SH 13/18/15/25/30/40

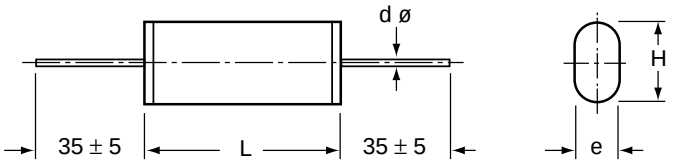
CPM-8 – Axial Leads 63/100/250/400/630/1000 V-

APPLICATIONS

Non-inductive, capacitor for professional use. Flat axial, polyester wrapped, epoxy resin sealed.

Some examples of use:

Oscillating circuit, LF filter, coupling and decoupling, frequency discriminator.



STANDARDIZATION

Generic specifications:
CEI 384-1/CECC 30000/UTE 83100

Sectional specifications:
CEI 384-2/CECC 30400/UTE 83151

On the LNZ 44-04 list:
Complies with type CPM8

millimeters (inches)

e max.	≤ 5	> 5	≥ 7
Ø d ± 0.05 (0.002)	0.6 (0.024)	0.8 (0.031)	1.0 (0.039)

PERFORMANCE CHARACTERISTICS

Protection:	Flat axial leads, polyester wrapped, epoxy resin sealed
Temperature range:	-55°C to +100°C with voltage derating of 1.25%/°C between 85°C and 100°C
Climatic category:	55/100/56
Voltage range:	63 VDC to 1000 VDC
Capacitance range:	1 nF to 22 µF
Tolerances on C_R:	±5%, ±10%, ±20%
Test voltage:	1.6 Vn/2 s
Insulation resistance:	
Measurement condition:	
Temperature:	25°C ± 5°C
Duration:	1 minute
Measurement Voltage:	100 V for Vn ≥ 100 V 50 V for Vn < 100 V
Requirements:	
For Un ≤ 100 V:	C ≤ 0.33 µF ≥ 15 000 MΩ C > 0.33 µF ≥ 5 000 S
For Un > 100 V:	C ≤ 0.33 µF ≥ 30 000 MΩ C > 0.33 µF ≥ 10 000 S

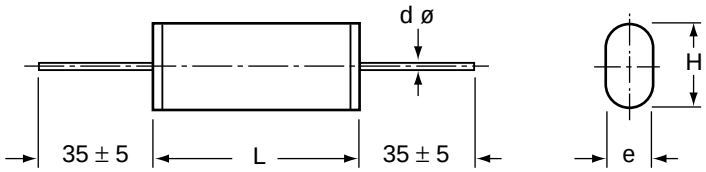
Tangent of loss angle:

LIMIT VALUES

	C ≤ 0.1 µF	0.1 µF < C ≤ 1 µF	C > 1 µF
1 kHz	8 x 10^{-3}	8 x 10^{-3}	10 x 10^{-3}
10 kHz	15 x 10^{-3}	15 x 10^{-3}	
100 Hz	30 x 10^{-3}		

SH 13/18/15/25/30/40

Range

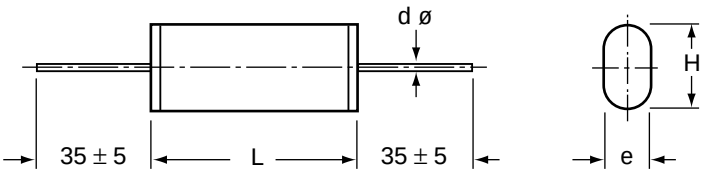


millimeters (inches)

