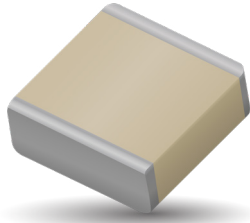


# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### HQ Series, High RF Power Capacitors



#### PRODUCT OFFERING

Hi-Q, high RF power, surface mount MLC capacitors from AVX Corporation are characterized with ultra-low ESR and dissipation factor at high frequencies. They are designed to handle high power and high voltage levels for applications in RF power amplifiers, inductive heating, high magnetic field environments (MRI coils), medical and industrial electronics.

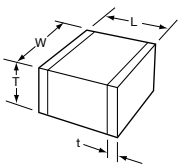
#### HOW TO ORDER

<b>HQCC</b>	<b>A</b>	<b>A</b>	<b>271</b>	<b>J</b>	<b>A</b>	<b>T</b>	<b>1A</b>
<b>AVX Style</b> HQCC HQCE HQLC** HQLE**	<b>Voltage</b> 300V = 9 500V = 7 800V = U 1000V = A 1500V = S 2500V = W 3000V = H 3600V = J 5000V = K 7200V = M	<b>Temperature Coefficient</b> COG = A P90 = M	<b>Capacitance Code</b> (2 significant digits + no. of zeros) Examples: 4.7 pF = 4R7 10 pF = 100 100 pF = 101 1,000 pF = 102	<b>Capacitance Tolerance</b> B = 0.1pf (<8.2pF) C = ±0.25pF (<8.2pF) D = ±0.50pF (<8.2pF) F = ±1% (10pF) G = ±2% J = ±5% K = ±10% M = ±20%	<b>Test Level</b> A = Standard	<b>Termination SMD Termination (HQCC/HQCE)</b> T = Plated Ni and Sn (RoHS Compliant) J = 5% Min Pb 7 = Plated Ni and Au H = Cu/Sn (Non-Magnetic) <b>Leaded Termination (HQLC/HQLE)</b> A = Axial Ribbon M = Microstrip 4 = Axial Ribbon (Non-Magnetic) 5 = Microstrip (Non-Magnetic)	<b>Packaging</b> 1A = 7" Reel* 6A = Waffle Pack *HQCC & HQCE only

\*\*Note: HQLC/HQLE are only available with leaded termination styles. All capacitance values by size/dielectric still apply.

#### DIMENSIONS

##### HQCC/HQCE



STYLE	HQCC	HQCE
(L) Length	5.84 +0.51 -0.25 (0.230 +0.020 -0.010)	9.65 +0.38 -0.25 (0.380 +0.015 -0.010)
(W) Width	6.35 ± 0.38 (0.250 ± 0.015)	9.65 ± 0.25 (0.380 ± 0.010)
(T) Thickness Max.	3.68 (0.145) max. for capacitance values ≤ 680pF 4.19 (0.165) max. for capacitance values > 680pF	4.32 (0.170) max.
(t) Overlap	1.02 (0.040) max.	1.02 (0.040) max.

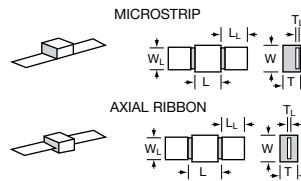
mm (inches)

**Not RoHS Compliant**



For RoHS compliant products, please select correct termination style.

##### HQLC/HQLE



STYLE	HQCC	HQCE
(L) Length	6.22 ± 0.64 (0.245 ± 0.025)	9.65 +0.89 -0.25 (0.380 +0.035 -0.010)
(W) Width	6.35 ± 0.38 (0.250 ± 0.015)	9.65 ± 0.25 (0.380 ± 0.010)
(T) Thickness Max.	3.68 (0.145) max. for capacitance values ≤ 680pF 4.19 (0.165) max. for capacitance values > 680pF	4.32 (0.170) max.
(L <sub>L</sub> ) Lead Length	12.7 min. (0.500)	19.05 (0.750)
(W <sub>L</sub> ) Lead Width	6.10 ± 0.127 (0.240 ± 0.005)	8.89 ± 0.25 (0.350 ± 0.010)
(T <sub>L</sub> ) Lead Thickness	0.102 ± 0.025 (0.004 ± 0.001)	0.25 ± 0.13 (0.010 ± 0.005)
Lead Material	High Purity Silver Leads Leads are attached with High Temperature Solder	High Purity Silver Leads Leads are attached with High Temperature Solder

