

## DL12 Series

High capacity DC Filter Capacitor consists of metallized polypropylene film, plastic casing filled with epoxy, screw terminal and plastic deck. This capacitor is suitable for use in DC filter circuits, Electric Vehicle and Industrial Inverter.



### ■ FEATURES

- High ripple current, low losses.
- High capacitance density.
- Self-healing property.
- Long lifetime.

### ■ APPLICATIONS

- DC link applications.
- DC filtering circuits.
- Motor driver systems.
- Electric Vehicle and industrial power supply.

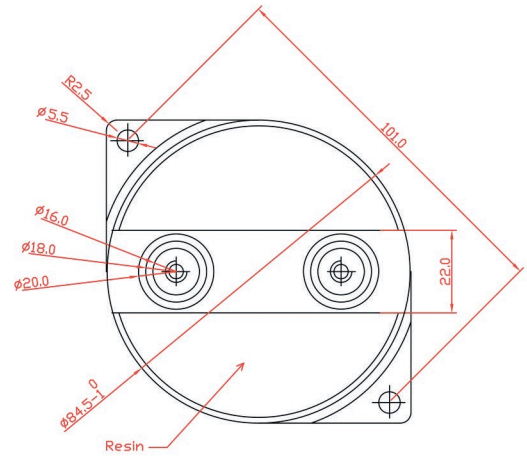
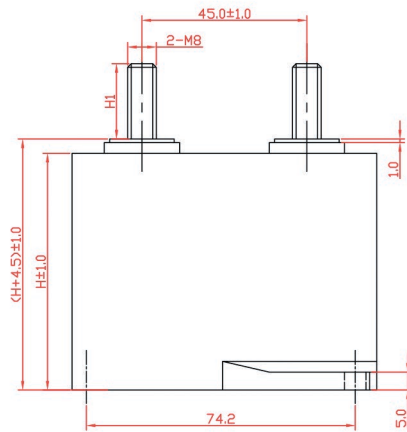
### ■ ELECTRICAL CHARACTERISTICS

Rated Voltage:	300Vdc ~ 1100Vdc
Capacitance range:	50 $\mu$ F - 280 $\mu$ F
Capacitance Tolerance:	$\pm$ 5%(J), $\pm$ 10%(K)
Dissipation Factor:	$\leq$ 0.002 (0.2%) at 100 Hz at 25°C
Test Voltage Between Terminal:	1.5 x rated voltage for 10s (terminal to terminal)
Test Voltage Terminals to Case:	3.0 KVac 50Hz/60Hz for 10s at 25 °C
Life Expectancy:	100,000 hours at Un @ hot-spot temperature T=+70 °C
Damp Heat:	IEC 60068-2-78
Change of Temperature:	IEC 60068-2-14

### ■ GENERAL TECHNICAL DATA

Application:	DC filtering / DC link
Standard:	IEC 61071
Climatic Category:	40/85/21 IEC 60068-1
Temperature Hot-spot max:	+95°C
Temperature Storage max:	+85°C
Lower Temperature T min:	-40°C
Case	Self extinguishing plastic case UL94 V0
Terminals:	M6 or M8 threaded bolt; also available with threaded female connections
Construction:	dry construction, filled by solid resin
Packaging:	Packed in cardboard boxes with protection for the terminals
RoHS Compliant:	Compliant with the restricted substance requirements of Directive 2002/95/EC

## DIMENSION



D	H	h	P	Terminations
±1	±1	±1	±1.0	
mm	mm	mm	mm	
85	40	4.5	45	
85	51	4.5	45	M8 x 20
85	65	4.5	45	M8 x 20

## PART NUMBER REFERENCE AND DIMENSIONS

Cap Value uF	Vdc	Dimensions			Irms 10KHz 50°C A	Peak Current A	ESR 1KHz mΩ	ESL nH	Thermal	dv/dt V/us	Pkg	Part Number
		D	H	P					Res		Qty	
		mm	mm	mm	°C/W	pcs						
150	300	85	40	45	60	3250	2.0	25	4.0	35	8	DL12-157K2EA45HA
220	300	85	51	45	65	3500	1.8	32	4.5	25	8	DL12-227K2EA45HA
280	300	85	65	45	70	4200	1.6	35	5.0	20	8	DL12-287K2EA45HA
150	500	85	40	45	65	5250	1.8	25	4.3	35	8	DL12-157K2HA45HA
220	500	85	51	45	65	5500	1.8	40	4.8	25	8	DL12-227K2HA45HA
280	500	85	65	45	70	5600	1.6	40	5.4	20	8	DL12-287K2HA45HA
100	600	85	40	45	70	3500	1.5	25	5.0	35	8	DL12-107K2RA45HA
150	600	85	51	45	80	3750	1.4	30	6.5	25	8	DL12-157K2RA45HA
220	600	85	65	45	90	4400	1.5	40	4.5	20	8	DL12-227K2RA45HA
66	800	85	40	45	70	2310	2.0	25	5.0	35	8	DL12-666K2KA45HA
100	800	85	51	45	75	2500	1.8	30	5.0	25	8	DL12-107K2KA45HA
140	800	85	65	45	80	2800	1.6	40	8.4	20	8	DL12-147K2KA45HA
220	800	85	65	45	100	4400	1.4	40	4.8	20	8	DL12-227K2KA45HA
66	1000	85	40	45	70	2310	1.0	25	4.2	35	8	DL12-666K3AA45HA
120	1000	85	51	45	85	3000	2.2	30	5.2	25	8	DL12-127K3AA45HA
140	1000	85	65	45	100	2800	1.5	40	3.1	20	8	DL12-147K3AA45HA
50	1100	85	40	45	55	1750	2.4	30	4.5	35	8	DL12-506K3LA45HA
100	1100	85	65	45	55	2500	2.0	30	4.5	25	8	DL12-107K3LA45HA
150	1100	85	65	45	55	3550	1.5	30	5.8	20	8	DL12-157K3LA45HA

# PART NUMBERING SYSTEMS

## ■ EXPLANATION OF ARTICLE CODE

DL12-	227	K	2R	B	45	E	S
①	②	③	④	⑤	⑥	⑦	⑧

### ① Capacitor Type

TYPE	DL12
CODE	DL12-

### ② Rated Capacitance (EIA Code)

The rated Capacitance value of the product is indicated with three digits. The first two digits indicate the two most significant digits of the capacitance value, and the third digit gives the number of following zeroes. This gives the capacitance value expressed in picofarads.

