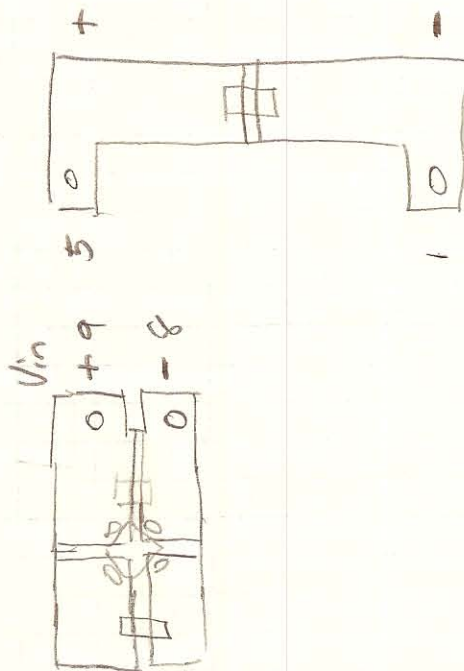




C5732X 752A156 M
CMS1-1-R



C Series

Mid Voltage Application

Type: C1005, C1608, C2012, C3216, C3225, C4532, C5750



Features



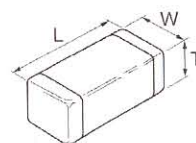
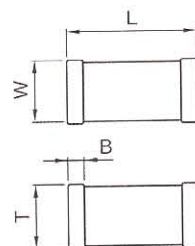
- Unique electrode design allows higher voltage application in smaller case size
- SMT package will help down sizing and lightening of the weight of the product
- A monolithic structure ensures superior mechanical strength and reliability.
- High capacitance has been achieved through precision technologies that enable the use of multiple thinner ceramic dielectric layers.
- Owing to their low ESR and excellent frequency characteristics, these products are optimally suited for high frequency and high-density type power supplies.
- High-accuracy automatic mounting is facilitated through the maintenance of very precise dimensional tolerances.
- Low residual inductance assures superior frequency characteristics.
- Low stray capacitance ensures high conformity with nominal values, thereby simplifying the circuit design process.
- Voltage rating of up to 630V
- High mechanical strength
- No polarity

Applications



- Snubber in switching power supply
- Ringer cap in telephone set and modem
- Flash light in camera
- DSU/TA in ISDN lines
- HID (High Intensity Discharge Lamp)
- Output bypass in power supply
- Driver circuit in plasma display
- Noise bypass in automotive
- Other mid voltage applications

Shape & Dimensions



L Body Length
W Body Width
T Body Height
B Terminal Width

Dimensions in mm



Part Number Construction

C 3216 X7R 2J 103 K T XXXX

Series Name

Dimensions L x W (mm)

Case Code	Length	Width
C1005	1.00 ± 0.05	0.50 ± 0.05
C1608	1.60 ± 0.10	0.80 ± 0.10
C2012	2.00 ± 0.20	1.25 ± 0.20
C3216	3.20 ± 0.20	1.60 ± 0.20
C3225	3.20 ± 0.40	2.50 ± 0.30
C4532	4.50 ± 0.40	3.20 ± 0.40
C5750	5.70 ± 0.40	5.00 ± 0.40

Temperature Characteristic

Temperature Characteristics	Capacitance Change	Temperature Range
C0G	0±30 ppm/°C	-55 to +125°C
X7R	±15%	-55 to +125°C
X7S	±22%	-55 to +125°C

Rated Voltage (DC)

Voltage Code	Voltage(DC)
2A	100V
2E	250V
2J	630V

Internal Codes

Packaging Style

Packaging Code	Style
T	Tape and Reel

Capacitance Tolerance

Tolerance Code	Tolerance
J	± 5%
K	± 10%
M	± 20%

Nominal Capacitance (pF)

The capacitance is expressed in three digit codes and in units of pico Farads (pF). The first and second digits identify the first and second significant figures of the capacitance. The third digit identifies the multiplier. R designates a decimal point.