Capacitance	63 V DC / 40 V AC				100 V DC / 63 V AC				250 V DC / 160 V AC			
	Size Code	e	H	L	Size Code	e	H	L	Size Code	e	H	L
0.01 µF									**13**	4.0 (0.157)	7.0 (0.276)	13.0 (0.512)
0.015 µF									**13**	4.0 (0.157)	7.0 (0.276)	13.0 (0.512)
0.022 µF					**13**	4.0 (0.157)	7.0 (0.276)	13.0 (0.512)	**13**	4.0 (0.157)	8.0 (0.315)	13.0 (0.512)
0.033 µF					**13**	4.0 (0.157)	7.0 (0.276)	13.0 (0.512)	**13**	4.0 (0.157)	8.0 (0.315)	13.0 (0.512)
0.047 µF					**13**	4.0 (0.157)	7.0 (0.276)	13.0 (0.512)	**13**	5.0 (0.197)	8.0 (0.315)	13.0 (0.512)
0.068 µF					**13**	4.0 (0.157)	7.0 (0.276)	13.0 (0.512)	**13**	5.0 (0.197)	8.0 (0.315)	13.0 (0.512)
0.1 µF					**13**	4.0 (0.157)	7.0 (0.276)	13.0 (0.512)	**18**	4.0 (0.157)	8.0 (0.315)	18.0 (0.709)
0.15 µF					**13**	4.0 (0.157)	7.0 (0.276)	13.0 (0.512)	**18**	5.0 (0.197)	9.0 (0.354)	18.0 (0.709)
0.22 µF	**13**	4.0 (0.157)	7.0 (0.276)	13.0 (0.512)	**13**	5.0 (0.197)	8.0 (0.315)	13.0 (0.512)	**18**	5.0 (0.197)	10.0 (0.394)	18.0 (0.709)
0.33 µF	**13**	4.0 (0.157)	7.0 (0.276)	13.0 (0.512)	**18**	5.0 (0.197)	8.0 (0.315)	18.0 (0.709)	**18**	6.0 (0.236)	11.0 (0.433)	18.0 (0.709)
0.47 µF	**13**	5.0 (0.197)	9.0 (0.354)	13.0 (0.512)	**18**	5.0 (0.197)	9.0 (0.354)	18.0 (0.709)	**25**	5.0 (0.197)	12.0 (0.472)	25.0 (0.984)
0.68 µF	**13**	6.0 (0.236)	9.0 (0.354)	13.0 (0.512)	**18**	6.0 (0.236)	9.0 (0.354)	18.0 (0.709)	**25**	6.0 (0.236)	13.0 (0.512)	25.0 (0.984)
1 µF	**13**	6.0 (0.236)	9.0 (0.354)	13.0 (0.512)	**13**	8.0 (0.315)	11.0 (0.433)	13.0 (0.512)	**18**	9.0 (0.354)	14.0 (0.551)	18.0 (0.709)
1 µF	**18**	5.0 (0.197)	10.0 (0.394)	18.0 (0.709)	**18**	7.0 (0.276)	11.0 (0.433)	18.0 (0.709)	**25**	7.0 (0.276)	15.0 (0.591)	25.0 (0.984)
1.5 µF	**13**	7.0 (0.276)	10.0 (0.394)	13.0 (0.512)	**18**	9.0 (0.354)	13.0 (0.512)	18.0 (0.709)	**25**	9.0 (0.354)	15.0 (0.591)	25.0 (0.984)
1.5 µF	**18**	6.5 (0.260)	11.0 (0.433)	18.0 (0.709)	**25**	6.0 (0.236)	14.0 (0.551)	25.0 (0.984)	**30**	8.0 (0.315)	16.0 (0.630)	30.0 (1.181)
2.2 µF	**13**	9.0 (0.354)	12.0 (0.472)	13.0 (0.512)	**18**	11.0 (0.433)	15.0 (0.591)	18.0 (0.709)	**25**	9.0 (0.354)	17.0 (0.669)	25.0 (0.984)
2.2 µF	**18**	7.0 (0.276)	12.0 (0.472)	18.0 (0.709)	**25**	7.0 (0.276)	16.0 (0.630)	25.0 (0.984)	**30**	10.0 (0.394)	18.0 (0.709)	30.0 (1.181)
3.3 µF	**18**	8.5 (0.335)	13.5 (0.531)	18.0 (0.709)	**18**	13.0 (0.512)	17.0 (0.669)	18.0 (0.709)	**25**	15.0 (0.591)	19.0 (0.748)	25.0 (0.984)
3.3 µF	**25**	6.0 (0.236)	14.0 (0.551)	25.0 (0.984)	**25**	9.0 (0.354)	16.0 (0.630)	25.0 (0.984)	**30**	12.0 (0.472)	20.0 (0.787)	30.0 (1.181)
4.7 µF	**18**	10.0 (0.394)	15.0 (0.591)	18.0 (0.709)	**25**	12.0 (0.472)	18.0 (0.709)	25.0 (0.984)	**30**	16.0 (0.630)	22.0 (0.866)	30.0 (1.181)
4.7 µF	**25**	7.0 (0.276)	15.0 (0.591)	25.0 (0.984)	**30**	10.0 (0.394)	18.0 (0.709)	30.0 (1.181)	**40**	12.0 (0.472)	27.0 (1.063)	40.0 (1.575)
6.8 µF	**18**	14.0 (0.551)	19.0 (0.748)	18.0 (0.709)	**25**	15.0 (0.591)	21.0 (0.827)	25.0 (0.984)	**30**	18.0 (0.709)	24.0 (0.945)	30.0 (1.181)
6.8 µF	**25**	8.0 (0.315)	16.0 (0.630)	25.0 (0.984)	**30**	13.0 (0.512)	21.0 (0.827)	30.0 (1.181)	**40**	11.0 (0.433)	21.0 (0.827)	40.0 (1.575)
10 µF	**25**	11.0 (0.433)	18.0 (0.709)	25.0 (0.984)	**25**	18.0 (0.709)	25.0 (0.984)	25.0 (0.984)	**30**	21.0 (0.827)	26.0 (1.024)	30.0 (1.181)
10 µF	**30**	9.0 (0.354)	17.0 (0.669)	30.0 (1.181)	**30**	14.0 (0.551)	26.0 (1.024)	30.0 (1.181)	**40**	14.0 (0.551)	23.0 (0.906	40.0 (1.575)
15 µF	upon request				upon request							
22 µF	upon request				upon request							

