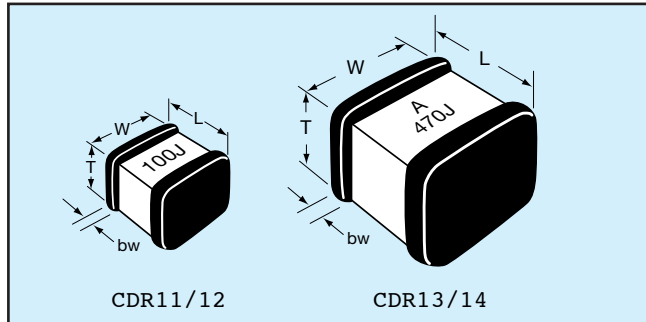


# Microwave MLC's



## CDR Series — MIL-PRF-55681 (RF/Microwave Chips)

### MILITARY DESIGNATION PER MIL-PRF-55681



### CROSS REFERENCE: AVX/MIL-PRF-55681

Per MIL-C-55681	AVX Style	Length (L)	Width (W)	Thickness (T)		Termination Band (bw)	
				Max	Min	Max	Min
CDR11	AQ11	.055±.015 (1.40±.381)	.055±.015 (1.40±.381)	.057 (1.45)	.020 (.508)	.020 (.508)	.005 (.127)
CDR12	AQ12	.055±.025 (1.40±.635)	.055±.015 (1.40±.381)	.057 (1.45)	.020 (.508)	.020 (.508)	.005 (.127)
CDR13	AQ13	.110±.020 (2.79±.508)	.110±.020 (2.79±.508)	.102 (2.59)	.030 (.762)	.025 (.635)	.005 (.127)
CDR14	AQ14	.110 +.035 -0.020 (2.79 +.889 -.508)	.110±.020 (2.79±.508)	.102 (2.59)	.030 (.762)	.025 (.635)	.005 (.127)

### HOW TO ORDER

**CDR12**

**MIL Style**  
CDR11, CDR12,  
CDR13, CDR14

**BG**

**Voltage Temperature Limits**

BG = +90±20 ppm/°C with and without rated voltage from -55°C to +125°C  
BP = 0±30ppm/°C with and without rated voltage from -55°C to +125°C

**101**

**Capacitance**

EIA Capacitance Code in pF.  
First two digits = significant figures or "R" for decimal place.  
Third digit = number of zeros or after "R" significant figures.

**A**

**Rated Voltage Code**

A = 50V  
B = 100V  
C = 200V  
D = 300V  
E = 500V

**K**

**Capacitance Tolerance Code**

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

**U**

**Termination Finish (Military Designations) Code**

M = Palladium silver  
N = Silver-nickel-gold  
S = Solder coated final with a minimum of 4 percent lead  
T = Silver  
U = Base metallization-barrier metal-solder coated (tin/lead alloy, with a minimum of 4 percent lead)  
W = Base metallization-barrier metal-tinned (tin or tin/lead alloy)  
Y = Base metallization-barrier metal-tin (100 percent)  
Z = Base metallization-barrier metal-tinned (tin/lead alloy, with a minimum of 4 percent lead)  
\*See MIL-PRF-55681 Specification for more details

**S**

**Failure Rate Level**

M = 1.0%  
P = .1%  
R = .01%  
S = .001%

### PACKAGING

Standard Packaging Quantity

CDR11-12 = 100 pcs per waffle pack

CDR13-14 = 80 pcs per waffle pack

**TAPE & REEL:** All tape and reel specifications are in compliance with EIA RS481 (equivalent to IEC 286 part 3).

Sizes SQCA through SQCB, CDR11/12 through 13/14.

—8mm carrier

—7" reel: ≤0.040" thickness = 2000 pcs  
≤0.075" thickness = 2000 pcs

—13" reel: ≤0.075" thickness = 10,000 pcs

**Not RoHS Compliant**



For RoHS compliant products, please select correct termination style.



