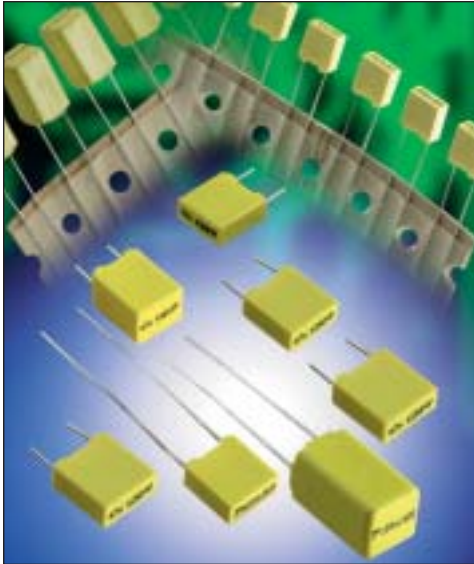


BF 01/02/07/06/05/04: Radial Leads



BQ 01/02/07/06/05/04 (Lead Free product available upon request)

CPM-83----- pitch = 5.08mm (0.200")



GENERAL DESCRIPTION

Dielectric: Metallized polyester film (Polyethylene terephthalate)

Stacked-film

Leads: Radial tin - plated wire

Protection: Plastic case (UL 94: V-O) / Epoxy Resin

Marking: Logo

Nominal Capacitance

Tolerance (EIA)

DC Nominal Voltage

Example: **T 100nK 63**

Delivery Mode: Bulk

Taped (reel or ammpack)

STANDARDIZATION

Generic specifications:

CEI 384-1/CECC 30000/UTE 83100

Sectional specifications:

CEI 384-2/CECC 30400/UTE 83151

Complies with special specification:

CECC 30401-063

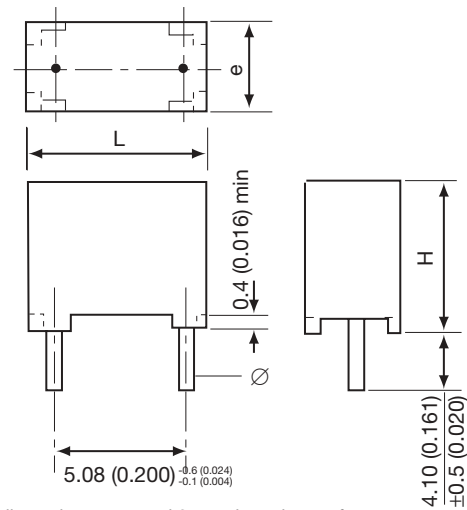
APPLICATIONS

- Commodity Product:
 - Supply decoupling
 - Filter
 - Integrators
 - Treatment of analog signals
 - Rejection of line perturbations, etc.

DIMENSIONS

millimeters (inches)

Case	L max	H max	e max	$\phi \pm 0.02$
01	7.5 (0.295)	6.5 (0.256)	2.5 (0.098)	0.5 (0.020)
02	7.5 (0.295)	8.0 (0.315)	3.2 (0.126)	0.5 (0.020)
05	7.5 (0.295)	12.0 (0.472)	6.0 (0.236)	0.5 (0.020)
06	7.5 (0.295)	9.6 (0.378)	6.0 (0.236)	0.5 (0.020)
07	7.5 (0.295)	8.0 (0.315)	5.0 (0.197)	0.5 (0.020)
04	7.5 (0.295)	13.0 (0.512)	7.5 (0.295)	0.5 (0.020)



*L dimension measured 3mm above base of case

HOW TO ORDER

BF or BQ01

Type

4

Class

D

Voltage

0104

Capacitance

K

Tolerance

--

Suffix



BF 01/02/07/06/05/04: Radial Leads



BQ 01/02/07/06/05/04 (Lead Free product available upon request)

CPM-83----- pitch = 5.08mm (0.200")

PERFORMANCE CHARACTERISTICS

Climatic Category	55/100/56 Performance Class 2
Capacitance Range	C_R 1nF to 2.2 μ F (E12)
Tolerance on C_R	$\pm 5\%$; $\pm 10\%$ (other values on request)
Nominal Voltages	VR_ 63/100/250/400V VR~ 40/ 63/160/200V
Category Voltage	$V_C = 0.8V_{R-}$ at 100°C
Test Voltage	$V_E = 1.6V_{R-}/2s$ at 25°C

- Tangent of Loss Angle: D.F.

Measurement Frequency	Capacitance	DF: Performance Category 2
1kHz	$C_R \leq 1\mu F$	$\leq 1.0\%$
100 Hz	$C_R > 1\mu F$	$\leq 1.0\%$

- Insulation Resistance: IR

Measuring Points	$C_R \leq 0.33\mu F$		$C_R > 0.33\mu F$	
	IR min (G Ω)		IR * C_R min (M Ω * μF)	
	Performance Class 2		Performance Class 2	
Between Terminals	$V_{R-} \leq 100V$	$V_{R-} > 100V$	$V_{R-} \leq 100V$	$V_{R-} > 100V$
	3.75	7.5	1.25	2.5
Between Terminals and Ground	$\geq 30,000 \Omega$			

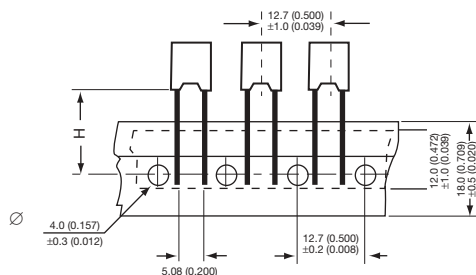
- Max voltage gradient

V_{R-}	63	100	250	400
$(dv/dt)_R$ max	38	40	110	270

PACKAGING

millimeters (inches)

	Panasert	Avisert
H	16.5 ± 0.30 (0.65 ± 0.012)	19.5 ± 0.50 (0.768 ± 0.020)



Thermoadhesive tape ▲

(Other sizes according to standard CEI : 286-2)
Dimensions: millimeters (inches)

Case	Quantity					
	Reel		Ammopack		Bulk	
Suffix x	DB panasert	DD avisert	DA panasert	DC avisert	USA Std.	Europe / Asia Std.
01	2500		2500		1000	5000
02	1800		2000		1000	3800
07	1200		1250		1000	2500
06	900		1100		1000	1500
05	900		1100		1000	1500
04	750		750		1000	1000



BF 01/02/07/06/05/04: Radial Leads



BQ 01/02/07/06/05/04 (Lead Free product available upon request)

CPM-83----- pitch = 5.08mm (0.200")

CAPACITANCE VALUES (C_R) and NOMINAL VOLTAGES (V_R)

