

# METALLISED POLYESTER FILM CAPACITORS

## Radial leads — lacquered

(342 and 352 Series)

# C280 Series

### QUICK REFERENCE DATA

Designed for coupling and decoupling applications on printed wiring boards.

Capacitance ranges (E6 Series)

250V working

0.01 to 2.2

$\mu\text{F}$

400V working

0.01 to 1.0

$\mu\text{F}$

Capacitance tolerances

0.01 to 0.22 $\mu\text{F}$

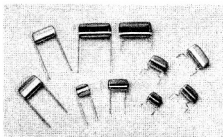
$\pm 20$

$\%$

0.33 to 2.2 $\mu\text{F}$

$\pm 10$

$\%$



### DIELECTRIC CASING

polyethylene terephthalate film

Hard, water repellent, lacquer.

### TERMINATIONS

Two styles are available, straight wires or crimped and cropped, both have radial leads of tinned copper wire. Leads are spaced suitable for use with printed wiring boards having a 2.54mm (0.1in) grid. The crimped and cropped version has approximately 5nH additional inductance over the straight wire version when mounted on a printed wiring board.

### TYPE NUMBER DESIGNATION

		straight leads	crimped leads
250V version	C280AE/....	342 44 and 45	352 47 and 48
400V version	C280CF/....	342 54 and 55	352 57 and 58

### SPECIAL FEATURES

The capacitors are manufactured by using 'extended' techniques, resulting in low inherent inductance. Both versions may be subjected to short term overvoltage, making them suitable for use in anode and screen circuits.

The crimped and cropped style of termination, overcomes many of the problems associated with dimensional tolerances of printed wiring boards, facilitates immediate assembly into the boards (no prior cropping is required) and improves the component solderability when using solder wave techniques.

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## ELECTRICAL DATA

Unless otherwise stated, all characteristics apply at an ambient temperature of  $20 \pm 5^{\circ}\text{C}$ , atmospheric pressure of  $10^5\text{Pa}$  (1000mbars) and a relative humidity of 75% maximum.

	Conditions	C280AE/ .... (342, 352.) 250V	C280CF/ .... (342, 352.) 400V
Capacitance range (E6 Series)	-	0.01 to 2.2 $\mu\text{F}$	0.01 to 1 $\mu\text{F}$
Capacitance tolerance	0.01 to 0.22 $\mu\text{F}$	$\pm 20\%$	$\pm 20\%$
	0.33 to 2.2 $\mu\text{F}$	$\pm 10\%$	$\pm 10\%$
Rated voltage (d. c.)	over the category temperature range	250V	400V
Rated voltage (r. m. s.) (see note)	f = 50Hz, minimum source impedance $> 1\text{k}\Omega$	160V	200V
Rated current (mean)	-	400mA	400mA
Tangent of loss angle ( $\tan \delta$ )	f = 10kHz	$< 150 \times 10^{-4}$	$< 150 \times 10^{-4}$
Category temperature range	-	$-40$ to $+85^{\circ}\text{C}$	$-40$ to $+85^{\circ}\text{C}$
Insulation resistance	0.01 to 0.33 $\mu\text{F}$	$> 30\ 000\text{M}\Omega$	$> 30\ 000\text{M}\Omega$
	0.47 to 2.2 $\mu\text{F}$	$> 10\ 000\text{M}\Omega, \mu\text{F}$	$> 10\ 000\text{M}\Omega, \mu\text{F}$
Maximum rate of change of voltage	Capacitor length L (see DIMENSIONS)		
	= 12.5mm	20V/ $\mu\text{s}$	30V/ $\mu\text{s}$
	= 17.5mm	10V/ $\mu\text{s}$	20V/ $\mu\text{s}$
	= 22.5mm	7V/ $\mu\text{s}$	10V/ $\mu\text{s}$
	= 30 mm	5V/ $\mu\text{s}$	8V/ $\mu\text{s}$
Surge voltage (d. c.)	1 min per hour	350V	500V
Endurance	1.5 $\times$ rated voltage at $85^{\circ}\text{C}$	$< 5\%$	$< 5\%$
Long term stability (a. c.)	Capacitor length L (see DIMENSIONS)		
	= 12.5mm	$< 25\%$	$< 25\%$
	= 17.5mm	$< 20\%$	$< 20\%$
	= 22.5mm	$< 15\%$	$< 15\%$
	= 30 mm	$< 10\%$	$< 10\%$
Extended temperature range	Voltage derating 1.25% per deg C	$+85$ to $+100^{\circ}\text{C}$	$+85$ to $+100^{\circ}\text{C}$

## NOTE

The maximum r.m.s. voltage at frequencies higher than 50Hz can be calculated from the relevant formula in METALLISED FILM CAPACITORS - INTRODUCTORY NOTES and the graph on the last page of this data sheet.