# Microwave MLC's



## CDR Series — MIL-PRF-55681 (RF/Microwave Chips)

**TABLE I: STYLES CDR11 AND CDR12 CAPACITOR CHARACTERISTICS**

Type Designation 1/	Capacitance in pF	Capacitance tolerance	Rated temperature and V/Temperature	WVDC	Type Designation 1/	Capacitance in pF	Capacitance tolerance	Rated temperature and V/Temperature	WVDC
CDR1 -B-0R1AB--	0.1	B	BG, BP	50	CDR1 -B-300A---	30	F, G, J, K, M	BG, BP	50
CDR1 -B-0R2AB--	0.2	B	BG, BP	50	CDR1 -B-330A---	33	F, G, J, K, M	BG, BP	50
CDR1 -B-0R3A---	0.3	B, C	BG, BP	50	CDR1 -B-360A---	36	F, G, J, K, M	BG, BP	50
CDR1 -B-0R4A---	0.4	B, C	BG, BP	50	CDR1 -B-390A---	39	F, G, J, K, M	BG, BP	50
CDR1 -B-0R5A---	0.5	B, C, D	BG, BP	50	CDR1 -B-430A---	43	F, G, J, K, M	BG, BP	50
CDR1 -B-0R6A---	0.6	B, C, D	BG, BP	50	CDR1 -B-470A---	47	F, G, J, K, M	BG, BP	50
CDR1 -B-0R7A---	0.7	B, C, D	BG, BP	50	CDR1 -B-510A---	51	F, G, J, K, M	BG, BP	50
CDR1 -B-0R8A---	0.8	B, C, D	BG, BP	50	CDR1 -B-560A---	56	F, G, J, K, M	BG, BP	50
CDR1 -B-0R9A---	0.9	B, C, D	BG, BP	50	CDR1 -B-620A---	62	F, G, J, K, M	BG, BP	50
CDR1 -B-1R0A---	1.0	B, C, D	BG, BP	50	CDR1 -B-680A---	68	F, G, J, K, M	BG, BP	50
CDR1 -B-1R1A---	1.1	B, C, D	BG, BP	50	CDR1 -B-750A---	75	F, G, J, K, M	BG, BP	50
CDR1 -B-1R2A---	1.2	B, C, D	BG, BP	50	CDR1 -B-820A---	82	F, G, J, K, M	BG, BP	50
CDR1 -B-1R3A---	1.3	B, C, D	BG, BP	50	CDR1 -B-910A---	91	F, G, J, K, M	BG, BP	50
CDR1 -B-1R4A---	1.4	B, C, D	BG, BP	50	CDR1 -B-101A---	100	F, G, J, K, M	BG, BP	50
CDR1 -B-1R5A---	1.5	B, C, D	BG, BP	50	CDR1 -B-111A---	110	F, G, J, K, M	BP	50
CDR1 -B-1R6A---	1.6	B, C, D	BG, BP	50	CDR1 -B-121A---	120	F, G, J, K, M	BP	50
CDR1 -B-1R7A---	1.7	B, C, D	BG, BP	50	CDR1 -B-131A---	130	F, G, J, K, M	BP	50
CDR1 -B-1R8A---	1.8	B, C, D	BG, BP	50	CDR1 -B-151A---	150	F, G, J, K, M	BP	50
CDR1 -B-1R9A---	1.9	B, C, D	BG, BP	50	CDR1 -B-161A---	160	F, G, J, K, M	BP	50
CDR1 -B-2R0A---	2.0	B, C, D	BG, BP	50	CDR1 -B-181A---	180	F, G, J, K, M	BP	50
CDR1 -B-2R1A---	2.1	B, C, D	BG, BP	50	CDR1 -B-201A---	200	F, G, J, K, M	BP	50
CDR1 -B-2R2A---	2.2	B, C, D	BG, BP	50	CDR1 -B-221A---	220	F, G, J, K, M	BP	50
CDR1 -B-2R4A---	2.4	B, C, D	BG, BP	50	CDR1 -B-241A---	240	F, G, J, K, M	BP	50
CDR1 -B-2R7A---	2.7	B, C, D	BG, BP	50	CDR1 -B-271A---	270	F, G, J, K, M	BP	50
CDR1 -B-3R0A---	3.0	B, C, D	BG, BP	50	CDR1 -B-301A---	300	F, G, J, K, M	BP	50
CDR1 -B-3R3A---	3.3	B, C, D	BG, BP	50	CDR1 -B-331A---	330	F, G, J, K, M	BP	50
CDR1 -B-3R6A---	3.6	B, C, D	BG, BP	50	CDR1 -B-361A---	360	F, G, J, K, M	BP	50
CDR1 -B-3R9A---	3.9	B, C, D	BG, BP	50	CDR1 -B-391A---	390	F, G, J, K, M	BP	50
CDR1 -B-4R3A---	4.3	B, C, D	BG, BP	50	CDR1 -B-431A---	430	F, G, J, K, M	BP	50
CDR1 -B-4R7A---	4.7	B, C, D	BG, BP	50	CDR1 -B-471A---	470	F, G, J, K, M	BP	50
CDR1 -B-5R1A---	5.1	B, C, D	BG, BP	50	CDR1 -B-511A---	510	F, G, J, K, M	BP	50
CDR1 -B-5R6A---	5.6	B, C, D	BG, BP	50	CDR1 -B-561A---	560	F, G, J, K, M	BP	50
CDR1 -B-6R2A---	6.2	B, C, D	BG, BP	50	CDR1 -B-621A---	620	F, G, J, K, M	BP	50
CDR1 -B-6R8A---	6.8	B, C, J, K, M	BG, BP	50	CDR1 -B-681A---	680	F, G, J, K, M	BP	50
CDR1 -B-7R5A---	7.5	B, C, J, K, M	BG, BP	50	CDR1 -B-751A---	750	F, G, J, K, M	BP	50
CDR1 -B-8R2A---	8.2	B, C, J, K, M	BG, BP	50	CDR1 -B-821A---	820	F, G, J, K, M	BP	50
CDR1 -B-9R1A---	9.1	B, C, J, K, M	BG, BP	50	CDR1 -B-911A---	910	F, G, J, K, M	BP	50
CDR1 -B-100A---	10	F, G, J, K, M	BG, BP	50	CDR1 -B-102A---	1000	F, G, J, K, M	BP	50
CDR1 -B-110A---	11	F, G, J, K, M	BG, BP	50					
CDR1 -B-120A---	12	F, G, J, K, M	BG, BP	50					
CDR1 -B-130A---	13	F, G, J, K, M	BG, BP	50					
CDR1 -B-150A---	15	F, G, J, K, M	BG, BP	50					
CDR1 -B-160A---	16	F, G, J, K, M	BG, BP	50					
CDR1 -B-180A---	18	F, G, J, K, M	BG, BP	50					
CDR1 -B-200A---	20	F, G, J, K, M	BG, BP	50					
CDR1 -B-220A---	22	F, G, J, K, M	BG, BP	50					
CDR1 -B-240A---	24	F, G, J, K, M	BG, BP	50					
CDR1 -B-270A---	27	F, G, J, K, M	BG, BP	50					

1/Complete type designation will include additional symbols to indicate style, voltage-temperature limits, capacitance tolerance (where applicable), termination finish ("M" or "N" for style CDR11, and "S", "U", "W", "Y" or "Z" for style CDR12) and failure rate level.