Capacitance Range (C_R)	Reference			
	BF or BQ			
	V_R / V_{R-}			
	63/40 (voltage code: D)	100/63 (voltage code: E)	250/160 (voltage code: G)	400/200 (voltage code: I)
1,000 pF	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01
1,200	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01
1,500	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01
1,800	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01
2,200 pF	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01
2,700	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01
3,300	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01
3,900	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01
4,700 pF	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01
5,600	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01
6,800	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01
8,200	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01
10,000 pF	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01
12,000	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF02 or BQ02
15,000	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF02 or BQ02
18,000	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF02 or BQ02
22,000	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF02 or BQ02
27,000	BF01 or BQ01	BF01 or BQ01	BF01 or BQ01	BF07 or BQ07
33,000	BF01 or BQ01	BF01 or BQ01	BF02 or BQ02	BF07 or BQ07
39,000	BF01 or BQ01	BF01 or BQ01	BF02 or BQ02	BF06 or BQ06
47,000 pF	BF01 or BQ01	BF01 or BQ01	BF02 or BQ02	BF06 or BQ06
56,000	BF01 or BQ01	BF01 or BQ01	BF07 or BQ07	BF04 or BQ04
68,000	BF01 or BQ01	BF01 or BQ01	BF07 or BQ07	BF04 or BQ04
82,000	BF01 or BQ01	BF01 or BQ01	BF07 or BQ07	BF04 or BQ04
100 nF	BF01 or BQ01	BF01 or BQ01	BF07 or BQ07	BF04 or BQ04
120	BF01 or BQ01	BF01 or BQ01	BF06 or BQ06	
150	BF01 or BQ01	BF01 or BQ01	BF06 or BQ06	
180	BF01 or BQ01	BF02 or BQ02	BF04 or BQ04	
220 nF	BF01 or BQ01	BF02 or BQ02	BF04 or BQ04	
270	BF02 or BQ02	BF07 or BQ07		
330	BF02 or BQ02	BF07 or BQ07		
390	BF02 or BQ02	BF07 or BQ07		
470 nF	BF02 or BQ02	BF07 or BQ07		
560	BF07 or BQ07	BF05* or BQ05		
680	BF07 or BQ07	BF05* or BQ05		
820	BF07 or BQ07	BF05* or BQ05		
1 μ F	BF07 or BQ07	BF05 or BQ05		
1.5 μ F	BF05* or BQ05			
2.2 μ F	BF05** or BQ05			

*Upon request - no change

**Upon request & only available 50 V (V_R) - no change

BF04/BF06: New

BQ range: New



METALLIZED POLYESTER FILM CAPACITOR HIGH PERFORMANCES – HIGH TEMPERATURE PULSE APPLICATIONS

APPLICATIONS

Non-inductive, self-healing, metallized polyester film capacitor, insulated* thermoplastic casing, epoxy resin sealed with stand-offs*. Radial connections with a lead spacing of 5.08 mm.

* Flame retardant case according to UL 94 VO.

Some examples of use:

Supply decoupling, filter, integrators, treatment of analog signals, rejection of line perturbations, pulse logic and timing circuit, lamp capacitor for electronic compact lamps, inverter for LCD monitors, automotive DC motor suppression.

STANDARDIZATION

Generic specifications:

CEI 384-1/CECC 30000/UTE 83100

Sectional specifications:

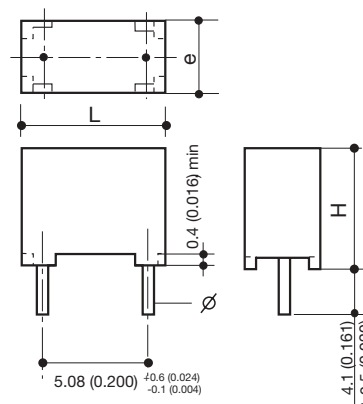
CEI 384-2/CECC 30400/UTE 83151

On the LNZ list:

Complies with type CPM-N

RAQ2 production, equivalent AQAP-4 of NATO

Schematic Cross Section



DIMENSIONS:

millimeters (inches)

Case	L max.	H max.	e max.	$\phi \pm 0.02$	Observations
01	7.5 (0.295)	6.5 (0.256)	2.5 (0.098)	0.5 (0.020)	1nF < C _r < 150nF
02	7.5 (0.295)	8.0 (0.315)	3.2 (0.126)	0.5 (0.020)	6.8nF < C _r < 220nF
05	7.5 (0.295)	12.0 (0.472)	6.0 (0.236)	0.5 (0.020)	47nF < C _r < 1500nF
06	7.5 (0.295)	9.6 (0.378)	6.0 (0.236)	0.5 (0.020)	33nF < C _r < 1000nF
07	7.5 (0.295)	8.0 (0.315)	5.0 (0.197)	0.5 (0.020)	22nF < C _r < 680nF

HOW TO ORDER

BJ01



Type

4



Class

D



Voltage

0104



Capacitance Value

J



Tolerance

--



Suffix

MARKING

T 100 nJ D

Marking

Nominal capacitance (EIA code)

Tolerance (EIA code)

DC nominal voltage

Example above: D = 63 Vdc, 100nF, $\pm 5\%$

PERFORMANCE CHARACTERISTICS

Climatic category:	55/125/56 - Performance Class 1
Capacitance range:	C_R 1nF to 1500nF (E12)
Tolerances on C_R :	$\pm 5\%$, $\pm 10\%$ (other values on request)
Nominal voltages:	V_R /63/100/250/400 V V_R /40/63/160/200 V
Rated temperature:	85°C
Category voltages:	$V_C = 0.8 V_R$ at 100°C; $0.5 V_R$ at 125°C
Test voltage:	$V_E = 1.6 V_R / 2s$ at 25°C
Life test:	$dC/C \leq 5\%$ after 125°C/2000h/ $0.625 V_R$
Thermal shock:	-55/+125°C/time cycle 1 hr/5 cycles $dC/C \leq 8\%$; D.F. 1kHz $\leq 1\%$
Humidity test:	+40°C/93% RH/56 days $dC/C \leq 5\%$

- Tangent of Loss Angle: D.F.

Measurement Frequency	Capacitance	DF: Performance Category 2
1kHz	$C_R \leq 1\mu F$	$\leq 1.0\%$
100 Hz	$C_R > 1\mu F$	$\leq 1.0\%$

- Insulation Resistance: IR

Measuring Points	$C_R \leq 0.33\mu F$		$C_R > 0.33\mu F$	
	IR min (GΩ)		IR * C_R min (MΩ * μF)	
	Performance Class 2		Performance Class 2	
Between Terminals	$V_{R-} \leq 100V$	$V_{R-} > 100V$	$V_{R-} \leq 100V$	$V_{R-} > 100V$
	3.75	7.5	1.25	2.5
Between Terminals and Ground	$\geq 30,000 \Omega$			

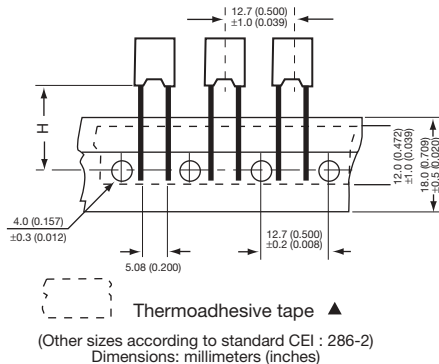
- Max voltage gradient

V_{R-}	63	100	250	400
$(dv/dt)_R$ max	250	300	400	600

PACKAGING

millimeters (inches)