SH 13/18/15/25/30/40

Range



millimeters (inches)

Capacitance	400 V DC / 200 V AC				630 V DC / 220 V AC				1000 V DC / 250 V AC			
	Size Code	e	H	L	Size Code	e	H	L	Size Code	e	H	L
0.01 µF	**13**	4.0 (0.157)	8.0 (0.315)	13.0 (0.512)	**13**	5.0 (0.197)	8.0 (0.315)	13.0 (0.512)	**18**	5.0 (0.197)	10.0 (0.394)	18.0 (0.709)
0.015 µF	**13**	4.0 (0.157)	8.0 (0.315)	13.0 (0.512)	**13**	5.0 (0.197)	8.0 (0.315)	13.0 (0.512)	**18**	5.0 (0.197)	10.0 (0.394)	18.0 (0.709)
0.022 µF	**13**	5.0 (0.197)	8.0 (0.315)	13.0 (0.512)	**13**	5.0 (0.197)	8.0 (0.315)	13.0 (0.512)	**18**	5.5 (0.217)	11.0 (0.433)	18.0 (0.709)
0.033 µF	**13**	5.0 (0.197)	8.0 (0.315)	13.0 (0.512)	**18**	5.0 (0.197)	9.0 (0.354)	18.0 (0.709)	**25**	5.0 (0.197)	11.0 (0.433)	25.0 (0.984)
0.047 µF	**13**	5.0 (0.197)	8.0 (0.315)	13.0 (0.512)	**18**	6.0 (0.236)	10.0 (0.394)	18.0 (0.709)	**25**	6.0 (0.236)	12.0 (0.472)	25.0 (0.984)
0.068 µF	**13**	5.0 (0.197)	8.0 (0.315)	13.0 (0.512)	**18**	6.0 (0.236)	12.0 (0.472)	18.0 (0.709)	**25**	7.0 (0.276	16.0 (0.630)	25.0 (0.984)
0.1 µF	**18**	5.0 (0.197)	9.0 (0.354)	18.0 (0.709)	**18**	6.0 (0.236)	13.0 (0.512)	18.0 (0.709)	**25**	9.0 (0.354)	16.0 (0.630)	25.0 (0.984)
0.15 µF	**18**	6.0 (0.236)	10.0 (0.394)	18.0 (0.709)	**25**	6.0 (0.236)	13.0 (0.512)	25.0 (0.984)	**30**	9.0 (0.354)	16.0 (0.630)	30.0 (1.181)
0.22 µF	**25**	5.0 (0.197)	10.0 (0.394)	25.0 (0.984)	**25**	7.0 (0.276)	15.0 (0.591)	25.0 (0.984)	**30**	10.0 (0.394)	20.0 (0.787)	30.0 (1.181)
0.33 µF	**25**	6.0 (0.236)	12.0 (0.472)	25.0 (0.984)	**30**	8.0 (0.315)	18.0 (0.709)	30.0 (1.181)	**30**	14.0 (0.551)	23.0 (0.906)	30.0 (1.181)
0.47 µF	**25**	7.0 (0.276)	14.0 (0.551)	25.0 (0.984)	**30**	11.0 (0.433)	18.0 (0.709)	30.0 (1.181)	**40**	10.0 (0.394)	22.0 (0.866)	40.0 (1.575)
0.68 µF	**25**	8.0 (0.315)	16.0 (0.630)	25.0 (0.984)	**30**	12.0 (0.472)	21.0 (0.827)	30.0 (1.181)				
1 µF	**25**	11.0 (0.433)	18.0 (0.709)	25.0 (0.984)	**25**	11.0 (0.433)	20.0 (0.787)	25.0 (0.984)				
1 µF	**30**	10.0 (0.394)	17.0 (0.669)	30.0 (1.181)	**30**	14.0 (0.551)	23.0 (0.906)	30.0 (1.181)				
1.5 µF	**30**	11.0 (0.433)	20.0 (0.787	30.0 (1.181)	**30**	16.0 (0.630)	25.0 (0.984)	30.0 (1.181)				
1.5 µF	**40**	9.0 (0.354)	18.0 (0.709)	40.0 (1.575)	**40**	13.0 (0.512)	25.0 (0.984)	40.0 (1.575)				
2.2 µF	**30**	12.0 (0.472)	22.0 (0.866)	30.0 (1.181)	**30**	19.0 (0.748)	27.0 (1.063)	30.0 (1.181)				
2.2 µF	**40**	10.0 (0.394)	20.0 (0.787)	40.0 (1.575)	**40**	15.0 (0.591)	30.0 (1.181)	40.0 (1.575)				
3.3 µF	**30**	13.0 (0.512)	25.0 (0.984)	30.0 (1.181)								
3.3 µF	**40**	12.0 (0.472)	23.0 (0.906)	40.0 (1.575)								
4.7 µF	**30**	15.0 (0.591)	26.0 (1.024)	30.0 (1.181)								
4.7 µF	**40**	14.0 (0.551)	26.0 (1.024)	40.0 (1.575)								
6.8 µF												
6.8 µF												
10 µF												
10 µF												
15 µF												
22 µF												