# Microwave MLC's

## CDR Series — MIL-PRF-55681 (RF/Microwave Chips)



**TABLE II: STYLES CDR13 AND CDR14 CAPACITOR CHARACTERISTICS**

Type Designation 1/	Capacitance in pF	Capacitance tolerance	Rated temperature and V/Temperature	WVDC	Type Designation 1/	Capacitance in pF	Capacitance tolerance	Rated temperature and V/Temperature	WVDC
CDR1 -B-0R1*B--	0.1	B	BG, BP	200/500	CDR1 -B-560*--	56	F, G, J, K, M	BG, BP	200/500
CDR1 -B-0R2*B--	0.2	B	BG, BP	200/500	CDR1 -B-620*--	62	F, G, J, K, M	BG, BP	200/500
CDR1 -B-0R3*--	0.3	B, C	BG, BP	200/500	CDR1 -B-680*--	68	F, G, J, K, M	BG, BP	200/500
CDR1 -B-0R4*--	0.4	B, C	BG, BP	200/500	CDR1 -B-750*--	75	F, G, J, K, M	BG, BP	200/500
CDR1 -B-0R5*--	0.5	B, C, D	BG, BP	200/500	CDR1 -B-820*--	82	F, G, J, K, M	BG, BP	200/500
CDR1 -B-0R6*--	0.6	B, C, D	BG, BP	200/500	CDR1 -B-910*--	91	F, G, J, K, M	BG, BP	200/500
CDR1 -B-0R7*--	0.7	B, C, D	BG, BP	200/500	CDR1 -B-101*--	100	F, G, J, K, M	BG, BP	200/500
CDR1 -B-0R8*--	0.8	B, C, D	BG, BP	200/500	CDR1 -B-111‡--	110	F, G, J, K, M	BG, BP	200/300
CDR1 -B-0R9*--	0.9	B, C, D	BG, BP	200/500	CDR1 -B-121‡--	120	F, G, J, K, M	BG, BP	200/300
CDR1 -B-1R0*--	1.0	B, C, D	BG, BP	200/500	CDR1 -B-131‡--	130	F, G, J, K, M	BG, BP	200/300
CDR1 -B-1R1*--	1.1	B, C, D	BG, BP	200/500	CDR1 -B-151‡--	150	F, G, J, K, M	BG, BP	200/300
CDR1 -B-1R2*--	1.2	B, C, D	BG, BP	200/500	CDR1 -B-161‡--	160	F, G, J, K, M	BG, BP	200/300
CDR1 -B-1R3*--	1.3	B, C, D	BG, BP	200/500	CDR1 -B-181‡--	180	F, G, J, K, M	BG, BP	200/300
CDR1 -B-1R4*--	1.4	B, C, D	BG, BP	200/500	CDR1 -B-201‡--	200	F, G, J, K, M	BG, BP	200/300
CDR1 -B-1R5*--	1.5	B, C, D	BG, BP	200/500	CDR1 -B-221C--	220	F, G, J, K, M	BG, BP	200
CDR1 -B-1R6*--	1.6	B, C, D	BG, BP	200/500	CDR1 -B-241C--	240	F, G, J, K, M	BG, BP	200
CDR1 -B-1R7*--	1.7	B, C, D	BG, BP	200/500	CDR1 -B-271C--	270	F, G, J, K, M	BG, BP	200
CDR1 -B-1R8*--	1.8	B, C, D	BG, BP	200/500	CDR1 -B-301C--	300	F, G, J, K, M	BG, BP	200
CDR1 -B-1R9*--	1.9	B, C, D	BG, BP	200/500	CDR1 -B-331C--	330	F, G, J, K, M	BG, BP	200
CDR1 -B-2R0*--	2.0	B, C, D	BG, BP	200/500	CDR1 -B-361C--	360	F, G, J, K, M	BG, BP	200
CDR1 -B-2R1*--	2.1	B, C, D	BG, BP	200/500	CDR1 -B-391C--	390	F, G, J, K, M	BG, BP	200
CDR1 -B-2R2*--	2.2	B, C, D	BG, BP	200/500	CDR1 -B-431C--	430	F, G, J, K, M	BG, BP	200
CDR1 -B-2R4*--	2.4	B, C, D	BG, BP	200/500	CDR1 -B-471C--	470	F, G, J, K, M	BG, BP	200
CDR1 -B-2R7*--	2.7	B, C, D	BG, BP	200/500	CDR1 -B-511B--	510	F, G, J, K, M	BG, BP	100
CDR1 -B-3R0*--	3.0	B, C, D	BG, BP	200/500	CDR1 -B-561B--	560	F, G, J, K, M	BG, BP	100
CDR1 -B-3R3*--	3.3	B, C, D	BG, BP	200/500	CDR1 -B-621B--	620	F, G, J, K, M	BG, BP	100
CDR1 -B-3R6*--	3.6	B, C, D	BG, BP	200/500	CDR1 -B-681A--	680	F, G, J, K, M	BG, BP	50
CDR1 -B-3R9*--	3.9	B, C, D	BG, BP	200/500	CDR1 -B-751A--	750	F, G, J, K, M	BG, BP	50
CDR1 -B-4R3*--	4.3	B, C, D	BG, BP	200/500	CDR1 -B-821A--	820	F, G, J, K, M	BG, BP	50
CDR1 -B-4R7*--	4.7	B, C, D	BG, BP	200/500	CDR1 -B-911A--	910	F, G, J, K, M	BG, BP	50
CDR1 -B-5R1*--	5.1	B, C, D	BG, BP	200/500	CDR1 -B-102A--	1000	F, G, J, K, M	BG, BP	50
CDR1 -B-5R6*--	5.6	B, C, D	BG, BP	200/500	CDR1 -B-112A--	1100	F, G, J, K, M	BP	50
CDR1 -B-6R2*--	6.2	B, C, D	BG, BP	200/500	CDR1 -B-122A--	1200	F, G, J, K, M	BP	50
CDR1 -B-6R8*--	6.8	B, C, J, K, M	BG, BP	200/500	CDR1 -B-132A--	1300	F, G, J, K, M	BP	50
CDR1 -B-7R5*--	7.5	B, C, J, K, M	BG, BP	200/500	CDR1 -B-152A--	1500	F, G, J, K, M	BP	50
CDR1 -B-8R2*--	8.2	B, C, J, K, M	BG, BP	200/500	CDR1 -B-162A--	1600	F, G, J, K, M	BP	50
CDR1 -B-9R1*--	9.1	B, C, J, K, M	BG, BP	200/500	CDR1 -B-182A--	1800	F, G, J, K, M	BP	50
CDR1 -B-100*--	10	F, G, J, K, M	BG, BP	200/500	CDR1 -B-202A--	2000	F, G, J, K, M	BP	50
CDR1 -B-110*--	11	F, G, J, K, M	BG, BP	200/500	CDR1 -B-222A--	2200	F, G, J, K, M	BP	50
CDR1 -B-120*--	12	F, G, J, K, M	BG, BP	200/500	CDR1 -B-242A--	2400	F, G, J, K, M	BP	50
CDR1 -B-130*--	13	F, G, J, K, M	BG, BP	200/500	CDR1 -B-272A--	2700	F, G, J, K, M	BP	50
CDR1 -B-150*--	15	F, G, J, K, M	BG, BP	200/500	CDR1 -B-302A--	3000	F, G, J, K, M	BP	50
CDR1 -B-160*--	16	F, G, J, K, M	BG, BP	200/500	CDR1 -B-332A--	3300	F, G, J, K, M	BP	50
CDR1 -B-180*--	18	F, G, J, K, M	BG, BP	200/500	CDR1 -B-362A--	3600	F, G, J, K, M	BP	50
CDR1 -B-200*--	20	F, G, J, K, M	BG, BP	200/500	CDR1 -B-392A--	3900	F, G, J, K, M	BP	50
CDR1 -B-220*--	22	F, G, J, K, M	BG, BP	200/500	CDR1 -B-432A--	4300	F, G, J, K, M	BP	50
CDR1 -B-240*--	24	F, G, J, K, M	BG, BP	200/500	CDR1 -B-472A--	4700	F, G, J, K, M	BP	50
CDR1 -B-270*--	27	F, G, J, K, M	BG, BP	200/500	CDR1 -B-502A--	5000	F, G, J, K, M	BP	50
CDR1 -B-300*--	30	F, G, J, K, M	BG, BP	200/500	CDR1 -B-512A--	5100	F, G, J, K, M	BP	50
CDR1 -B-330*--	33	F, G, J, K, M	BG, BP	200/500					
CDR1 -B-360*--	36	F, G, J, K, M	BG, BP	200/500					
CDR1 -B-390*--	39	F, G, J, K, M	BG, BP	200/500					
CDR1 -B-430*--	43	F, G, J, K, M	BG, BP	200/500					
CDR1 -B-470*--	47	F, G, J, K, M	BG, BP	200/500					
CDR1 -B-510*--	51	F, G, J, K, M	BG, BP	200/500					