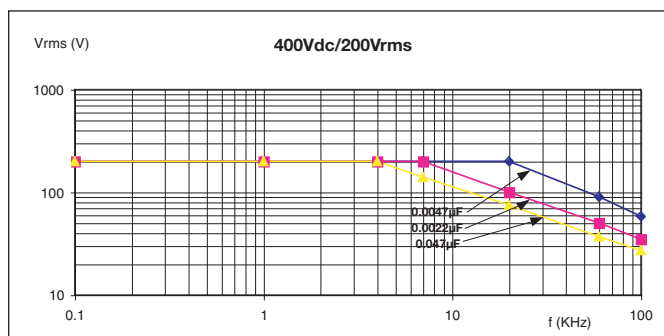
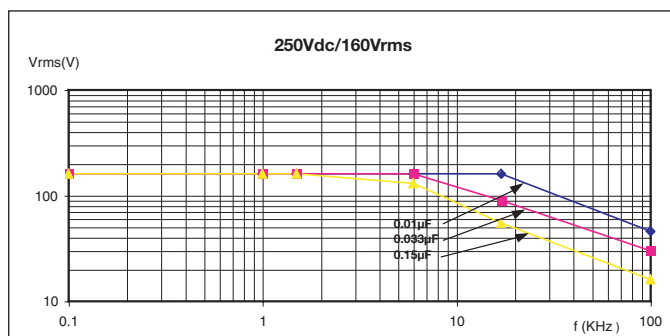
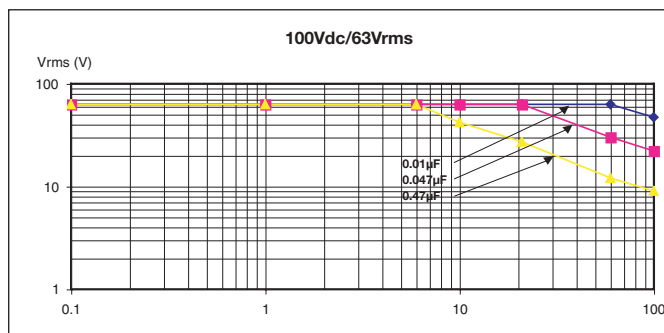
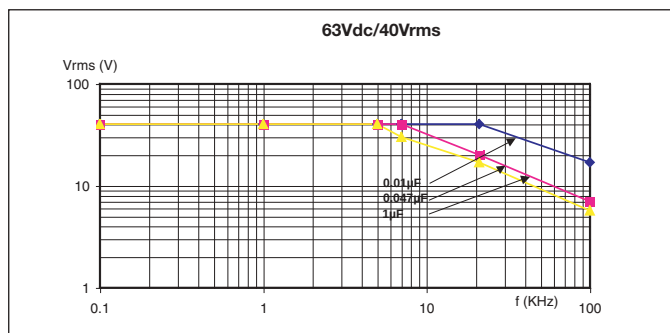
	Panasert	Avisert
H	16.5 ± 0.30 (0.65 ± 0.012)	19.5 ± 0.50 (0.768 ± 0.020)



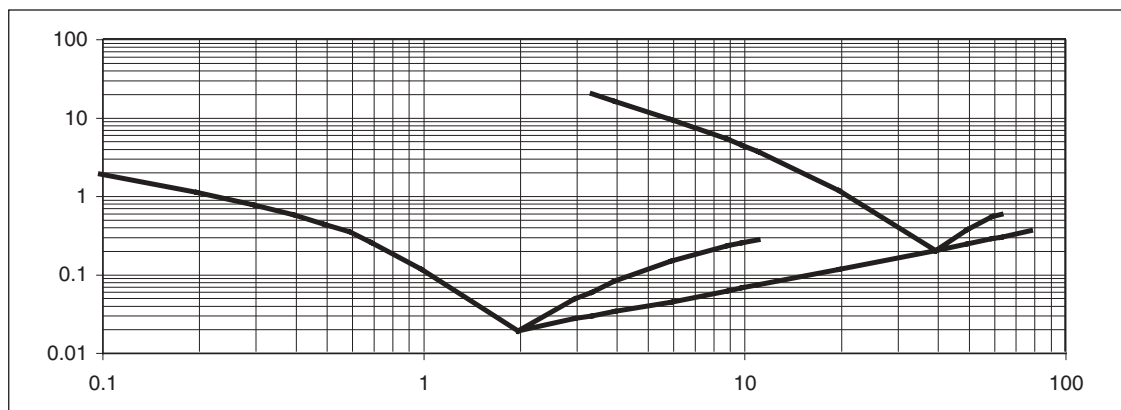
Case	Quantity					
	Reel		Ammopack		Bulk	
Suffix x	DB panasert	DD avisert	DA panasert	DC avisert	USA Std.	Europe / Asia Std.
01	2500		2500		1000	5000
02	1800		2000		1000	3800
07	1200		1250		1000	2500
06	900		1100		1000	1500
05	900		1100		1000	1500
04	750		750		1000	1000

CHARACTERISTICS CURVES

Nominal RMS Voltage vs. Frequency



Influence of the frequency on the impedance (room Temperature)



BJ 01/02/05/06/07 : Lead Free product

5.08 Radial Leads 63/100/250/400 V-



CAPACITANCE VALUES (C_R) AND NOMINAL VOLTAGES (V_R) VS CASE SIZE

Capacitance Range (C_R)	Reference			
	BJ			
	V_R -/ $V_{R\sim}$			
	63/40	100/63	250/160	400/200
1	BJ01	BJ01	BJ01	BJ01
1.5	BJ01	BJ01	BJ01	BJ01
2.2	BJ01	BJ01	BJ01	BJ01
3.3	BJ01	BJ01	BJ01	BJ01
4.7	BJ01	BJ01	BJ01	BJ01
6.8	BJ01	BJ01	BJ01	BJ02
10	BJ01	BJ01	BJ01	BJ02
15	BJ01	BJ01	BJ01	BJ02
22	BJ01	BJ01	BJ02	BJ07
33	BJ01	BJ01	BJ02	BJ06
47	BJ01	BJ01	BJ07	BJ05
68	BJ01	BJ01	BJ07	
100	BJ01	BJ02	BJ06	
150	BJ01	BJ07	BJ05	
220	BJ01	BJ06		
330	BJ02	BJ05		
470	BJ02	BJ05		
680	BJ07			
1000	BJ06			
1500	BJ05			



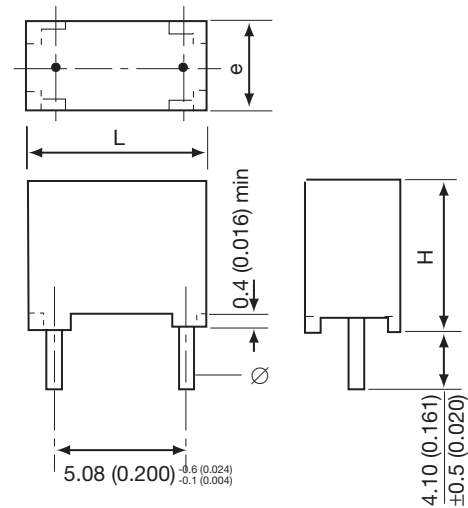
CPM-N----- pitch = 5.08mm (0.200")



Taped (reel or ammopack)

RAQ2 production, equivalent AQAP-4 of NATO

Case	L max	H max	e max	$\phi \pm 0.02$
01	7.5 (0.295)	6.5 (0.256)	2.5 (0.098)	0.5 (0.020)
02	7.5 (0.295)	8.0 (0.315)	3.2 (0.126)	0.5 (0.020)
05	7.5 (0.295)	12.0 (0.472)	6.0 (0.236)	0.5 (0.020)
06	7.5 (0.295)	9.6 (0.378)	6.0 (0.236)	0.5 (0.020)
07	7.5 (0.295)	8.0 (0.315)	5.0 (0.197)	0.5 (0.020)

**AVX**

BH 01/02/07/06/05:

Radial Leads (Lead Free Product)

CPM-N----- pitch = 5.08mm (0.200")



PERFORMANCE CHARACTERISTICS

Climatic Category	55/125/56 Performance Class 2
Capacitance Range	C_R 1nF to 2.2mF (E12)
Tolerance on C_R	$\pm 5\%$; $\pm 10\%$ (other values on request)
Nominal Voltages	VR_ 63/100/250/400V VR~ 40/63/160/200V
Category Voltage	$V_C = 0.8V_{R-}$ at 100°C & $0.5V_{R-}$ at 125°C
Test Voltage	$V_e = 1.6V_{R-}/2s$ at 25°C
Life Test	Delta C/C $\leq 5\%$ after 125°C/1000h/ $0.5V_{R-}$
Thermal Shock	-55/+125°C/time cycle 1hr/500 cycles delta C/C $\leq 10\%$ D.F. 1kHz $\leq 1\%$
Humidity Test	85°C/85% HR/1000 h delta C/C $\leq 10\%$

• Tangent of Loss Angle: D.F.

