101L40OT
		16×45	0.24	880	EHL2GM121L45OT
		18×30	0.24	842	EHL2GM121M30OT
		18×35	0.24	875	EHL2GM121M35OT
	150	16×50	0.24	1000	EHL2GM151L50OT
		18×40	0.24	985	EHL2GM151M40OT
	180	18×45	0.24	1098	EHL2GM181M45OT
	220	18×50	0.24	1225	EHL2GM221M50OT

WV (V _{dc})	Cap (μF)	Size DxL(mm)	tanδ	Rated ripple current (mA _{rms} /105°C, 120Hz)	Part Number	
450(2W)	10	10×16	0.24	120	EHL2WM100G16OT	
	12	10×20	0.24	150	EHL2WM120G20OT	
	15	10×25	0.24	186	EHL2WM150G25OT	
	18	10×30	0.24	216	EHL2WM180G30OT	
		12.5×20	0.24	256	EHL2WM180W20OT	
	22	10×35	0.24	252	EHL2WM220G35OT	
	27	10×40	0.24	292	EHL2WM270G40OT	
		10×45	0.24	306	EHL2WM270G45OT	
		12.5×25	0.24	342	EHL2WM270W25OT	
	33	12.5×30	0.24	400	EHL2WM330W30OT	
		16×20	0.24	386	EHL2WM330L20OT	
	39	10×50	0.24	378	EHL2WM390G50OT	
		12.5×35	0.24	462	EHL2WM390W35OT	
		18×20	0.24	440	EHL2WM390M20OT	
	47	12.5×40	0.24	528	EHL2WM470W40OT	
		16×25	0.24	500	EHL2WM470L25OT	
	56	12.5×45	0.24	592	EHL2WM560W45OT	
		16×30	0.24	588	EHL2WM560L30OT	
		18×25	0.24	562	EHL2WM560M25OT	
	68	12.5×50	0.24	672	EHL2WM680W50OT	
		16×35	0.24	664	EHL2WM680L35OT	
	82	16×40	0.24	750	EHL2WM820L40OT	
		16×45	0.24	762	EHL2WM820L45OT	
		18×30	0.24	734	EHL2WM820M30OT	
	100	16×50	0.24	858	EHL2WM101L50OT	
		18×35	0.24	836	EHL2WM101M35OT	
	120	18×40	0.24	935	EHL2WM121M40OT	
		18×45	0.24	948	EHL2WM121M45OT	
	150	18×50	0.24	1065	EHL2WM151M50OT	
	500(2H)	6.8	10×20	0.24	90	EHL2HM68G20OT
		10	10×30	0.24	130	EHL2HM100G30OT
			12.5×20	0.24	125	EHL2HM100W20OT
12		12.5×20	0.24	135	EHL2HM120W20OT	
15		10×35	0.24	170	EHL2HM150G35OT	
		12.5×25	0.24	170	EHL2HM150W25OT	
		16×20	0.24	165	EHL2HM150L20OT	
18		10×45	0.24	190	EHL2HM180G45OT	
		12.5×30	0.24	190	EHL2HM180W30OT	
22		10×50	0.24	230	EHL2HM220G50OT	
		12.5×35	0.24	225	EHL2HM220W35OT	
		16×20	0.24	220	EHL2HM220L20OT	
33		18×25	0.24	285	EHL2HM330M25OT	
47		18×30	0.24	400	EHL2HM470M30OT	