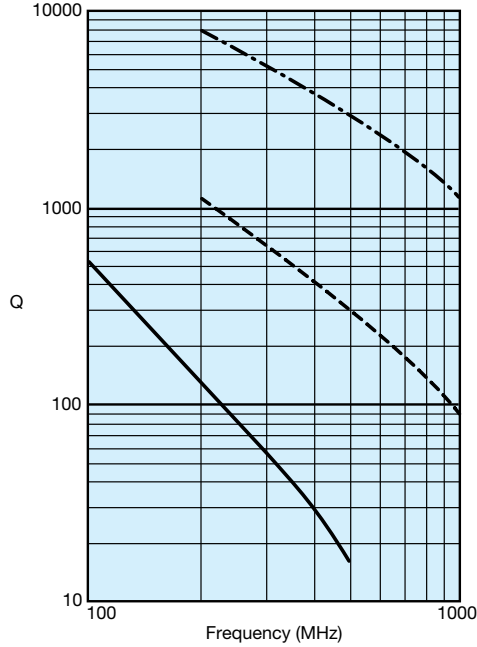
1/Complete type designation will include additional symbols to indicate style, voltage-temperature limits, capacitance tolerance (where applicable), termination finish ("M" or "N" for style CDR13, and "S", "U", "W", "Y" or "Z" for style CDR14) and failure rate level.