Measurement Frequency	Capacitance	DF: Performance Category 2
1kHz	$C_R \leq 1\mu F$	$\leq 1.0\%$
100 Hz	$C_R > 1\mu F$	$\leq 1.0\%$

• Insulation Resistance: IR

Measuring Points	$C_R \leq 0.33\mu F$		$C_R > 0.33\mu F$	
	IR min (G Ω)		IR * C_R min (M Ω * μF)	
	Performance Class 2		Performance Class 2	
Between Terminals	$V_{R-} \leq 100V$	$V_{R-} > 100V$	$V_{R-} \leq 100V$	$V_{R-} > 100V$
	3.75	7.5	1.25	2.5
Between Terminals and Ground	- 30,000 Ω			

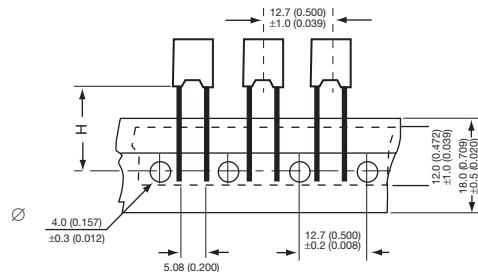
• Max voltage gradient

V_{R-}	63	100	250	400
(dv/dt) _R max	38	40	110	270

PACKAGING

millimeters (inches)

	Panasert	Avisert
H	16.5 ± 0.30 (0.65 ± 0.012)	19.5 ± 0.50 (0.768 ± 0.020)



Thermoadhesive tape ▲
(Other sizes according to standard CEI : 286-2)
Dimensions: millimeters (inches)

Case Suffix x	Quantity					
	Reel		Ammopack		Bulk	
	DB panasert	DD avisert	DA panasert	DC avisert	USA Std.	Europe / Asia Std.
01	2500		2500		1000	5000
02	1800		2000		1000	3800
07	1200		1250		1000	2500
06	900		1100		1000	1500
05	900		1100		1000	1500



BH 01/02/07/06/05:

Radial Leads (Lead Free Product)

CPM-N----- pitch = 5.08mm (0.200")

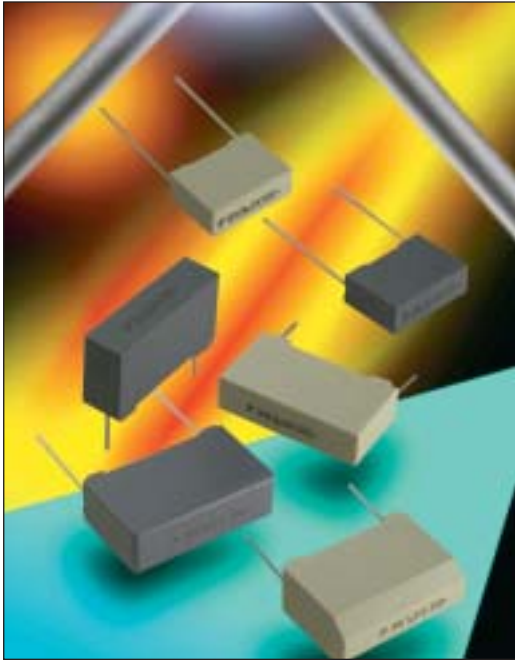


CAPACITANCE VALUES (C_R) and NOMINAL VOLTAGES (V_R)

Capacitance Range (C_R)	Reference			
	BH			
	V_{R-} / V_{R-}			
	63/40 (voltage code: D)	100/63 (voltage code: E)	250/160 (voltage code: G)	400/200 (voltage code: I)
1,000 pF	BH01	BH01	BH01	BH01
1,200	BH01	BH01	BH01	BH01
1,500	BH01	BH01	BH01	BH01
1,800	BH01	BH01	BH01	BH01
2,200 pF	BH01	BH01	BH01	BH01
2,700	BH01	BH01	BH01	BH01
3,300	BH01	BH01	BH01	BH01
3,900	BH01	BH01	BH01	BH01
4,700 pF	BH01	BH01	BH01	BH01
5,600	BH01	BH01	BH01	BH02
6,800	BH01	BH01	BH01	BH02
8,200	BH01	BH01	BH01	BH07
10,000 pF	BH01	BH01	BH01	BH07
12,000	BH01	BH01	BH01	BH07
15,000	BH01	BH01	BH01	BH07
18,000	BH01	BH01	BH01	BH06
22,000	BH01	BH01	BH02	BH06
27,000	BH01	BH01	BH02	BH06
33,000	BH01	BH01	BH02	BH06
39,000	BH01	BH01	BH07	BH05
47,000 pF	BH01	BH01	BH07	BH05
56,000	BH01	BH01	BH07	
68,000	BH01	BH01	BH07	
82,000	BH01	BH01	BH06	
100 nF	BH01	BH01	BH06	
120	BH01	BH01	BH05	
150	BH01	BH01	BH05	
180	BH01	BH02		
220 nF	BH01	BH02		
270	BH02	BH07		
330	BH02	BH07		
390	BH07	BH07		
470 nF	BH07	BH05		
560	BH07	BH05		
680	BH07	BH05		
820	BH07	BH05		
1 μ F	BH07	BH05		
1.5 μ F	BH05			
2.2 μ F	BH05**			

**Upon request & only available 50 V (V_R)





Schematic Cross Section



APPLICATIONS

- Commodity Product:
 - Decoupling with AC or pulse components
 - High current uses (TV deflection coils)
 - Capacitive dividers
 - Energy saving lamps, etc.

TECHNOLOGY

- Dielectric: Polyester film
- Stacked-film for pitch 7.5, 10 & 15mm (63Vdc...400Vdc)
Wound capacitor for pitch 7.5 & 10 & 15mm (630Vdc/1000Vdc)
for pitch 22.5 & 27.5mm (63Vdc/1000Vdc)
- Leads: Radial tinned copper wire
- Protection: Plastic case (UL94: V-O) / Polyurethane resin
- Marking: Logo
Type
Nominal Capacitance
Tolerance (EIA)
DC Nominal Voltage
Example: **T BN 47n J 400**
- Delivery Mode: Bulk
Taped (reel)

PERFORMANCE CHARACTERISTICS

Climatic Category:	55/125/56 Performance Class 2					
Capacitance Range:	C_R 1 nF to 22 μ F (E6)					
Tolerances on C_R :	$\pm 5\%$, $\pm 10\%$, $\pm 20\%$ (other values on request)					
Nominal Voltages:	V_{R-} 63/100/250/400/630/1000 V $V_{R\sim}$ 40/63/115/200/220/450 V					
Category Voltage:	$V_C = U_n$ at 100°C & 0.5 U_n at 125°C					
Test Voltage:	$V_e = 1.6 U_{ndc}/2$ s at 20°C					
Total Self Inductance (L):	For lead length = 2mm					
Pitch (mm)	7.5	10	15	22.5	27.5	
L (nH)	8	9	10	18	18	

Tangent of Loss Angle at 1 kHz:	$D.F. \leq 100 \cdot 10^{-4}$ for $C > 0.1 \mu F$ $\leq 80 \cdot 10^{-4}$ for $C \leq 0.1 \mu F$
---------------------------------	---

Insulation Resistance:	$IR \geq 3.75 G\Omega$ for $C \leq 0.33 \mu F$ $IR (M\Omega) \cdot C (\mu F) \geq 1250$ s for $C > 0.33 \mu F$ measures at 10V for $U_n=63V_{dc}$ and 100V for other
------------------------	--

dv/dt: (V/μsec)

V _{R-}	63	100	250	400	630	1000
(dv/dt) _R max pitch: 7.5mm	60	75	120	300	440	
(dv/dt) _R max pitch: 10mm	30	40	50	110	112	800
(dv/dt) _R max pitch: 15mm	23	27	34	79	102	400
(dv/dt) _R max pitch: 22.5mm	8	9	14	25	25	380
(dv/dt) _R max pitch: 27.5mm	5	5	6	8	15	340

