HOW TO ORDER

CDR 12 B G 101 A F W S

Designation
Identifies established reliability, ceramic dielectric, fixed, and chip capacitors

Style
Identifies dimensions of the capacitor and lead type, where applicable.

Rated Temperature
-55°C to +125°C

Voltage Temperature (TCC) Limits
G = +90 ±20 PPM/°C
P = 0 ±30 PPM/°C

Capacitance Code
The first two digits represent significant figures and the last digit specifies the number of zeros to follow. When fractional values of pF are required, the letter R shall be used to indicate the decimal point.

Rated DC Voltage @ 125°C
A = 50 VDC B = 100 VDC C = 200 VDC
D = 300 VDC E = 500 VDC K = 150 VDC

Capacitance Tolerance Code
B = ±.1 pF C = ±.25 pF D = ±.5 pF F = ±1%
G = ±2% J = ±5% K = ±10% M = ±20%

Termination Finish (Military Designations) Code
M = Palladium Silver (CDR11, CDR12, CDR13, CDR14)
N = Gold over Nickel over Silver (CDR11, CDR13)
S = Solder Coated, Final (CDR12, CDR14, CDR23, CDR25)
T = Silver (CDR21, CDR22, CDR24)
U = Solder Coated, Nickel Barrier (CDR12, CDR14)
W = Solder plated, nickel barrier (CDR12, CDR14, not for new designs)
Y = Base metallization-barrier metal-tin (100 percent)
Z = Solder plated, Nickel Barrier (CDR12, CDR14)
N and U Terminations preferred for best solderability, thermocompression bonding, leach and migration resistance, and shelf life for chips and pellets.

Failure Rate Level
(Established at 90% confidence)
M = 1% per 1,000 hours P = 0.1% per 1,000 hours
R = 0.01% per 1,000 hours S = 0.001% per 1,000 hours

TABLE I - STYLES CDR11 AND CDR12 CAPACITOR CHARACTERISTICS

Type Designation *	Capacitance Range (pF)	Capacitance Tolerance Available	Rated Temp. & Voltage-Temp Limits	Rated DC Voltage
CDR1-B-0R1KB-- to CDR1-B-0R2---B--	0.1 pF to 0.2 pF	B	Characteristic BG (+90 ±20 PPM/°C) and Characteristic BP (0 ±30 PPM/°C)	A = 50 K = 150
CDR1-B-0R3K--- to CDR1-B-0R4---	0.3 pF to 0.4 pF	B, C		
CDR1-B-0R5K--- to CDR1-B-2R2---**	0.5 pF to 2.2 pF	B, C, D		
CDR1-B-2R4K--- to CDR1-B-6R2---***	2.4 pF to 6.2 pF	B, C, D		
CDR1-B-6R8K--- to CDR1-B-9R1---***	6.8 pF to 9.1 pF	B, C, J, K, M		
CDR1-B-100K--- to CDR1-B-101K---***	10 pF to 100 pF	F, G, J, K, M		
CDR1-BP111K--- to CDR1-BP621---***	110 pF to 620 pF	F, G, J, K, M	BP	A = 50 B = 100
CDR1-BP681A--- to CDR1-BP102---***	680 pF to 1000 pF	F, G, J, K, M		

TABLE II - STYLES CDR13 AND CDR14 CAPACITOR CHARACTERISTICS

Type Designation *	Capacitance Range (pF)	Capacitance Tolerance Available	Rated Temp. & Voltage-Temp Limits	Rated DC Voltage
CDR1-B-0R1EB-- to CDR1-B-0R2---B--	0.1 pF to 0.2 pF	B	"Characteristic BG (+90 ±20 PPM/°C) and Characteristic BP (0 ±30 PPM/°C)"	
CDR1-B-0R3E--- to CDR1-B-0R4---	0.3 pF to 0.4 pF	B, C		
CDR1-B--0R5E--- to CDR1-B-2R2---**	0.5 pF to 2.2 pF	B, C, D		C = 200
CDR1-B-2R4E--- to CDR1-B-6R2---***	2.4 pF to 6.2 pF	B, C, D		E = 500
CDR1-B-6R8E--- to CDR1-B-9R1---***	6.8 pF to 9.1 pF	B, C, J, K, M		
CDR1-B-100E--- to CDR1-B-101---***	10 pF to 100 pF	F, G, J, K, M		
CDR1-B-111D--- to CDR1-B-201---***	110 pF to 200 pF			C = 200 D = 300
CDR1-B-221C--- to CDR1-B-471C---***	220 pF to 470 pF			C = 200
CDR1-B-511B--- to CDR1-B-621---***	510 pF to 620 pF			A = 50 B = 100
CDR1-B-681A--- to CDR1-B-102A---***	680 pF to 1000 pF			A = 50
CDR1-BP112A--- to CDR1-BP512A---***	1100 pF to 5100 pF		BP	