\*C=200V; E=500V.

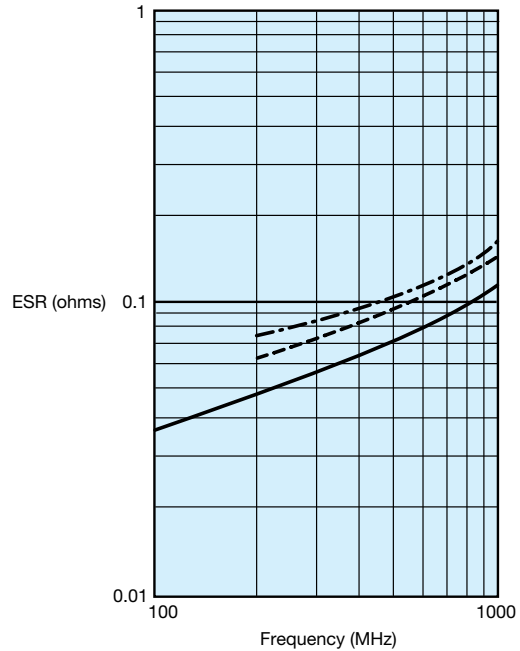
‡C=200V; D=300V.



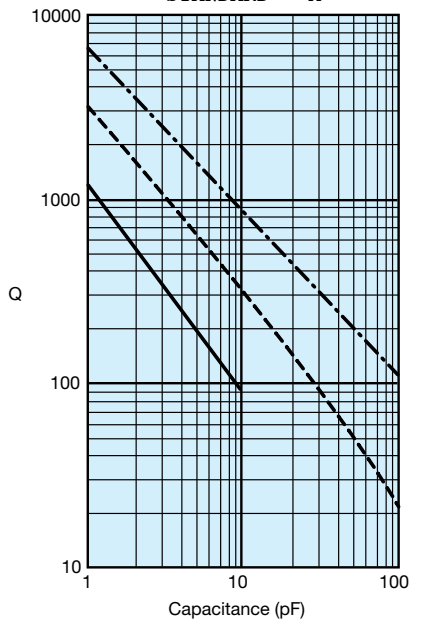
TYPICAL Q vs. FREQUENCY  
AQ11/12  
MIL-PRF-55681E - BG  
STANDARD - M



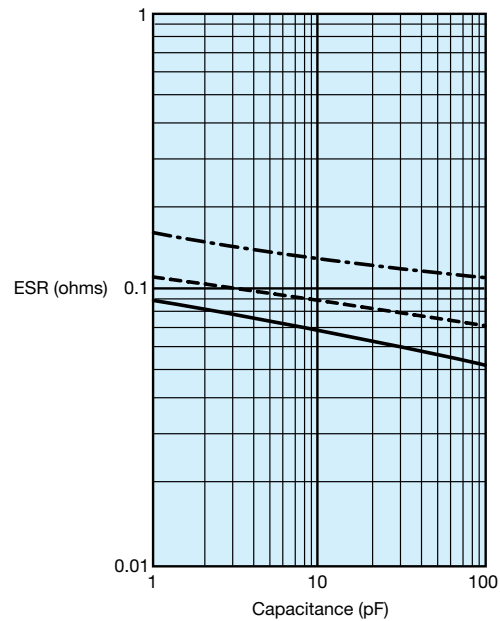
TYPICAL ESR vs. FREQUENCY  
AQ11/12  
MIL-PRF-55681E - BG  
STANDARD - M



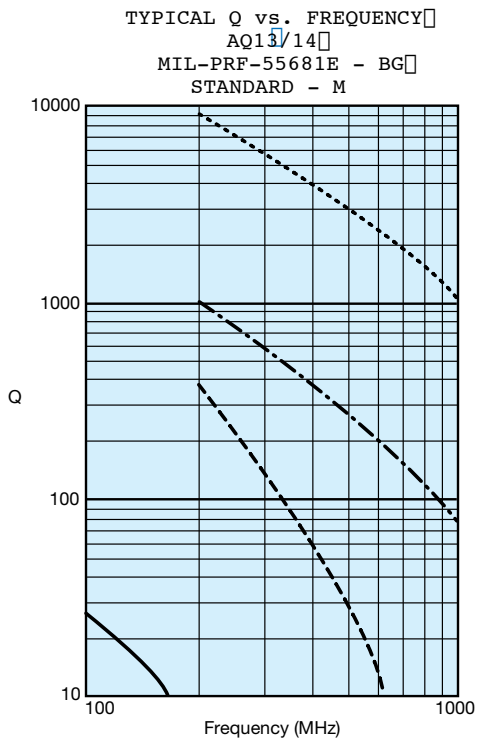
TYPICAL Q vs. CAPACITANCE  
AQ11/12  
MIL-PRF-55681E - BG  
STANDARD - M