Thermal Resistance: R_{th} hot spot/ambient (°C/W)

Pitch (mm)	7.5mm				10mm			15mm			22.5mm			27.5mm					
Case	1	2	C	D	E0	4	5	6	9	10	11	12	13	16	P0	18	19	26	R68
Rth (stacked)	201	147		117	140	124	90	88	61	82									
Rth (wound)	201	147		117	140	124	90	123	86	75	64	53	48	42	40	33	30	27	23

STANDARDIZATION

Generic specifications:

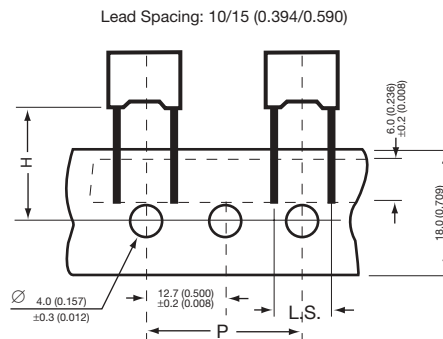
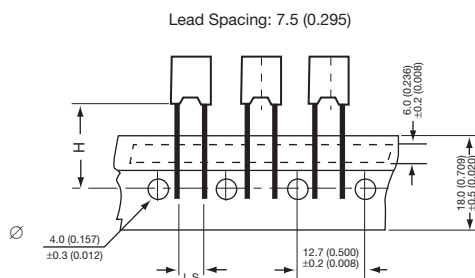
CEI 384-1/CECC 30000/UTE 83100

Sectional specifications:

CEI 384-2/CECC 30400/UTE 83151

PACKAGING

• Reel



Adhesive tape ▲

(Other sizes according to standard CEI : 286-2)
Dimensions: millimeters (inches)

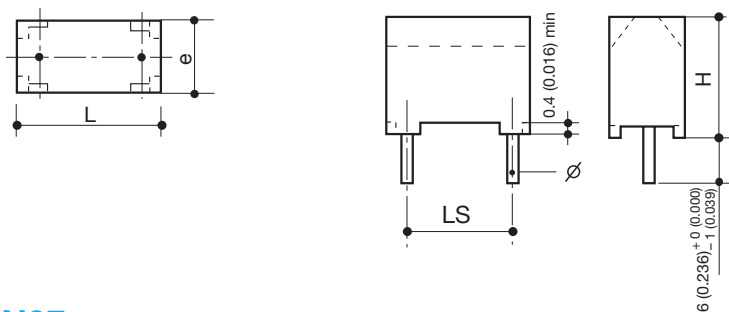
Taping Suffix EN			
Lead Spacing Tol ±0.4 (0.016)			
	7.5 (0.295)	10 (0.394)	15 (0.590)
P	12.7 ±1 (0.5 ±0.039)	25.4 ±1 (1.0 ±0.039)	
H	16.5 ±0.3 (0.650 ±0.012)	16 +1.5/-0.5 (0.600 +0.059/-0.020)	

• Bulk

Suffix	- -	LG	KB	KC	KE	KH	KK	K3	K7
Leads Length	6mm +0/-1	3.2mm ±0.4	3.5mm ±0.5	4mm ±0.5	5mm ±0.5	9mm ±0.5	15mm ±0.5	20mm ±1	25mm ±1

Standard Suffix: - -
Special MOQ for these special suffix

Pitch = 7.5mm



BN07

Pitch mm	Ordering Code	Vr-/Vr~	Cr	Case	Dimensions (mm)			MOQ		Ø +10% -0.5 mm	I ² t (A ² .sec)	I _{rms} (A)
					L max	H max	e max	Reel	Bulk ⁽¹⁾			
7.5	BN074D0683+-	63/40	68nF	1	9.3	8.2	3.3	8000	12,000	0.6	8.33 x 10 ⁻⁴	0.357
7.5	BN074D0104+-		100nF	1	9.3	8.2	3.3	8000	12,000	0.6	1.41 x 10 ⁻³	0.48
7.5	BN074D0224+-		220nF	1	9.3	8.2	3.3	8000	12,000	0.6	2.79 x 10 ⁻³	0.53
7.5	BN074D0334+-		330nF	1	9.3	8.2	3.3	8000	12,000	0.6	3.63 x 10 ⁻³	0.64
7.5	BN074D0474+-		470nF	1	9.3	8.2	3.3	8000	12,000	0.6	5.11 x 10 ⁻³	0.84
7.5	BN074D0684+-		680nF	2	10.1	10.2	5.2	10,000	14,000	0.6	1.54 x 10 ⁻²	1.33
7.5	BN074D0105+-		1µF	2	10.1	10.2	5.2	10,000	14,000	0.6	2.78 x 10 ⁻²	1.77
7.5	BN074D0225+-		2.2µF	D	10.1	12.2	6.2	8000	8000	0.6	1.12 x 10 ⁻¹	4
7.5	BN074E0333+-	100/63	33nF	1	9.3	8.2	3.3	8000	12,000	0.6	4.52 x 10 ⁻⁴	0.21
7.5	BN074E0473+-		47nF	1	9.3	8.2	3.3	8000	12,000	0.6	6.12 x 10 ⁻⁴	0.29
7.5	BN074E0104+-		100nF	1	9.3	8.2	3.3	8000	12,000	0.6	1.41 x 10 ⁻³	0.48
7.5	BN074E0224+-		220nF	1	9.3	8.2	3.3	8000	12,000	0.6	2.79 x 10 ⁻³	0.53
7.5	BN074E0334+-		330nF	2	10.1	10.2	5.2	10,000	14,000	0.6	7.85 x 10 ⁻³	1.00
7.5	BN074E0474+-		470nF	2	10.1	10.2	5.2	10,000	14,000	0.6	1.27 x 10 ⁻²	1.16
7.5	BN074E0684+-		680nF	C	10.1	11.2	5.2	10,000	12,000	0.6	2.23 x 10 ⁻²	1.48
7.5	BN074E0105+-		1µF	D	10.1	12.2	6.2	8000	8000	0.6	4.61 x 10 ⁻²	2.18
7.5	BN074G0472+-	250/115	4.7nF	1	9.3	8.2	3.3	8000	12,000	0.6	6.88 x 10 ⁻⁵	0.05
7.5	BN074G0682+-		6.8nF	1	9.3	8.2	3.3	8000	12,000	0.6	9.61 x 10 ⁻⁴	0.08
7.5	BN074G0103+-		10nF	1	9.3	8.2	3.3	8000	12,000	0.6	2.45 x 10 ⁻⁴	0.14
7.5	BN074G0223+-		22nF	1	9.3	8.2	3.3	8000	12,000	0.6	3.62 x 10 ⁻⁴	0.19
7.5	BN074G0333+-		33nF	1	9.3	8.2	3.3	8000	12,000	0.6	4.52 x 10 ⁻⁴	0.21
7.5	BN074G0473+-		47nF	1	9.3	8.2	3.3	8000	12,000	0.6	6.11 x 10 ⁻⁴	0.29
7.5	BN074G0104+-		100nF	2	10.1	10.2	5.2	10,000	14,000	0.6	1.85 x 10 ⁻³	0.53
7.5	BN074G0224+-		220nF	D	10.1	12.2	6.2	8000	8000	0.6	8.93 x 10 ⁻³	1.53
7.5	BN074I0102+-	400/200	1nF	1	9.3	8.2	3.3	8000	12,000	0.6	1.10 x 10 ⁻⁵	0.02
7.5	BN074I0222+-		2.2nF	1	9.3	8.2	3.3	8000	12,000	0.6	3.63 x 10 ⁻⁵	0.03
7.5	BN074I0332+-		3.3nF	1	9.3	8.2	3.3	8000	12,000	0.6	5.09 x 10 ⁻⁵	0.04
7.5	BN074I0472+-		4.7nF	1	9.3	8.2	3.3	8000	12,000	0.6	6.88 x 10 ⁻⁵	0.05
7.5	BN074I0103+-		10nF	1	9.3	8.2	3.3	8000	12,000	0.6	2.45 x 10 ⁻⁴	0.14
7.5	BN074I0223+-		22nF	1	9.3	8.2	3.3	8000	12,000	0.6	3.62 x 10 ⁻⁴	0.19
7.5	BN074I0333+-		33nF	2	10.1	10.2	5.2	10,000	14,000	0.6	1.44 x 10 ⁻³	0.38
7.5	BN074I0473+-		47nF	2	10.1	10.2	5.2	10,000	14,000	0.6	1.65 x 10 ⁻³	0.40
7.5	BN074I0683+-	630/220	68nF	C	10.1	11.2	5.2	10,000	12,000	0.6	3.46 x 10 ⁻³	0.59
7.5	BN074I0823+-		82nF	D	10.1	12.2	6.2	8000	8000	0.6	5.03 x 10 ⁻³	0.71
7.5	BN074K0102+-		1nF	1	9.3	8.2	3.3	8000	12,000	0.6	9.0 x 10 ⁻⁷	0.027
7.5	BN074K0152+-		1.5nF	1	9.3	8.2	3.3	8000	12,000	0.6	2.0 x 10 ⁻⁶	0.027
7.5	BN074K0222+-		2.2nF	1	9.3	8.2	3.3	8000	12,000	0.6	2.3 x 10 ⁻⁶	0.027
7.5	BN074K0332+-		3.3nF	1	9.3	8.2	3.3	8000	12,000	0.6	2.5 x 10 ⁻⁶	0.027
7.5	BN074K0472+-		4.7nF	1	9.3	8.2	3.3	8000	12,000	0.6	5.7 x 10 ⁻⁶	0.027
7.5	BN074K0682+-		6.8nF	2	10.1	10.2	5.2	10,000	14,000	0.6	1.2 x 10 ⁻⁵	0.14
7.5	BN074K0103+-		10nF	2	10.1	10.2	5.2	10,000	14,000	0.6	2.6 x 10 ⁻⁵	0.14
7.5	BN074K0153+-		15nF	C	10.1	11.2	5.2	10,000	12,000	0.6	5.8 x 10 ⁻⁵	0.22
7.5	BN074K0223+-		22nF	D	10.1	12.2	6.2	8000	8000	0.6	1.2 x 10 ⁻⁴	0.34
7.5	BN074K0273+-		27nF	D	10.1	12.2	6.2	8000	8000	0.6	1.8 x 10 ⁻⁴	0.34