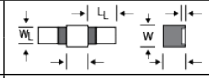
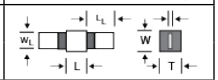
* Complete type designation will include additional symbols to indicate style, voltage-temperature limits, capacitance tolerance (where applicable), termination finish, and failure rate level.
** Intermediate values in this category are in 0.1 pF steps.
*** Intermediate values in each category are given by the RETMA 5% Table.

TABLE I - STYLES CDR11 AND CDR12 CAPACITOR CHARACTERISTICS

Type Designation *	Capacitance Range (pF)	Capacitance Tolerance Available	Rated Temp. & Voltage-Temp Limits	Rated DC Voltage
CDR2-B-0R1EB-- to CDR2-B-0R2EB--	0.1 pF to 0.2 pF	B	Characteristic BG (+90 ±20 PPM/°C) and Characteristic BP (0 ±30 PPM/°C)	500 = E
CDR2-B-0R3E--- to CDR2-B-0R4E---	0.3 pF to 0.4 pF	B, C		
CDR2-B--0R5E--- to CDR2-B-2R2E---**	0.5 pF to 2.2 pF	B, C, D		
CDR2-B-2R4E--- to CDR2-B-6R2E---***	2.4 pF to 6.2 pF	B, C, D		
CDR2-B-6R8E--- to CDR2-B-9R1E---***	6.8 pF to 9.1 pF	B, C, J, K, M		
CDR21-B-100E--- to CDR2-B-101E---***	10 pF to 100 pF	F, G, J, K, M		
CDR2-B-111D--- to CDR2-B-201D---***	110 pF to 200 pF			300 = D
CDR2-B-221C--- to CDR2-B-471C---***	220 pF to 470 pF			200 = C
CDR2-B-511B--- to CDR2-B-621B---***	510 pF to 620 pF			100 = B
CDR2-B-681A--- to CDR2-B-102A---***	680 pF to 1000 pF			50 = A
CDR2-BP112A--- to CDR2-BP512A---***	1100 pF to 5100 pF		BP	

* Complete type designation will include additional symbols to indicate style, voltage-temperature limits, capacitance tolerance (where applicable), termination finish (T for styles CDR21, CDR22 and CDR24, and S for styles CDR23 and CDR25), and failure rate level.
Please note: Leaded devices CDR 21 through CDR 25 are available to the R Failure Rate Level only.
** Intermediate values in this category are in 0.1 pF steps.
*** Intermediate values in each category are given by the RETMA 5% Table as follows: 10, 11, 12, 13, 15, 16, 18, 20, 22, 24, 27, 30, 33, 36, 39, 43, 47, 51, 56, 62, 68, 75, 82, 91.