BULK: Quantity Per Voltage

Capacitance	Voltage					
	63 V	100 V	250 V	400 V	630V	1000 V
0.01 µF			2000	2000	2000	1250
0.015 µF			2000	2000	2000	1250
0.022 µF		2000	2000	2000	1250	1250
0.033 µF		2000	2000	2000	1250	700
0.047 µF		2000	1500	1500	1250	700
0.068 µF		2000	1250	1250	1250	700
0.10 µF		2000	2000	1250	1250	700
0.15 µF		2000	1250	1250	700	300
0.22 µF	2000	2000	1250	700	700	200
0.33 µF	2000	1250	1250	700	300	200
0.47 µF	2000	1250	700	700	250	200
0.38 µF	2000	1250	700	700	200	
1 µF	2000	1250	700	300	200	
1.5 µF	1250	700	300	200	200	
2.2 µF	750	700	250	200	200	
3.3 µF	700	700	200	200		
4.7 µF	700	300	200	150		
6.8 µF	700	250	150			
10 µF	300	200	150			

Metallized Polyester Film Dielectric Capacitors

Type Selection Guide

Presentation	Type		Nominal Voltage		Capacitance Range (C_R)	Tolerance on C_R (Series)	Lead Spacing mm (inches)
	TPC	UTE	V_{R-}(V)	$V_{R\sim}$(V)			
Radial Leads	BF	CPM-83 C83151	63 ... 400	40 ... 200	1 nF ... 2.2 µF	±5% (E6 - E12) ±10% (E6 - E12)	5.08 (0.200)
	BH	CPM-N C83151	63 ... 400	40 ... 200	1 nF ... 2.2 µF	±5% (E6 - E12) ±10% (E6 - E12)	5.08 (0.200)
	BT	CPM85 C83151	63 ... 630	40 ... 220	1 nF ... 22 µF	±5% (E6 - E12) ±10% (E6 - E12) ±20% (E6 - E12)	7.5 (0.295) 10.0 (0.394) 15.0 (0.591) 22.5 (0.886) 27.5 (1.083)
	BG	CPM85 C83151	63 ...1,000	40 ... 250	1 nF ... 22 µF	±5% (E6 - E12) ±10% (E6 - E12) ±20% (E6 - E12)	7.5 (0.295) 10.0 (0.394) 15.0 (0.591) 22.5 (0.886) 27.5 (1.083)
	BC / BD		250	–	0.47 µF ... 2.2 µF	±5% ±10%	15.0 (0.591)
	BO	CPM50 C83151	40 ... 400	25 ... 200	1 nF ... 22 µF	±5% (E6 - E12) ±10% (E6 - E12) ±20% (E6 - E12)	7.5 (0.295) 10.0 (0.394) 15.0 (0.591) 27.5 (1.083)
	S4	CPM13 C83151	63 ... 400	40 ... 200	1 nF ... 10 µF	±5% (E6 - E12) ±10% (E6 - E12) ±20% (E6 - E12)	7.62 (0.300) 10.16 (0.400) 15.24 (0.600) 27.94 (1.100)
Axial Leads	S8	CPM8 C83151	63 ... 400	40 ... 200	1 nF ... 10 µF	±5% (E6 - E12) ±10% (E6 - E12) ±20% (E6 - E12)	
	SH	CPM8 C83151	63 ... 1,000	40 ... 250	1 nF ... 22 µF	±5% (E6 - E12) ±10% (E6 - E12) ±20% (E6 - E12)	
	S9	CPM72 C83151	100 ... 630	40 ... 220	1 nF ... 10 µF	±5% (E6 - E12) ±10% (E6 - E12) ±20% (E6 - E12)	
	SG	CPM72 C83151	63 ... 1,000	40 ... 250	1 nF ... 22 µF	±5% (E6 - E12) ±10% (E6 - E12) ±20% (E6 - E12)	
	ST		630 ... 10,000		100 pF ... 1.5 µF	±5% (E6 - E12) ±10% (E6 - E12) ±20% (E6 - E12)	