Replace the + by the tolerance code: J=5% - K=10% - M=20%

Replace the - - by the packaging suffix: - - = standard bulk - EN = taping on reel etc

⁽¹⁾: MOQ for standard bulk suffix - -

Pitch = 10mm

BN10

Pitch mm	Ordering Code	Vr-/Vr~	Cr	Case	Dimensions (mm)			MOQ		$\varnothing$ +10% -0.5 mm	I ² t (A ² .sec)	I _{rms} (A)
					L max	H max	e max	Reel	Bulk ⁽¹⁾			
10	BN104D0224+-	63/40	220nF	E0	12.7	9.2	4.2	6800	14,000	0.6	2.20×10^{-3}	0.71
10	BN104D0334+-		330nF	E0	12.7	9.2	4.2	6800	14,000	0.6	3.54×10^{-3}	0.73
10	BN104D0474+-		470nF	E0	12.7	9.2	4.2	6800	14,000	0.6	5.74×10^{-3}	0.765
10	BN104D0684+-		680nF	E0	12.7	9.2	4.2	6800	14,000	0.6	6.84×10^{-3}	0.837
10	BN104D0105+-		1 μ F	E0	12.7	9.2	4.2	6800	14,000	0.6	1.11×10^{-2}	1.23
10	BN104D0155+-		1.5 μ F	4	12.7	10.2	5.2	5600	10,000	0.6	2.50×10^{-2}	1.83
10	BN104D0225+-		2.2 μ F	5	12.7	13.6	5.2	5600	8000	0.6	5.37×10^{-2}	2.685
10	BN104E0683+-	100/63	68nF	E0	12.7	9.2	4.2	6800	14,000	0.6	8.74×10^{-4}	0.32
10	BN104E0104+-		100nF	E0	12.7	9.2	4.2	6800	14,000	0.6	1.33×10^{-3}	0.40
10	BN104E0154+-		150nF	E0	12.7	9.2	4.2	6800	14,000	0.6	1.47×10^{-3}	0.667
10	BN104E0224+-		220nF	E0	12.7	9.2	4.2	6800	14,000	0.6	2.20×10^{-3}	0.71
10	BN104E0334+-		330nF	E0	12.7	9.2	4.2	6800	14,000	0.6	3.54×10^{-3}	0.73
10	BN104E0474+-		470nF	E0	12.7	9.2	4.2	6800	14,000	0.6	5.74×10^{-3}	0.765
10	BN104E0684+-		680nF	4	12.7	10.2	5.2	5600	10,000	0.6	1.20×10^{-2}	1.107
10	BN104E0105+-		1000nF	5	12.7	13.6	5.2	5600	8000	0.6	2.60×10^{-2}	1.629
10	BN104G0333+-	250/115	33nF	E0	12.7	9.2	4.2	6800	14,000	0.6	4.86×10^{-4}	0.21
10	BN104G0473+-		47nF	E0	12.7	9.2	4.2	6800	14,000	0.6	6.01×10^{-4}	0.26
10	BN104G0683+-		68nF	E0	12.7	9.2	4.2	6800	14,000	0.6	8.74×10^{-4}	0.32
10	BN104G0104+-		100nF	E0	12.7	9.2	4.2	6800	14,000	0.6	1.33×10^{-3}	0.4
10	BN104G0154+-		150nF	E0	12.7	9.2	4.2	6800	14,000	0.6	1.47×10^{-3}	0.5
10	BN104G0224+-		220nF	4	12.7	10.2	5.2	5600	10,000	0.6	3.16×10^{-3}	0.73
10	BN104G0334+-		330nF	4	12.7	10.2	5.2	5600	10,000	0.6	7.11×10^{-3}	1.1
10	BN104G0474+-		470nF	5	12.7	13.6	5.2	5600	8000	0.6	1.44×10^{-2}	1.57
10	BN104I0472+-	400/200	4.7nF	E0	12.7	9.2	4.2	6800	14,000	0.6	6.03×10^{-5}	0.043
10	BN104I0682+-		6.8nF	E0	12.7	9.2	4.2	6800	14,000	0.6	9.96×10^{-5}	0.07
10	BN104I0103+-		10nF	E0	12.7	9.2	4.2	6800	14,000	0.6	1.13×10^{-4}	0.088
10	BN104I0153+-		15nF	E0	12.7	9.2	4.2	6800	14,000	0.6	1.70×10^{-4}	0.129
10	BN104I0223+-		22nF	E0	12.7	9.2	4.2	6800	14,000	0.6	3.31×10^{-4}	0.157
10	BN104I0333+-		33nF	E0	12.7	9.2	4.2	6800	14,000	0.6	4.66×10^{-4}	0.213
10	BN104I0473+-		47nF	E0	12.7	9.2	4.2	6800	14,000	0.6	6.01×10^{-4}	0.26
10	BN104I0683+-	630/220	68nF	4	12.7	10.2	5.2	5600	10,000	0.6	1.26×10^{-3}	0.35
10	BN104I0104+-		100nF	5	12.7	13.6	5.2	5600	8000	0.6	2.72×10^{-3}	0.52
10	BN104K0472+-		4.7nF	E0	12.7	9.2	4.2	6800	14,000	0.6	2.16×10^{-5}	0.05
10	BN104K0682+-		6.8nF	E0	12.7	9.2	4.2	6800	14,000	0.6	4.53×10^{-5}	0.07
10	BN104K0103+-		10nF	E0	12.7	9.2	4.2	6800	14,000	0.6	9.74×10^{-5}	0.08
10	BN104K0153+-		15nF	E0	12.7	9.2	4.2	6800	14,000	0.6	2.20×10^{-4}	0.10
10	BN104K0223+-		22nF	4	12.7	10.2	5.2	5600	10,000	0.6	4.74×10^{-4}	0.14
10	BN104K0333+-	1000/450	33nF	4	12.7	10.2	5.2	5600	10,000	0.6	7.41×10^{-4}	0.18
10	BN104K0473+-		47nF	5	12.7	13.6	5.2	5600	8000	0.6	9.16×10^{-4}	0.24
10	BN104L0102+-		1nF	E0	12.7	9.2	4.2	6800	14,000	0.6	1.8×10^{-5}	0.05
10	BN104L0152+-		1.5nF	E0	12.7	9.2	4.2	6800	14,000	0.6	4.00×10^{-5}	0.05
10	BN104L0222+-		2.2nF	E0	12.7	9.2	4.2	6800	14,000	0.6	7.00×10^{-5}	0.08
10	BN104L0332+-		3.3nF	4	12.7	10.2	5.2	5600	10,000	0.6	1.24×10^{-4}	0.14
10	BN104L0472+-		4.7nF	5	12.7	13.6	5.2	5600	8000	0.6	2.51×10^{-4}	0.22
10	BN104L0682+-		6.8nF	5	12.7	13.6	5.2	5600	8000	0.6	5.26×10^{-4}	0.26