TABLE I - STYLES CDR11 AND CDR12 CAPACITOR CHARACTERISTICS

MIL-PRF-55681 Styles	Case Size	Type	Outlines	Body Dimensions			Lead & Termination Dimensions & Materials
				Length	Width	Thickness	
CDR 11	A	Chip CA	W/T is a Termination Surface	.055 ±.015 (1.4 ±0.38)		.020/.057 (0.51/1.45)	N = Gold Over Nickel Over Silver N is ATC's UNI-TERM®
CDR 13	B	Chip CA		.110 ±.020 (2.79 ±0.51)		.030/.102 (0.76/2.59)	
CDE 12	A	Pellet P	W/T is a Termination Surface	.055 ±.025 (1.4 ±0.63)	.055 ±.015 (1.4 ±0.38)	.020/.057 (0.51/1.45)	S = Solder Coated, Final U = Solder Coated, Nickel Barrier U is ATC's BARRIER//CAP®
CDR 14	B	Pellet P		.110 +.035 -.020 (2.79 +0.89 -0.51)	.110 ±.020 (2.79 ±0.51)	.030/.102 (0.76/2.59)	
CDR 12	A	Solder Plate W	W/T is a Termination Surface	.055 ±.015 (1.4 ±0.38)		.020/.057 (0.51/1.45)	W = Nickel Barrier, Solder Plate.
CDR 14	B	Solder Plate W		.110 ±.020 (2.79 ±0.51)		.030/.102 (0.76/2.59)	
CDR 21	B	Microstrip MS		.135 ±.015 (3.43 ±0.38)	.110 ±.015 (2.79 ±0.38)	.060/.100 (1.52/2.54)	Termination T = Silver Length: min. / .250 (6.35) Width: .093±.005 (2.36±0.13) Thickness: .004±.001 (0.10±0.03)
CDR 22	B	Axial Ribbon AR					
CDR 24	B	Radial Ribbon RR					
CDR 23	B	Radial Wire RW					Terminations S = Solder Coated min.: #26 AWG .50 (12.7): .016 (.375) dia. nom.
CDR 25	B	Axial Wire AW					

All dimensions are in inches, except those in parentheses which are in millimeters.

All leads and ribbon are silver and are attached with high temperature solder.

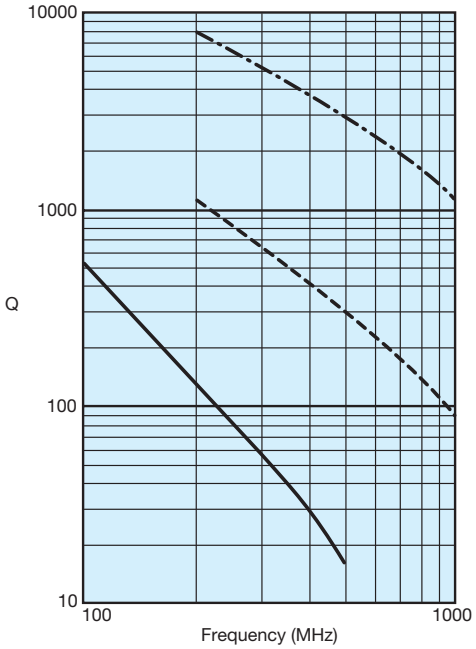
Style	Equiv. KYOCERA AVX Part No. Characteristics	
	BG	BP
CDR11	100A	700A
CDR12	100A	700A
CDR13	100B	700B
CDR14	100B	700B

Style	Equiv. KYOCERA AVX Part No. Characteristics	
	BG	BP
CDR21	100B ------ MS	700B ------ MS
CDR22	100B ------ AR	700B ------ AR
CDR23	100B ------ RW	700B ------ RW
CDR24	100B ------ RR	700B ------ RR
CDR25	100B ------ AW	700B ------ AW

PACKAGING
Standard Packaging Quantity
CDR11-12 = 100 pcs per waffle pack
CDR13-14 = 100 pcs per waffle pack

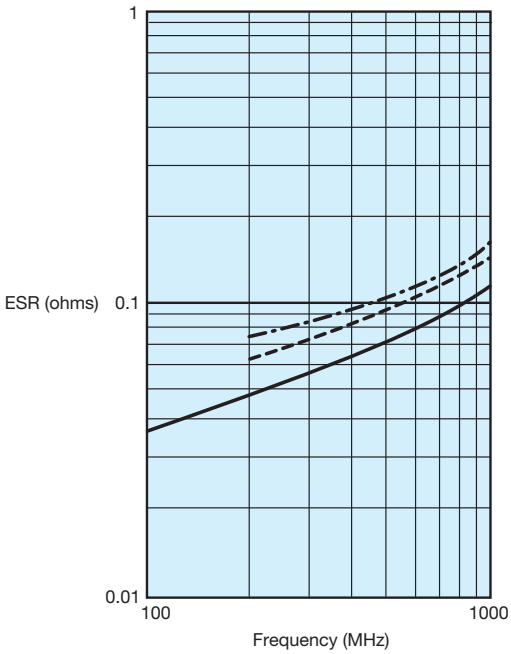
TAPE & REEL
All tape and reel specifications are in compliance with EIA RS481(equivalent to IEC 286 part 3).
Sizes CDR11/12 through 13/14.
— 8mm carrier
— 7" reel: ≤0.040" thickness = 100, 300, 500, 1000, 2000* pcs
≤0.075" thickness = 100, 300, 500, 1000, 2000* pcs
* QTY 2000 only applies to CDR11-12