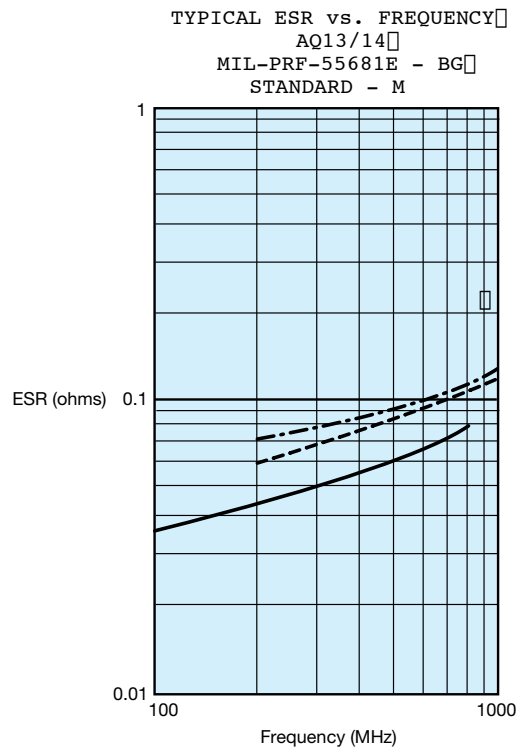
TYPICAL ESR vs. CAPACITANCE  
AQ11/12  
MIL-PRF-55681E - BG  
STANDARD - M



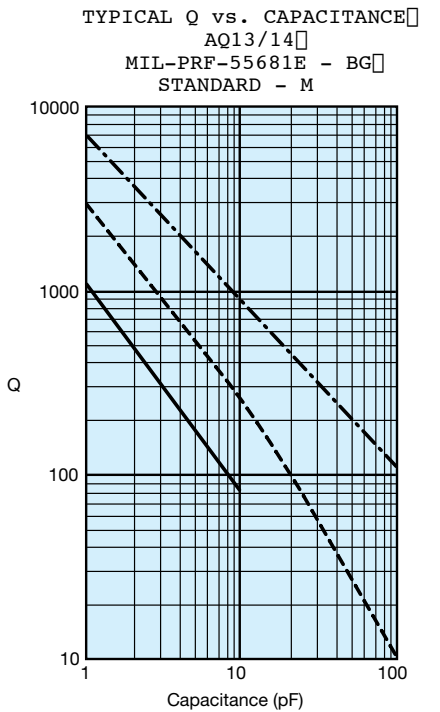
## Performance Curves



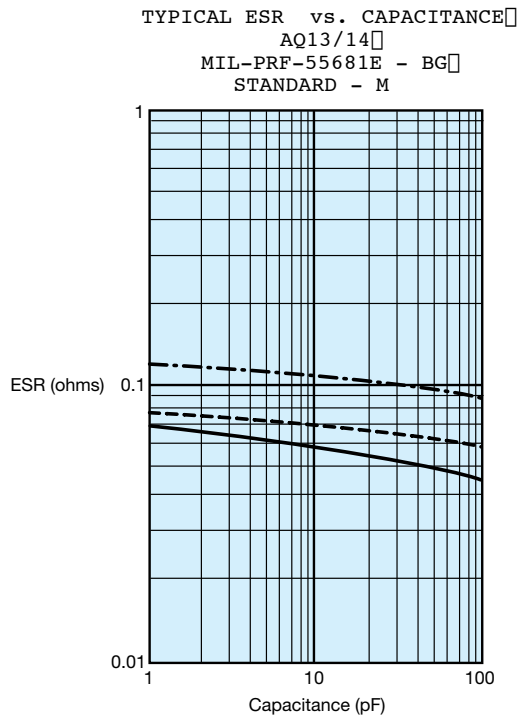
AVX CORPORATION  
 - - - - 1 Picofarad   - - - - 10 Picofarad   - - - - 47 Picofarad   - - - - 330 Picofarad



AVX CORPORATION  
 - - - - 1 Picofarad   - - - - 15 Picofarad   - - - - 100 Picofarad

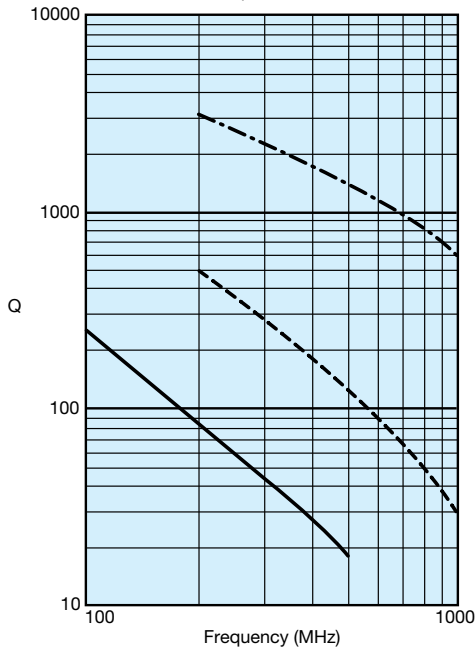


AVX CORPORATION  
 - - - - 250 MHz   - - - - 500 MHz   - - - - 1000 MHz



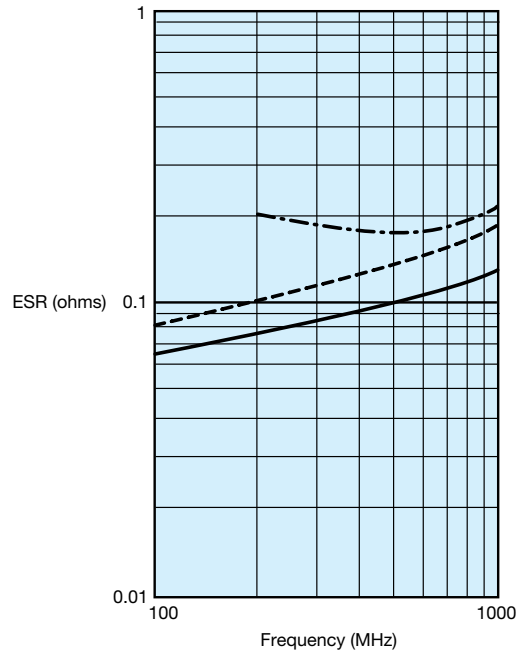
AVX CORPORATION  
 - - - - 250 MHz   - - - - 500 MHz   - - - - 1000 MHz