## SOLDERING CONDITIONS

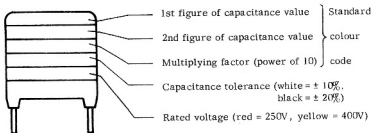
5 seconds max. at 250°C max

## MARKING

The capacitors are coded with:

Capacitance
Tolerance
Rated voltage

The method of marking is shown below: -



### Standard colour code

Black = 0	Green = 5
Brown = 1	Blue = 6
Red = 2	Violet = 7
Orange = 3	Grey = 8
Yellow = 4	White = 9

## ORDERING PROCEDURE

The capacitors should be ordered by their type or code number as shown in the table.

Examples: -

A 0.1 $\mu$ F  $\pm 20\%$ , 250V rated capacitor with straight wire style terminations, should be ordered by quoting the type number C280AE/P100K, or code number 342 4410.

A 0.1 $\mu$ F  $\pm 20\%$ , 250V rated capacitor with crimped and cropped termination should be ordered by quoting the type number C280AE/P100K/040, or code number 352 47104.

## PACKING

Supplied in packs as follows:

where L = 22.5mm - 1000 pieces

where L = 30mm - 500 pieces

The packs may be marked with either the type or code number.

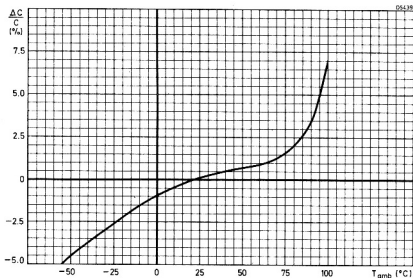
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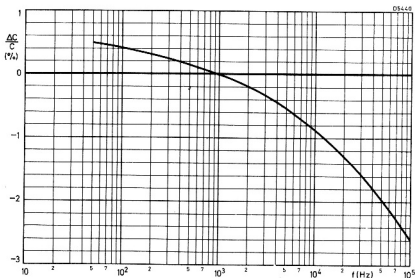
(342 and 352 Series)

# C280

## Series

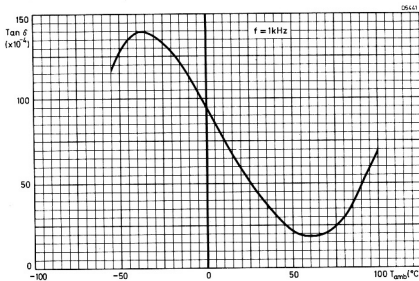


TYPICAL CAPACITANCE CHANGE AS A FUNCTION OF  
AMBIENT TEMPERATURE

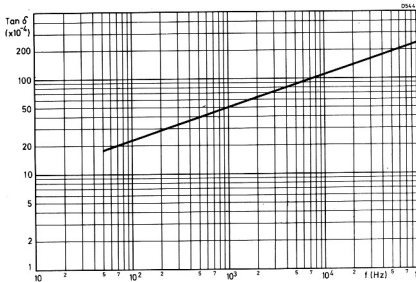


TYPICAL CAPACITANCE CHANGE AS A FUNCTION OF FREQUENCY

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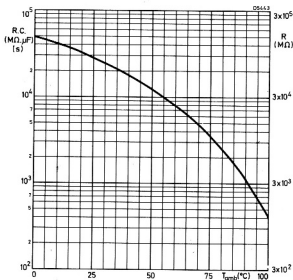
TYPICAL LOSS FACTOR AS A FUNCTION OF AMBIENT TEMPERATURE



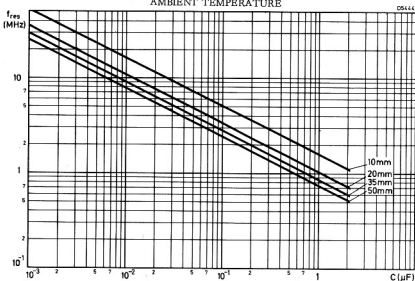
TYPICAL LOSS FACTOR AS A FUNCTION OF FREQUENCY

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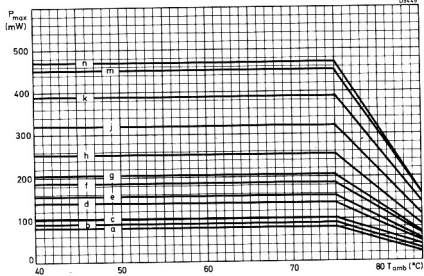


TYPICAL INSULATION RESISTANCE AS A FUNCTION OF AMBIENT TEMPERATURE



SELF RESONANCE FREQUENCY AS A FUNCTION OF CAPACITANCE FOR VARIOUS TOTAL LEAD LENGTHS

**Mullard**



MAXIMUM PERMISSIBLE POWER DISSIPATION AS A FUNCTION OF AMBIENT TEMPERATURE

TABLE OF CASE SIZES

Curve	Dimensions in millimetres		
	L	H	T
a	12.5	9	4
b	12.5	10	5
c	12.5	11	6
d	17.5	11	6
e	17.5	12	7
f	22.5	11.5	6.5
g	22.5	12.5	7.5
h	22.5	14.5	9.5
j	30	14.5	9.5
k	30	18	10
m	30	20	12
n	30	20.5	12.5