TYPICAL Q vs. FREQUENCY
MIL-PRF-55681E - BG



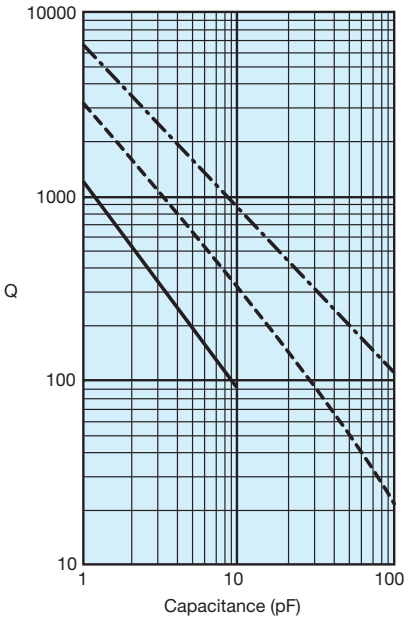
AVX CORPORATION
1 Picofarad 10 Picofarad 100 Picofarad

TYPICAL ESR vs. FREQUENCY
MIL-PRF-55681E - BG



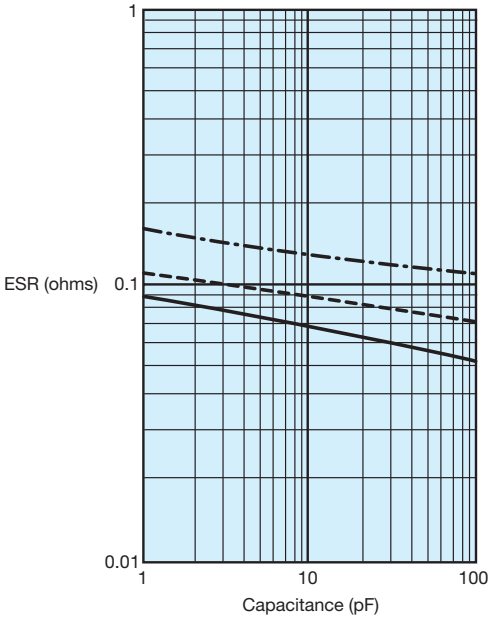
AVX CORPORATION
3.3 Picofarad 10 Picofarad 100 Picofarad

TYPICAL Q vs. CAPACITANCE
MIL-PRF-55681E - BG



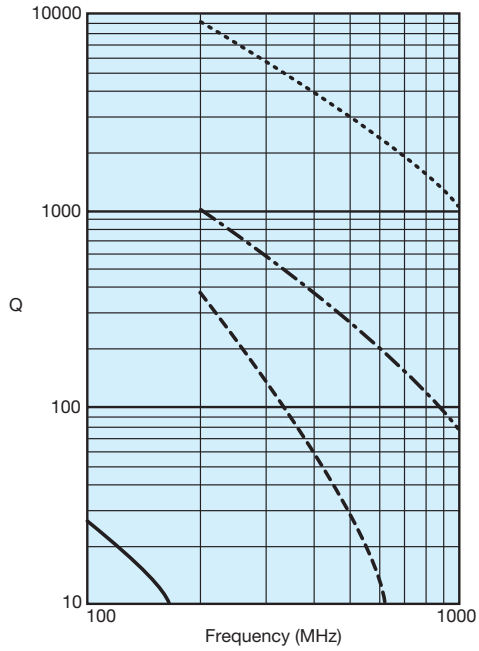
AVX CORPORATION
250 MHz 500 MHz 1000 MHz