Capacitance Code	Capacitance
0R5	0.5pF
010	1pF
102	1,000pF (1nF)
105	1,000,000pF (1μF)



Capacitance Range Chart

C5750 [EIA CC2220]

Capacitance Range Chart

Temperature Characteristics: X7R ($\pm 15\%$), X7S ($\pm 22\%$)
 Rated Voltage: 630V (2J), 250V(2E), 100V (2A)

Capacitance (pF)	Cap Code	Tolerance	X7R			X7S
			2J (630V)	2E (250V)	2A (100V)	2A (100V)
150,000	154	K: $\pm 10\%$ M: $\pm 20\%$				
220,000	224					
330,000	334					
470,000	474					
680,000	684					
1,000,000	105					
1,500,000	155					
2,200,000	225					
3,300,000	335					
4,700,000	475					
10,000,000	106					
15,000,000	156					

Standard Thickness

	1.60 $\pm$ 0.20 mm
	2.30 $\pm$ 0.20 mm
	2.50 $\pm$ 0.30 mm



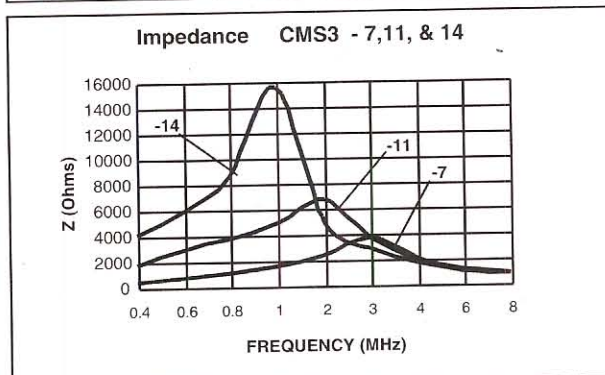
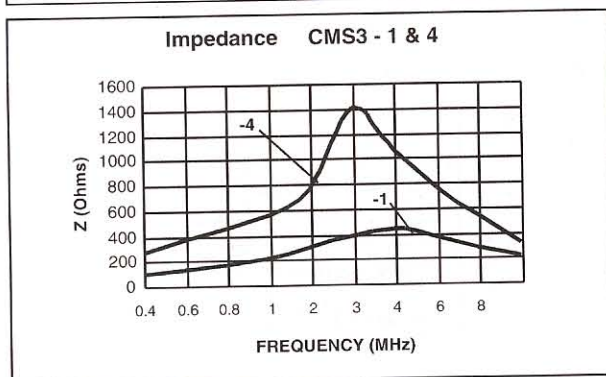
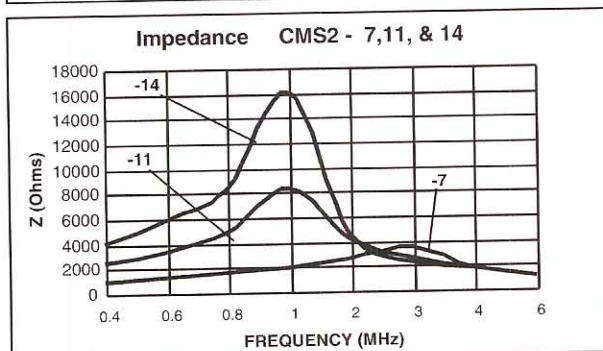
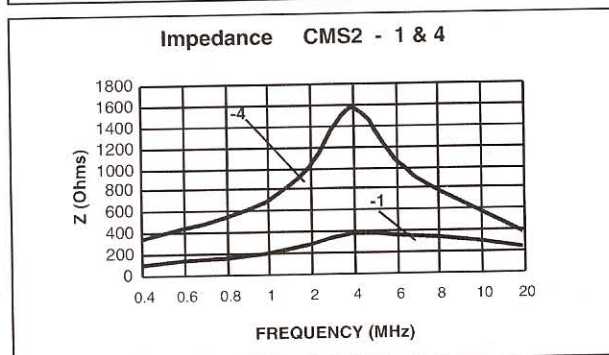
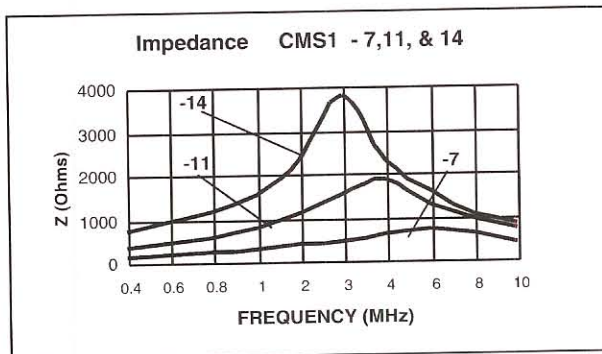
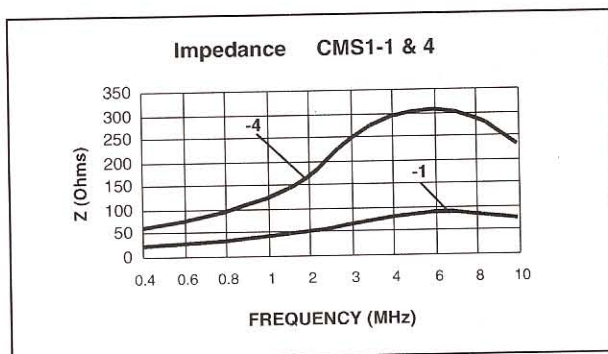
Capacitance Range Table