Examples:

105	=	1,000,000pF	=	1,000nF	=	1uF
106	=	10,000,000pF	=	10,000nF	=	10uF

### ③ Capacitance Tolerance

TOLERANCE	±5%	±10%	±20%
CODE	J	K	M

### ④ Rated Voltage

Code for DC Voltage: (expressed in one digit & one letter code)

VOLTAGE	300V	500V	600V	630V	700V	800V	850V	900V	1000V	1100V	1200V	1400V
CODE	2E	2H	2R	2J	2S	2K	2T	2U	3A	3L	3M	3V

### ⑤ Terminal Configuration

FORM	Male	Female
CODE	A	B

### ⑥ Terminal

HIGHT CODE

### ⑦ Terminal

TERMINAL	M3	M4	M5	M6	M8	M10	M12
CODE	C	D	E	F	H	J	L

### ⑧ Terminal Length (mm)

LENGTH	20.0	15.0	16.0	2.0	4.0	5.0	9.0	28.0	22.0
CODE	A	B	C	2	4	5	9	D	E

## ■ PERFORMANCE NOTES

Rs: Equivalent series resistance - Ohmic resistances (Ohm)

Dielectric Dissipation Factor:  $\tan\delta_0$  ( Polypropylene: 0.0002)

Ta: Ambient temperature

Rth: Thermal resistance °C/W, indicates hot spot temperature rise due to power dissipation losses

Pj: Joule losses  $P_j = R_s \cdot I_{rms}^2$

Pd: Dielectric losses

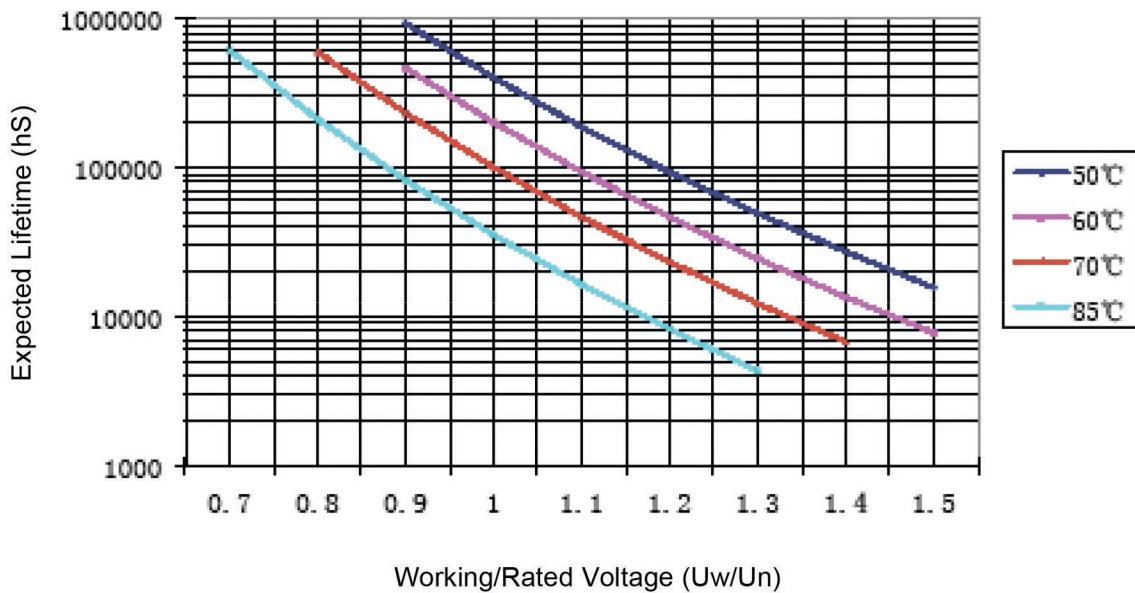
$$P_d = X_c \cdot I_{rms}^2 \cdot \tan\delta = I_{rms}^2 / (2 \cdot \pi \cdot f \cdot C) \cdot \tan\delta$$

Ths: Hot spot temperature within the capacitor

$$Ths = Ta + (P_j + P_d) \cdot R_{th}$$

Design life: 100,000 hours at  $U_n$  @ Hot-Spot temperature  $\leq +70^\circ\text{C}$

### Expected Life Curve



## ■ CAUTIONS AND WARNING

In case of dents of more than 1 mm depth or any other mechanical damage, capacitors must not be used at all.

- Lateral brackets for fixing are standard for all types.
- Do not handle the capacitor before it is discharged.
- Check tightness of the connection/terminals periodically.
- It is necessary to verify that maximum hot-spot temperature is not exceeded at extreme condition.
- Do not use or store capacitor in corrosive atmosphere, in the dusty environments regular maintenance and cleaning especially of the terminals is required to avoid conductive path between phase / or phase and ground.
- Do not have unlimited service life expectancy, the max service life expectancy may vary depending on the application the capacitor is used in.