TYPICAL ESR vs. CAPACITANCE
MIL-PRF-55681E - BG



AVX CORPORATION
250 MHz 500 MHz 1000 MHz

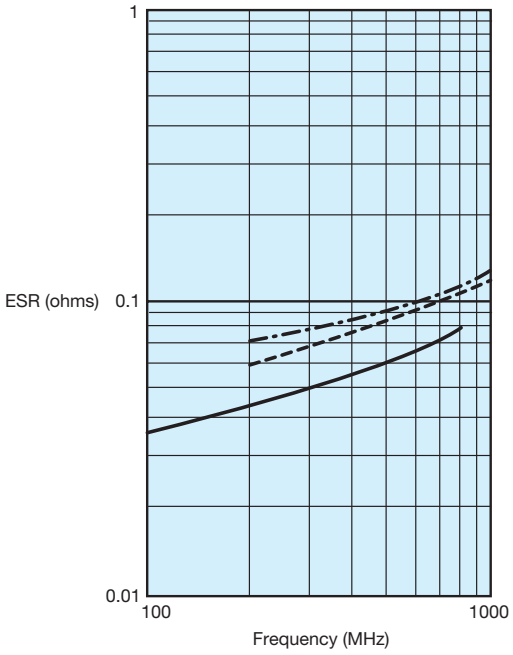
TYPICAL Q vs. FREQUENCY
MIL-PRF-55681E - BG



AVX CORPORATION

1 Picofarad — 10 Picofarad — 47 Picofarad — 330 Picofarad

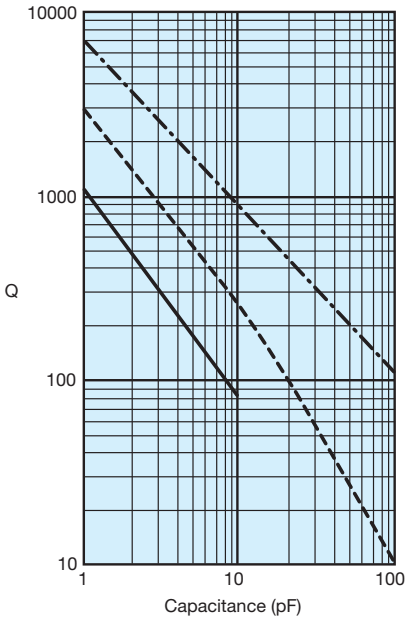
TYPICAL ESR vs. FREQUENCY
MIL-PRF-55681E - BG



AVX CORPORATION

1 Picofarad — 15 Picofarad — 100 Picofarad

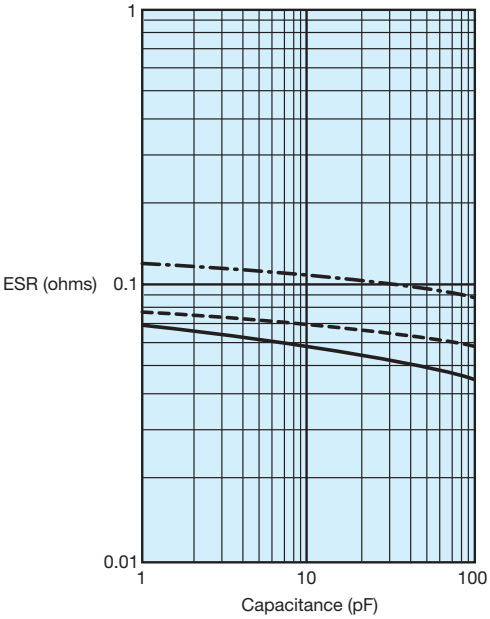
TYPICAL Q vs. CAPACITANCE
MIL-PRF-55681E - BG



AVX CORPORATION

250 MHz — 500 MHz — 1000 MHz

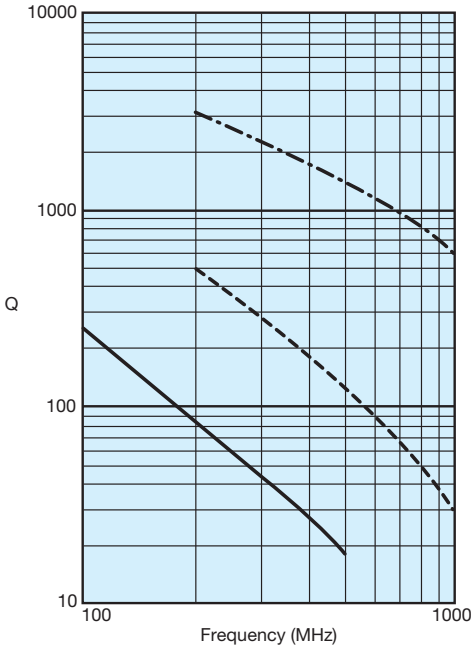
TYPICAL ESR vs. CAPACITANCE
MIL-PRF-55681E - BG