Replace the + by the tolerance code: J=5% - K=10% - M=20%

Replace the -- by the packaging suffix: -- = standard bulk - EN = taping on reel etc

⁽¹⁾: MOQ for standard bulk suffix --

Pitch = 15mm

BN15

Pitch mm	Ordering Code	Vr-/Vr~	Cr	Case	Dimensions (mm)			MOQ		$\varnothing$ +10% -0.5 mm	I ² t (A ² .sec)	I _{rms} (A)
					L max	H max	e max	Reel	Bulk ⁽¹⁾			
15	BN154D0684+-	63/40	680nF	6	17.7	10.6	5.2	4000	6000	0.8	1.22×10^{-2}	0.83
15	BN154D0105+-		1 μ F	6	17.7	10.6	5.2	4000	6000	0.8	2.12×10^{-2}	0.96
15	BN154D0155+-		1.5 μ F	6	17.7	10.6	5.2	4000	6000	0.8	3.60×10^{-2}	1.43
15	BN154D0225+-		2.2 μ F	6	17.7	10.6	5.2	4000	6000	0.8	4.38×10^{-2}	1.783
15	BN154D0335+-		3.3 μ F	10	17.7	12.2	6.2	4000	6000	0.8	9.86×10^{-2}	2.674
15	BN154D0475+-		4.7 μ F	9	17.7	14.6	8.7	2500	8000	0.8	4.19×10^{-1}	3.808
15	BN154D0685+-		6.8 μ F	9	17.7	14.6	8.7	2500	8000	0.8	2.00×10^{-1}	5.50
15	BN154D0825+-		8.2 μ F	9	17.7	14.6	8.7	2500	8000	0.8	6.09×10^{-1}	6.200
15	BN154E0154+-	100/63	150nF	6	17.7	10.6	5.2	4000	6000	0.8	4.35×10^{-3}	0.43
15	BN154E0224+-		220nF	6	17.7	10.6	5.2	4000	6000	0.8	5.53×10^{-3}	0.64
15	BN154E0334+-		330nF	6	17.7	10.6	5.2	4000	6000	0.8	1.13×10^{-2}	0.72
15	BN154E0474+-		470nF	6	17.7	10.6	5.2	4000	6000	0.8	1.33×10^{-2}	0.96
15	BN154E0105+-		1 μ F	6	17.7	10.6	5.2	4000	6000	0.8	1.71×10^{-2}	0.96
15	BN154E0155+-		1.5 μ F	6	17.7	10.6	5.2	4000	6000	0.8	3.60×10^{-2}	1.43
15	BN154E0225+-		2.2 μ F	10	17.7	12.2	6.2	4000	6000	0.8	8.20×10^{-2}	2.111
15	BN154E0335+-		3.3 μ F	9	17.7	14.6	8.7	2500	8000	0.8	1.85×10^{-1}	3.168
15	BN154E0475+-		4.7 μ F	9	17.7	14.6	8.7	2500	8000	0.8	3.74×10^{-1}	4.51
15	BN154G0104+-	250/115	100nF	6	17.7	10.6	5.2	4000	6000	0.8	2.58×10^{-3}	0.38
15	BN154G0154+-		150nF	6	17.7	10.6	5.2	4000	6000	0.8	4.35×10^{-3}	0.43
15	BN154G0224+-		220nF	6	17.7	10.6	5.2	4000	6000	0.8	5.57×10^{-3}	0.64
15	BN154G0334+-		330nF	6	17.7	10.6	5.2	4000	6000	0.8	7.51×10^{-3}	0.72
15	BN154G0474+-		470nF	6	17.7	10.6	5.2	4000	6000	0.8	1.17×10^{-2}	1.024
15	BN154G0684+-		680nF	10	17.7	12.2	6.2	4000	6000	0.8	2.44×10^{-2}	1.483
15	BN154G0105+-		1 μ F	9	17.7	14.6	8.7	2500	8000	0.8	5.28×10^{-2}	2.178
15	BN154G0155+-		1.5 μ F	9	17.7	14.6	8.7	2500	8000	0.8	1.19×10^{-1}	3.267
15	BN154I0473+-	400/200	47nF	6	17.7	10.6	5.2	4000	6000	0.8	1.19×10^{-3}	0.191
15	BN154I0683+-		68nF	6	17.7	10.6	5.2	4000	6000	0.8	1.59×10^{-3}	0.28
15	BN154I0104+-		100nF	6	17.7	10.6	5.2	4000	6000	0.8	2.58×10^{-3}	0.38
15	BN154I0154+-		150nF	6	17.7	10.6	5.2	4000	6000	0.8	4.35×10^{-3}	0.43
15	BN154I0224+-		220nF	10	17.7	12.2	6.2	4000	6000	0.8	9.37×10^{-3}	0.70
15	BN154I0334+-		330nF	9	17.7	14.6	8.7	2500	8000	0.8	2.11×10^{-2}	1.05
15	BN154I0474+-		470nF	9	17.7	14.6	8.7	2500	8000	0.8	4.27×10^{-2}	1.50
15	BN154K0333+-	630/220	33nF	6	17.7	10.6	5.2	4000	6000	0.8	4.90×10^{-4}	0.14
15	BN154K0473+-		47nF	6	17.7	10.6	5.2	4000	6000	0.8	8.73×10^{-4}	0.20
15	BN154K0683+-		68nF	10	17.7	12.2	6.2	4000	6000	0.8	4.11×10^{-3}	0.32
15	BN154K0104+-		100nF	10	17.7	12.2	6.2	4000	6000	0.8	4.50×10^{-3}	0.46
15	BN154K0154+-		150nF	9	17.7	14.6	8.7	2500	8000	0.8	1.00×10^{-2}	0.70
15	BN154L0682+-	1000/450	6.8nF	6	17.7	10.6	5.2	4000	6000	0.8	1.11×10^{-4}	0.14
15	BN154L0103+-		10nF	6	17.7	10.6	5.2	4000	6000	0.8	2.41×10^{-4}	0.22
15	BN154L0223+-		22nF	9	17.7	14.6	8.7	2500	6000	0.8	1.17×10^{-3}	0.60
15	BN154L0333+-		33nF	9	17.7	14.6	8.7	2500	8000	0.8	2.62×10^{-3}	0.76

