

RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

700A Series NP0 Porcelain and Ceramic Multilayer Capacitors



FEATURES

- Case A Size (.055" x .055")
- Low ESR / ESL
- High Q
- Low Noise
- Capacitance Range 0.1 pF to 1000 pF
- Extended WVDC up to 250 VDC
- Zero TCC
- High Self-Resonance
- Established Reliability (QPL)

GENERAL DESCRIPTION

KYOCERA AVX, the industry leader, offers new improved ESR/ESL performance for the 700 A Series RF/Microwave Capacitors. The superior high self-resonance and zero TCC characteristic of this Series provide excellent performance over a broad range of RF and microwave applications requiring minimum drift. High density porcelain and ceramic constructions provide a rugged, hermetic package.

Typical functional applications: Bypass, Coupling, Tuning and DC Blocking.

Typical circuit applications: Filters, Oscillators and Timing

PACKAGING OPTIONS



Tape & Reel



Vertical Orientation
Tape & Reel



Cap-Pak®
(100 pcs)



ELECTRICAL SPECIFICATIONS

Temperature Coefficient (TCC)	0 ± 30 PPM/°C
Capacitance Range	0.1 pF to 1000 pF
Operating Temperature	-55°C to +125°C*
Quality Factor	Greater than 10,000 (0.1 pF to 100 pF) @ 1 MHz. Greater than 2000 (110 pF to 1000 pF) @ 1 MHz.
Insulation Resistance (IR)	0.1 pF to 470 pF 10 ⁶ Megohms min. @ 25°C at rated WVDC 10 ⁵ Megohms min. @ 125°C at rated WVDC 510 pF to 1000 pF 10 ⁵ Megohms min. @ 25°C at rated WVDC 10 ⁴ Megohms min. @ 125°C at rated WVDC
Working Voltage (WVDC)	See Capacitance Values table
Dielectric Withstanding Voltage (DWV)	250% of rated WVDC for 5 seconds
Aging Effects	None
Piezoelectric Effects	None
Capacitance Drift	± (0.02% or 0.02 pF), whichever is greater

ENVIRONMENTAL CHARACTERISTICS

Thermal Shock	Mil-STD-202, Method 107, Condition A
Moisture Resistance	Mil-STD-202, Method 106
Low Voltage Humidity	Mil-STD-202, Method 103, condition A, with 1.5 VDC applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours
Life Test	MIL-STD-202, Method 108, for 2000 hours, at 125°C. 200% WVDC applied.
Solderability	Mil-STD-202, Method 208
Terminal Strength	Terminations for chips and pellets withstand a pull of 5 lbs. min., 10 lbs. typical, for 5 seconds in direction perpendicular to the termination surface of the capacitor.

RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

700A Series NP0 Porcelain and Ceramic Multilayer Capacitors



MECHANICAL CONFIGURATION

Series & Case Size	Term. Code	MIL-PRF-55681	Case Size & Type	Outline ES W/T is a Termination Surface	Body Dimensions inches (mm)			Lead and Termination Dimensions and Material			
					Length (L)	Width (W)	Thickness (T)	Overlap (Y)	Materials	Pkg Type	Pkg Code
700A	W	CDR12BP	A Solder Plate		.055+.015-.010 (1.40+0.38-0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010+.010-.005 (0.25+0.25-.013)	Tin/ Lead, Solder Plated over Nickel Barrier Termination	T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs	T1K or T TV1K or TV C100
700A	P	CDR12BP	A Pellet		.055+.025-.010 (1.40+0.64-0.25)	.055 ±.015 (1.40 ±0.38)			Heavy Tin/ Lead Coated, over Nickel Barrier Termination	T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs	T1K or T TV1K or TV C100
700A	T	N/A	A Solderable Nickel Barrier		.055+.015-.010 (1.40+0.38-0.25)	.055 ±.015 (1.40 ±0.38)			RoHS Compliant Tin Plated over Nickel Barrier Termination	T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs	T1K or T TV1K or TV C100
700A	CA	CDR11BP	A Gold Chip		.055+.015-.010 (1.40+0.38-0.25)	.055 ±.015 (1.40 ±0.38)			RoHS Compliant Gold Plated over Nickel Barrier Termination	T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs	T1K or T TV1K or TV C100

NON-MAGNETIC CONFIGURATION

Series & Case Size	Term. Code	MIL-PRF-55681	Case Size & Type	Non-Magnetic Configuration	Body Dimensions inches (mm)			Lead and Termination Dimensions and Material			
					Length (L)	Width (W)	Thickness (T)	Overlap (Y)	Materials	Pkg Type	Pkg Code
700A	WN	Meets Requirements	A Non-Mag Solder Plate		.055+.025-.010 (1.40+0.64-0.25)	.055 ±.015 (1.40 ±0.38)	.057 (1.45) max.	.010+.010-.005 (0.25+0.25-.013)	Tin/ Lead, Solder Plated over Non-Magnetic Barrier Termination	T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs	T1K or T TV1K or TV C100
700A	PN	Meets Requirements	A Non-Mag Pellet		.055+.025-.010 (1.40+0.64-0.25)	.055 ±.015 (1.40 ±0.38)			Heavy Tin/ Lead Coated, over Non-Magnetic Barrier Termination	T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs	T1K or T TV1K or TV C100
700A	TN	Meets Requirements	A Non-Mag Solderable Barrier		.055+.015-.010 (1.40+0.38-0.25)	.055 ±.015 (1.40 ±0.38)			RoHS Compliant Tin Plated over Non-Magnetic Barrier Termination	T&R, 1000 or 500 pcs Vertical T&R, 1000 or 500 pcs Cap Pac, 100 pcs	T1K or T TV1K or TV C100

*Capacitors with values greater than 100 pF contain a trace magnetic element that may exhibit weak magnetic properties.

RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

700A Series NP0 Porcelain and Ceramic Multilayer Capacitors



SUGGESTED MOUNTING PAD DIMENSIONS

Horizontal Electrode Orientation

Vertical Electrode Orientation

Case A					
Mount Type	Pad Size	A Min.	B Min.	C Min.	D Min.
Vertical Mount	Normal	.070	.050	.030	.130
	High Density	.050	.030	.030	.090
Horizontal Mount	Normal	.080	.050	.030	.130
	High Density	.060	.030	.030	.090

Dimensions are in inches.

PERFORMANCE DATA

ESR VS. CAPACITANCE
SERIES 700, CASE A



Q VS. CAPACITANCE
SERIES 700, CASE A



ESR VS. CAPACITANCE
SERIES 700, CASE A



Q VS. CAPACITANCE
SERIES 700, CASE A



RF/Microwave Capacitors

RF/Microwave Multilayer Capacitors (MLC)

700A Series NP0 Porcelain and Ceramic Multilayer Capacitors



PERFORMANCE DATA

SERIES RESONANCE VS. CAPACITANCE
SERIES 700, CASE A



CAPACITANCE CHANGE VS. TEMPERATURE
SERIES 700, CASE A



CURRENT RATING VS. CAPACITANCE
SERIES 700, CASE A



CURRENT RATING VS. CAPACITANCE
SERIES 700, CASE A



CURRENT RATING VS. CAPACITANCE
SERIES 700, CASE A, EXTENDED VOLTAGE



CURRENT RATING VS. CAPACITANCE
SERIES 700, CASE A, EXTENDED VOLTAGE