Class 2 (Temperature Stable)

Temperature Characteristics: X7R ($\pm 15\%$), X7S ($\pm 22\%$)

TDK Part Number (Ordering Code)	Temperature Characteristics	Rated Voltage	Capacitance (pF)	Capacitance Tolerance	Thickness (mm)
C5750X7R2A105K	X7R	100V	1,000,000	$\pm 10\%$	2.30 $\pm$ 0.20
C5750X7R2A105M	X7R	100V	1,000,000	$\pm 20\%$	2.30 $\pm$ 0.20
C5750X7R2A155K	X7R	100V	1,500,000	$\pm 10\%$	2.30 $\pm$ 0.20
C5750X7R2A155M	X7R	100V	1,500,000	$\pm 20\%$	2.30 $\pm$ 0.20
C5750X7R2A225K	X7R	100V	2,200,000	$\pm 10\%$	2.30 $\pm$ 0.20
C5750X7R2A225M	X7R	100V	2,200,000	$\pm 20\%$	2.30 $\pm$ 0.20
C5750X7R2A335K	X7R	100V	3,300,000	$\pm 10\%$	2.30 $\pm$ 0.20
C5750X7R2A335M	X7R	100V	3,300,000	$\pm 20\%$	2.30 $\pm$ 0.20
C5750X7R2A475K	X7R	100V	4,700,000	$\pm 10\%$	2.30 $\pm$ 0.20
C5750X7R2A475M	X7R	100V	4,700,000	$\pm 20\%$	2.30 $\pm$ 0.20
C5750X7R2E334K	X7R	250V	330,000	$\pm 10\%$	1.60 $\pm$ 0.20
C5750X7R2E334M	X7R	250V	330,000	$\pm 20\%$	1.60 $\pm$ 0.20
C5750X7R2E474K	X7R	250V	470,000	$\pm 10\%$	2.30 $\pm$ 0.20
C5750X7R2E474M	X7R	250V	470,000	$\pm 20\%$	2.30 $\pm$ 0.20
C5750X7R2E684K	X7R	250V	680,000	$\pm 10\%$	2.30 $\pm$ 0.20
C5750X7R2E684M	X7R	250V	680,000	$\pm 20\%$	2.30 $\pm$ 0.20
C5750X7R2E105K	X7R	250V	1,000,000	$\pm 10\%$	2.30 $\pm$ 0.20
C5750X7R2E105M	X7R	250V	1,000,000	$\pm 20\%$	2.30 $\pm$ 0.20
C5750X7R2J154K	X7R	630V	150,000	$\pm 10\%$	1.60 $\pm$ 0.20
C5750X7R2J154M	X7R	630V	150,000	$\pm 20\%$	1.60 $\pm$ 0.20
C5750X7R2J224K	X7R	630V	220,000	$\pm 10\%$	2.30 $\pm$ 0.20
C5750X7R2J224M	X7R	630V	220,000	$\pm 20\%$	2.30 $\pm$ 0.20
C5750X7S2A106M	X7S	100V	10,000,000	$\pm 20\%$	2.30 $\pm$ 0.20
C5750X7S2A156M	X7S	100V	15,000,000	$\pm 20\%$	2.50 $\pm$ 0.30

Impedance Curves



CMS-SERIES Common Mode Inductors (Surface Mount)