Replace the + by the tolerance code: J=5% - K=10% - M=20%

Replace the - - by the packaging suffix: - - = standard bulk - EN = taping on reel etc

⁽¹⁾: MOQ for standard bulk suffix - -

BW 15: TIP & RING 15 Radial leads-250 V-



DESCRIPTION

Non inductive, stacked, self healing, metallised polyester film capacitor. Insulated thermoplastic casing, polyurethane resin sealed. Radial connections. Also available in SMD version. (see below)

APPLICATIONS

AVX's « TIP & RING » or « ringer » metallised polyester film capacitors are designed as a standard telecom filter to block –48 Volts DC telephone line voltage and pass subscriber's AC signal pulse (16 to 25 Hz, 70 to 90 Vrms). The typical ringing Signal is shown in the enclosed figure. The ringer film capacitors are ideal for telecom/modem applications. This is a complement range to the AVX's ceramic one.

STANDARDISATION

Generic specifications:

CEI 384-1/CECC 30000/UTE 83100

Sectional specifications:

CEI 384-2/CECC 30400/UTE 83151



DIMENSIONS AND CAPACITANCE VALUES

Size	Case	millimeters (inches) DIMENSIONS (mm)					DV/DT (V/μsec)	P _t (A ² .sec)	U _r ~/U _r ~ 250/100
		L max	H max	e max	LS ±0,4	Ø +10%-0,05			Capacitance
	6	17,5(0,689)	10,50(0,413)	5(0,197)	15(0,591)	0,80(0,031)	430	0,166	470 nF
	7	17,5(0,689)	13,5(0,531)	5(0,197)	15(0,591)	0,80(0,031)	300	0,183	680 nF
15	7	17,5(0,689)	13,5(0,531)	5(0,197)	15(0,591)	0,80(0,031)	300	0,276	820 nF
	8	17,5(0,689)	13,5(0,531)	6,25(0,246)	15(0,591)	0,80(0,031)	300	0,405	1 μF
	9	17,5(0,689)	14,5(0,571)	8,50(0,335)	15(0,591)	0,80(0,031)	50	0,159	1,5 μF
	9	17,5(0,689)	14,5(0,571)	8,50(0,335)	15(0,591)	0,80(0,031)	50	0,336	2,2 μF

HOW TO ORDER

BW15

—
|
Type

4

—
|
Class
|
PET

G

—
|
Voltage
|
250V

0105

—
|
Capacitance
Value
|
EIA code

K

—
|
Tolerance
|
±10%

—
|
Suffix



BW 15: TIP & RING 15 Radial leads-250 V-



PERFORMANCE CHARACTERISTICS

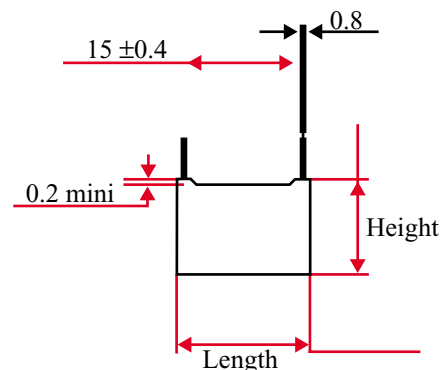
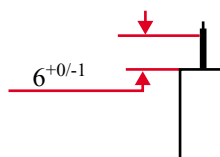
Climatic category	55 / 100 / 56
Capacitance (Cr)	See table
Tolerance	±5% ±10 %
Nominal voltage	250 V-
Test voltage (1.4Ur-2sec)	350 V-
Category voltage	Ur at 100°C
Tangent of loss angle at 1Khz (DF)	< 80. 10 ⁻⁴
Insulation resistance between terminals under 100V-	Ir * C > 1 Gohm µF
Insulation resistance between terminals and case	> 30 Gohms

MARKING

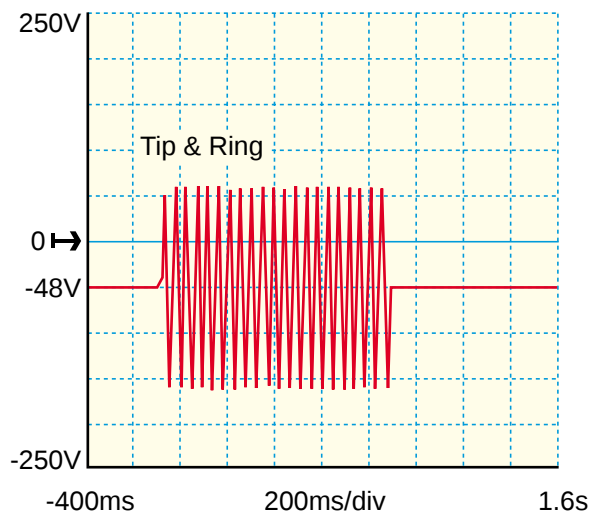
T BW 1 µ0 K	Logo
250 V-	Type
	Nominal capacitance
	Tolerance(EIA code)
	DC nominal voltage

SUFFIX	--	EN	LG	KB	KC	KE	KH	K7
Description	Connections bulk length= 6mm±0.5	Tape\$reel	Connections bulk length= 3.2mm±0.4	Connections bulk length= 3.5mm±0.5	Connections bulk length= 4mm±0.5	Connections bulk length= 5mm±0.5	Connections bulk length= 9mm±0.5	Connections bulk length= 25mm±1

SCHEMATIC DRAWING



« TIP&RING » GRAPH



MOQ= primary packaging

Size	Case	Reel (EN) Minimum	Bulk (—) Quantity
15	6	4000	6000
15	7	4000	6000
15	8	3332	6000
15	9	2500	8000



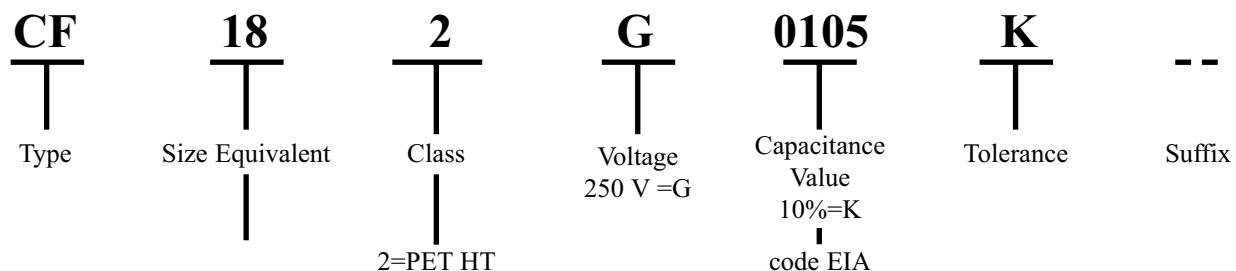
FILM CHIP CAPACITORS

« TIP&RING » film chip capacitors are designed also as a standard telecom filter

Standard range
Extended range

		Size Code	H max
470 nF	0474	5040/4030	4.6/5.5
680 nF	0684	6054/5040	4.4/4.6
820 nF	0824	6054/5040	5/5.7
1 μ F	0105	6054/5040	5.7/6.6
1.5 μ F	0155	6054	5.9

PART NUMBER SCHEME



PERFORMANCE CHARACTERISTICS AND PACKAGING: see catalog film chip capacitors

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