TYPICAL Q vs. FREQUENCY  
AQ11/12  
MIL-PRF-55681E - BP  
STANDARD - A



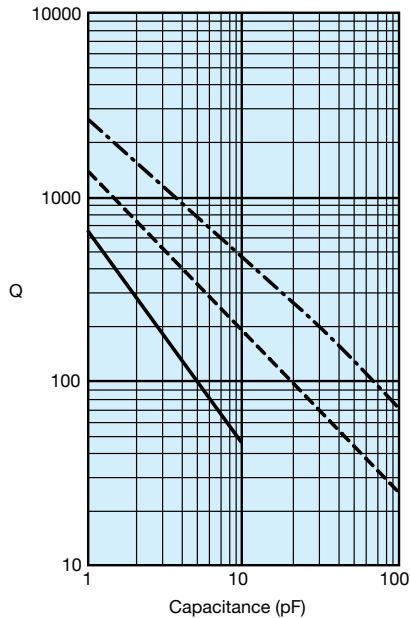
AVX CORPORATION  
--- 1 Picofarad    - - - 15 Picofarad    — 100 Picofarad

TYPICAL ESR vs. FREQUENCY  
AQ11/12  
MIL-PRF-55681E - BP  
STANDARD - A



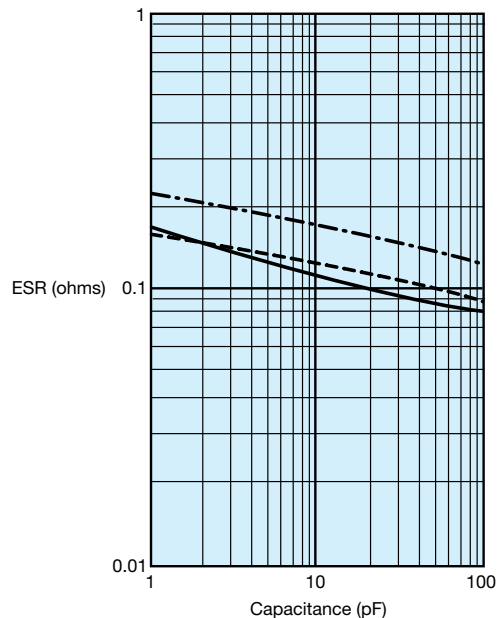
AVX CORPORATION  
--- 1 Picofarad    - - - 15 Picofarad    — 100 Picofarad

TYPICAL Q vs. CAPACITANCE  
AQ11/12  
MIL-PRF-55681E - BP  
STANDARD - A



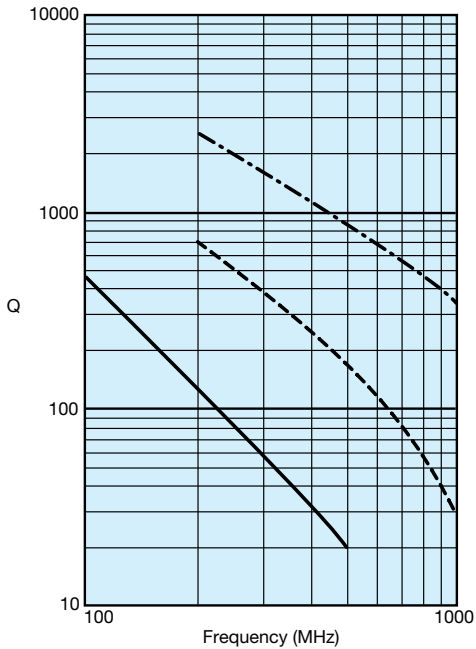
AVX CORPORATION  
--- 250 MHz    - - - 500 MHz    — 1000 MHz

TYPICAL ESR vs. CAPACITANCE  
AQ11/12  
MIL-PRF-55681E - BP  
STANDARD - A



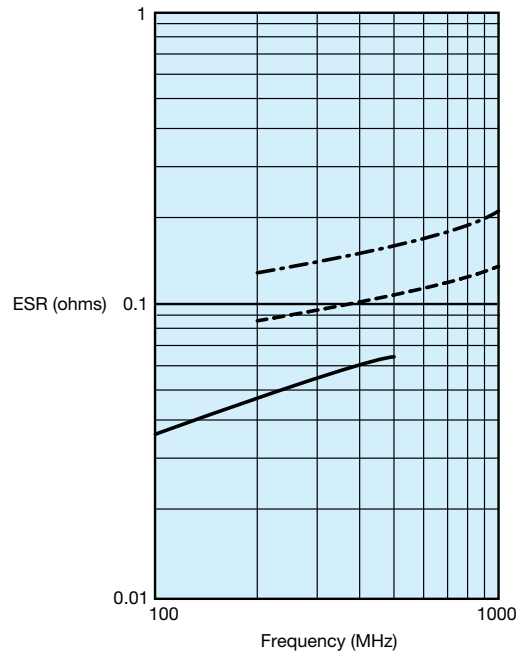
AVX CORPORATION  
--- 250 MHz    - - - 500 MHz    — 1000 MHz