Part Number	OCL (uH) minimum (1-2) & (3-4)	I rms. Amperes Max *	DCR (Ω) typ @ 20°C (1-2)	DCR (Ω) typ @ 20°C (4-3)	Leakage Inductance (uH) typ	Interwinding Capacitance (pF) typ
CMS3-4-R	88	3.95	0.010	0.010	0.85	3.50
CMS3-5-R	146	3.10	0.017	0.017	1.30	3.70
CMS3-6-R	217	2.85	0.020	0.020	1.90	3.90
CMS3-7-R	258	2.45	0.027	0.027	2.20	4.15
CMS3-8-R	350	2.00	0.040	0.040	3.00	4.40
CMS3-9-R	400	1.70	0.053	0.053	3.30	4.65
CMS3-10-R	518	1.45	0.076	0.076	4.20	4.85
CMS3-11-R	648	1.20	0.107	0.107	5.10	5.10
CMS3-12-R	790	1.05	0.145	0.145	6.10	5.35
CMS3-13-R	1030	0.88	0.210	0.210	7.80	5.55
CMS3-14-R	1310	0.75	0.300	0.300	9.60	5.80

Definitions:

OCL = Open Circuit Inductance

DCR = Direct Current Resistance

I_{rms} = rms current for approx. a 40°C temperature rise at an ambient temperature of 85°C.

*Operating Temperature: 160°C Max. Inductance values are sustained up to 160°C.

Electrical Characteristics:

OCL (1-2) 0.10Vrms, 100kHz, 0.0Adc; (See Chart)

OCL (4-3) 0.10Vrms, 100kHz, 0.0Adc; (See Chart)

DCR (1-2) typ @ 20°C; (See Chart)

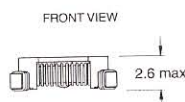
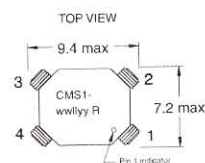
DCR (4-3) typ @ 20°C; (See Chart)

Hipot rating: winding to winding: 300Vdc min. for 1 second.

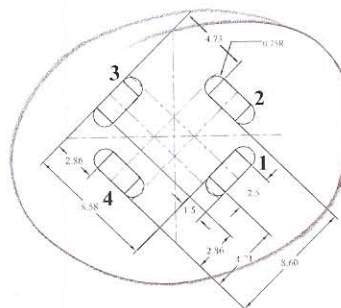
Turns Ratio: (1-2):(4-3) 1:1

Mechanical Diagrams

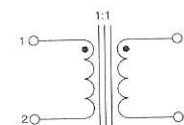
CMS1 Series



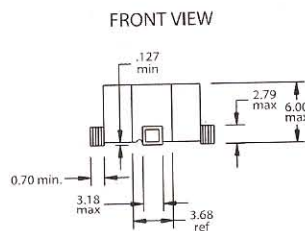
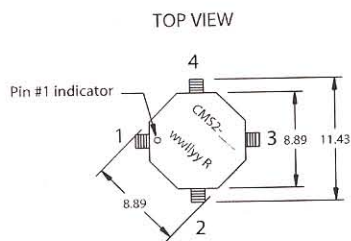
RECOMMENDED PCB LAYOUT



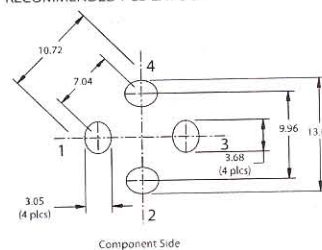
SCHEMATIC



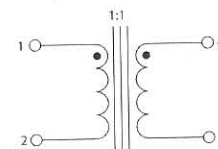
CMS2 Series



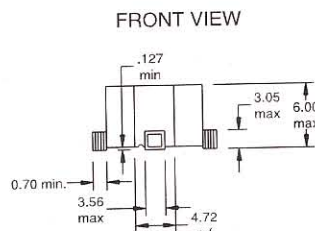
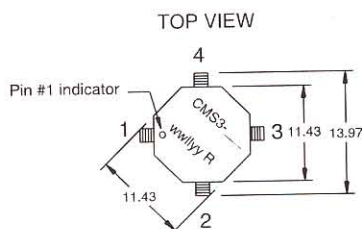
RECOMMENDED PCB LAYOUT



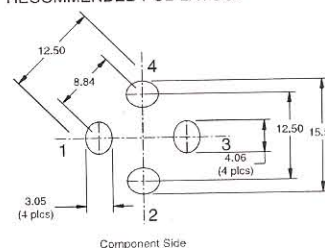
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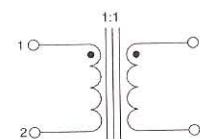
CMS3 Series



RECOMMENDED PCB LAYOUT



SCHEMATIC



wwllyy = Date code R = Revision level