Metallized Polyester Film Dielectric Capacitors

HOW TO ORDER

Example of an order: how to order a CPM85 100 nF ±10% 100 V.

BT07	4	E	0104	K	– –
Identification Code	Dielectric Class	Voltage Code	Capacitance (EIA code)	Tolerance Code	Suffix

Identification Code

Radial Leads

CPM83	BF 01
CPM83	BF 02
CPM83	BF 05
CPM83	BF 06
CPM83	BF 07
CPM-N	BH 01
CPM-N	BH 02
CPM-N	BH 05
CPM-N	BH 06
CPM-N	BH 07
CPM85	BT 07
CPM85	BT 10
CPM85	BT 15
CPM85	BT 22
CPM85	BT 27
CPM85	BG 07
CPM85	BG 10
CPM85	BG 15
CPM85	BG 22
CPM85	BG 27
–	BC 15
–	BD 15
CPM50	BO 07
CPM50	BO 10
CPM50	BO 15
CPM50	BO 27
CPM13	S4 07
CPM13	S4 10
CPM13	S4 15
CPM13	S4 27

Axial Leads

CPM8	S8 10
CPM8	S8 14
CPM8	S8 18
CPM8	S8 31
CPM8	SH 13
CPM8	SH 18
CPM8	SH 25
CPM8	SH 30
CPM8	SH 40
CPM72	S9 10
CPM72	S9 14
CPM72	S9 18
CPM72	S9 27
CPM72	S9 31
CPM72	SG 13
CPM72	SG 18
CPM72	SG 25
CPM72	SG 30
CPM72	SG 40
–	ST 22
–	ST 36

Dielectric Class

4

Voltage Code

C = 25/40 V
D = 50/63 V
E = 100 V
F = 160/200 V
G = 250 V
H = 275/300 V
I = 400 V
J = 500 V
K = 600/630 V
L = 1000 V
M = 1600 V
N = 2000 V
P = 2500 V
Q = 3000 V
R = 4000 V
S = 5000 V
T = 6000/6300 V
U = 8000 V
V = 10 kV

Capacitance (EIA code)

Capacitance expressed by 2 significant figures
1st digit: 0 (zero)
2nd and 3rd digit: the 2 significant figures of the capacitance value
4th digit:
- for values ≥ 10 pF and ≤ 990 µF: the number of zeros to be added to the capacitance values
- for values ≥ 1 pF and ≤ 9.9 pF: the numerical 9 signifying that the capacitance value is to be multiplied by 0.1
- for values < 1 pF: the numerical 8 signifying that the capacitance value is to be multiplied by 0.01

Example:

1000 pF = 0102
8.2 pF = 0829
0.47 pF = 0478

Capacitance expressed by 3 significant figures

1st, 2nd and 3rd digit: the 3 significant figures of the capacitance value
4th digit:
- for values > 100 pF and ≤ 999 µF: the number of zeros to be added to the capacitance values
- for values > 10 pF and < 100 pF: the numerical 9 signifying that the capacitance value is to be multiplied by 0.1
- for values > 1 pF and < 10 pF: the numerical 8 signifying that the capacitance value is to be multiplied by 0.1

Example:

196 pF = 1960
47.2 pF = 4729
8.28 pF = 8288

Tolerance Code

J = ±5%
K = ±10%
M = ±20%

Suffix

DA - DB - DC - DD: lead spacing 5.08 mm taped on reel or ammopack

EN
Radial types:
lead spacing 7.5/10/15 mm taped on reel H=16.5 mm

Axial type: (SG series only) Ammopack

EP: Taped on reel H=18.5 mm (only for BG type)

GA or GB: standard axial taped

(S8, S9, ST types)

– – Bulk