TYPICAL Q vs. FREQUENCY  
AQ13/14  
MIL-PRF-55681E - BP  
STANDARD - A



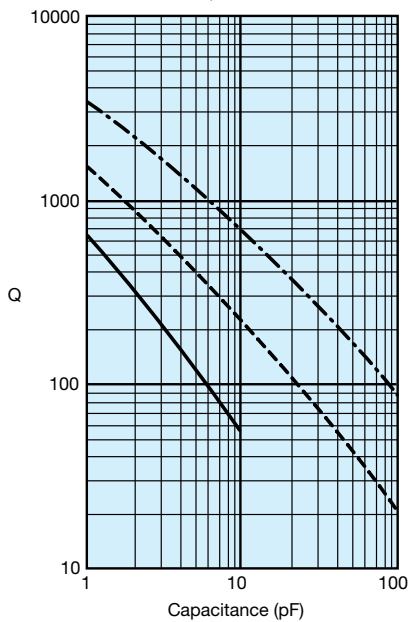
AVX CORPORATION  
--- 2 Picofarad    - - - 15 Picofarad    — 100 Picofarad

TYPICAL ESR vs. FREQUENCY  
AQ13/14  
MIL-PRF-55681E - BP  
STANDARD - A



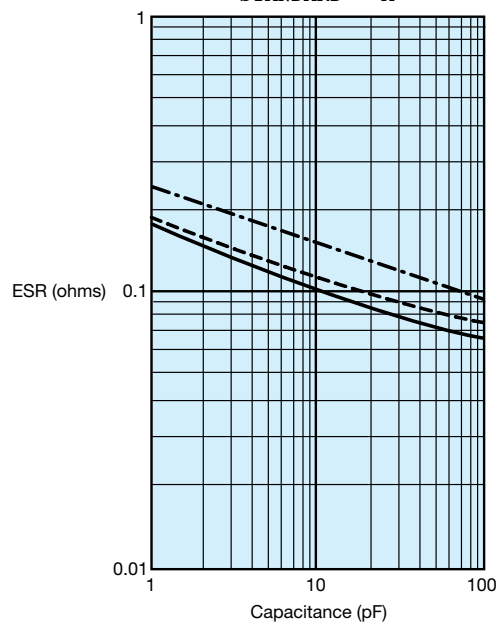
AVX CORPORATION  
--- 15 Picofarad    - - - 47 Picofarad    — 100 Picofarad

TYPICAL Q vs. CAPACITANCE  
AQ13/14  
MIL-PRF-55681E - BP  
STANDARD - A



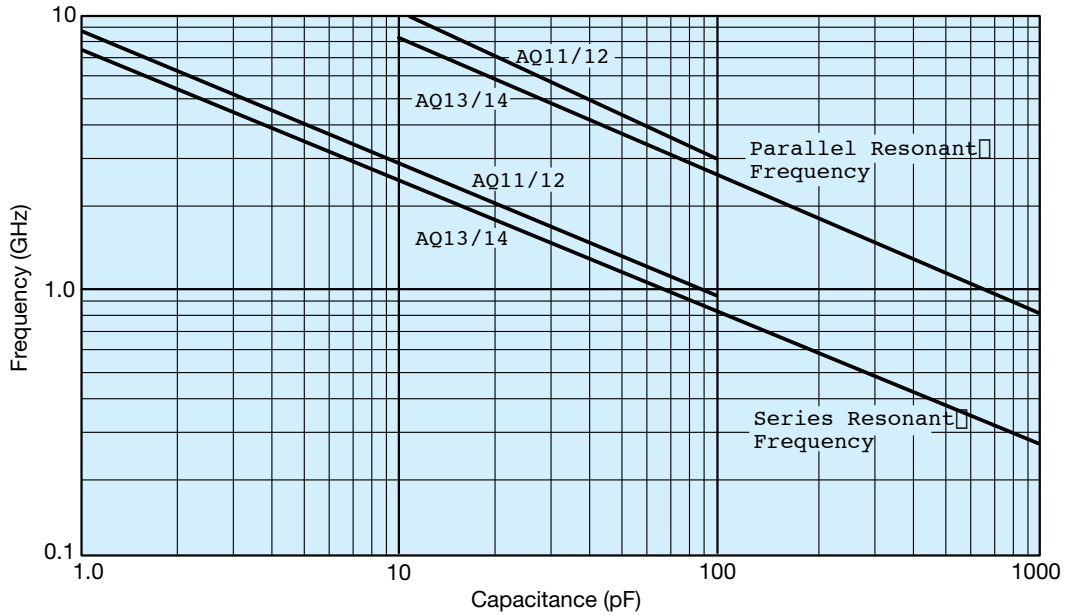
AVX CORPORATION  
--- 250 MHz    - - - 500 MHz    — 1000 MHz

TYPICAL ESR vs. CAPACITANCE  
AQ13/14  
MIL-PRF-55681E - BP  
STANDARD - A



AVX CORPORATION  
--- 250 MHz    - - - 500 MHz    — 1000 MHz

TYPICAL RESONANT FREQUENCY vs. CAPACITANCE  
AVX AQ11-14 (CDR11-14)



TYPICAL RESONANT FREQUENCY vs. CAPACITANCE  
AVX 0603