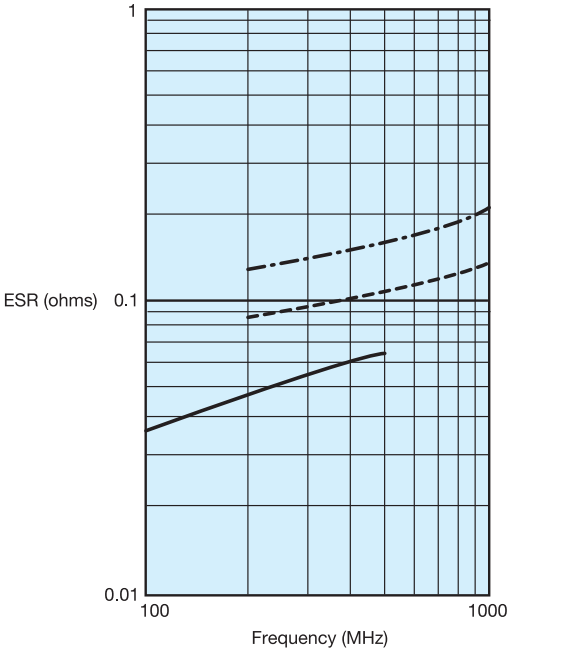
AVX CORPORATION

250 MHz — 500 MHz — 1000 MHz

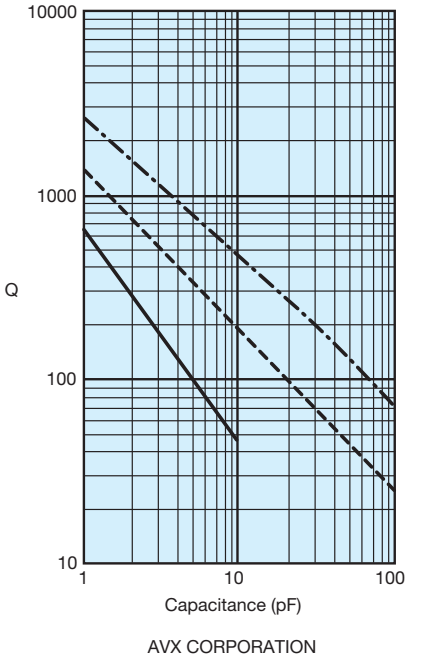
TYPICAL Q vs. FREQUENCY
MIL-PRF-55681E - BP



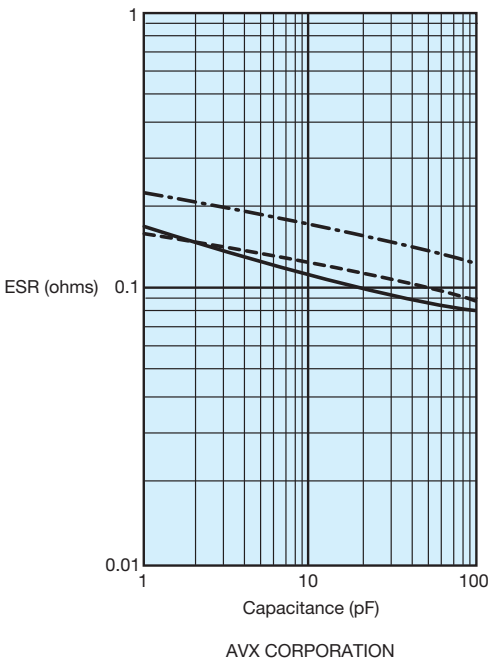
TYPICAL ESR vs. FREQUENCY
MIL-PRF-55681E - BP



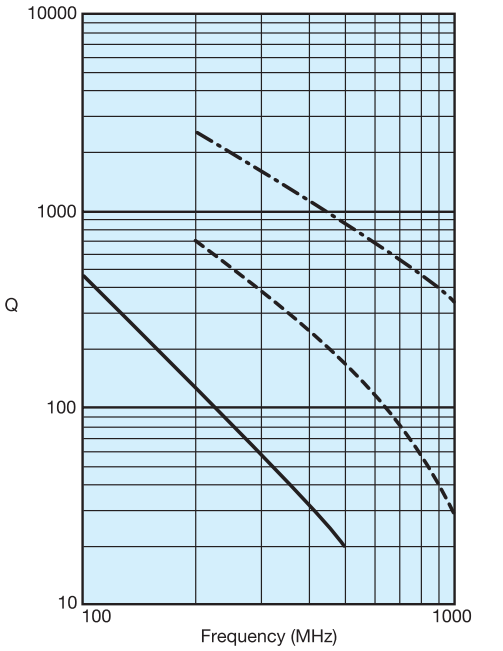
TYPICAL Q vs. CAPACITANCE
MIL-PRF-55681E - BP



TYPICAL ESR vs. CAPACITANCE
MIL-PRF-55681E - BP

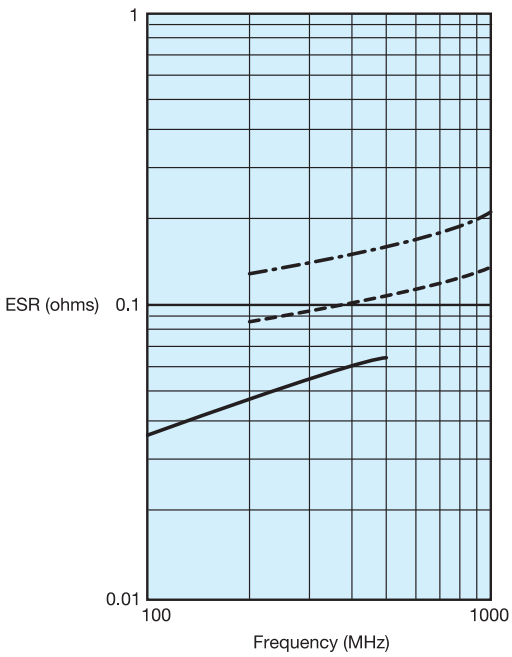


TYPICAL Q vs. FREQUENCY
MIL-PRF-55681E - BP



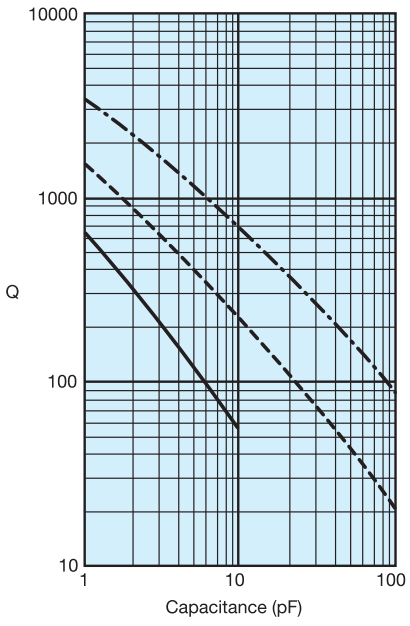
AVX CORPORATION
2 Picofarad — 15 Picofarad — 100 Picofarad

TYPICAL ESR vs. FREQUENCY
MIL-PRF-55681E - BP



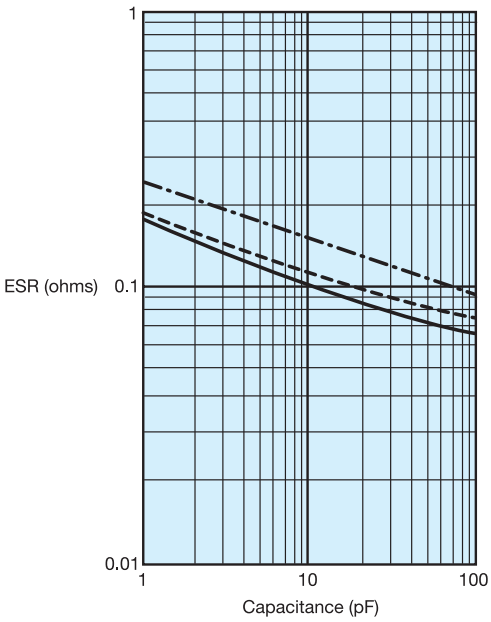
AVX CORPORATION
15 Picofarad — 47 Picofarad — 100 Picofarad

TYPICAL Q vs. CAPACITANCE
MIL-PRF-55681E - BP



AVX CORPORATION
250 MHz — 500 MHz — 1000 MHz

TYPICAL ESR vs. CAPACITANCE
MIL-PRF-55681E - BP



AVX CORPORATION
250 MHz — 500 MHz — 1000 MHz

TYPICAL RESONANT FREQUENCY vs. CAPACITANCE (CDR11-14)