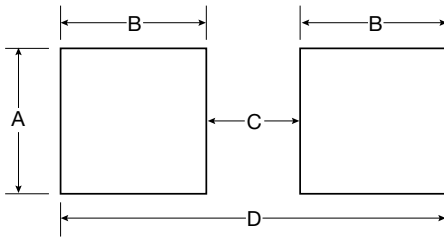
mm (inches)

# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### HQ Series, High RF Power Capacitors

#### MOUNTING DIMENSIONS



HQCC		mm (inches)				HQCE		mm (inches)			
Mounting Orientation	Layout Type	A min.	B min.	C min.	D min.	Mounting Orientation	Layout Type	A min.	B min.	C min.	D min.
Horizontal	Normal	7.112 (0.280)	1.270 (0.050)	5.080 (0.200)	7.620 (0.300)	Horizontal	Normal	10.287 (0.405)	1.270 (0.050)	8.255 (0.325)	10.795 (0.425)
	High Density	6.604 (0.260)	0.762 (0.030)	5.080 (0.200)	6.604 (0.260)		High Density	9.779 (0.385)	0.762 (0.030)	8.255 (0.325)	9.779 (0.385)
Vertical (<680pF)	Normal	3.810 (0.150)	1.270 (0.050)	5.080 (0.200)	7.620 (0.300)	Vertical	Normal	4.699 (0.185)	1.270 (0.050)	8.255 (0.325)	10.795 (0.425)
	High Density	3.302 (0.130)	0.762 (0.030)	5.080 (0.200)	6.604 (0.260)		High Density	4.191 (0.165)	0.762 (0.030)	8.255 (0.325)	9.779 (0.385)
Vertical (>680pF)	Normal	4.699 (0.185)	1.270 (0.050)	5.080 (0.200)	7.620 (0.300)						
	High Density	4.191 (0.165)	0.762 (0.030)	5.080 (0.200)	6.604 (0.260)						

#### DIELECTRIC PERFORMANCE CHARACTERISTICS

<b>Capacitance Range</b>	1.0pF to 2,700pF (25°C, 1.0 ±0.2 Vrms at 1kHz, for ≤ 1000 pF use 1MHz)
<b>Capacitance Tolerances</b>	±0.10pF, ±0.25pF, ±0.50pF, ±1%, ±2%, ±5%, ±10%, ±20%
<b>Dissipation Factor 25°C</b>	0.1% Max (+25°C, 1.0 ±0.2 Vrms at 1kHz, for ≤ 1000 pF use 1MHz)
<b>Operating Temperature Range</b>	-55°C to +125°C
<b>Temperature Characteristic</b>	COG: 0 ± 30 ppm/°C (-55°C to +125°C), P90: 90 ± 30 ppm/°C (-55°C to +125°C)
<b>Insulation Resistance</b>	100K MΩ min. @ +25°C and 500VDC 10K MΩ min. @ +125°C and 500VDC
<b>Dielectric Strength</b>	250% of WVDC for capacitors rated at 500 volts DC or less for 5 seconds. 150% of WVDC for capacitors rated at 1250 volts DC or less for 5 seconds. 120% of WVDC for capacitors rated above 1250 volts DC or less for 5 seconds.

# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

### HQ Series, High RF Power Capacitors



#### HQCC/HQLC CAPACITANCE VALUES (A DIELECTRIC)

Cap Code	Cap (pF)	Tol.	Rated WVDC	Cap Code	Cap (pF)	Tol.	Rated WVDC	Cap Code	Cap (pF)	Tol.	Rated WVDC	Cap Code	Cap (pF)	Tol.	Rated WVDC
1R0	1.0	B, C, D	2500	8R2	8.2	B, C, D	2500	680	68	F, G, J, K, M	2500	471	470	F, G, J, K, M	1500
1R2	1.2			100	10	820		82	561			560	1000		
1R5	1.5			120	12	101		100	681			680			
1R8	1.8			150	15	121		120	821			820			
2R2	2.2			180	18	151		150	102			1000			
2R7	2.7			220	22	181		180	122			1200	500		
3R3	3.3			270	27	221		220	152			1500			
3R9	3.9			330	33	271		270	182			1800	300		
4R7	4.7			390	39	331		330	222			2200			
5R6	5.6			470	47	391		390	272			2700			
6R8	6.8			560	56										

#### HQCC/HQLC CAPACITANCE VALUES (M DIELECTRIC)

Cap Code	Cap (pF)	Tol.	Rated WVDC		Cap Code	Cap (pF)	Tol.	Rated WVDC		Cap Code	Cap (pF)	Tol.	Rated WVDC			
			Standard	Extended				Standard	Extended				Standard	Extended		
1R0	1.0	B, C, D	2500	3600	100	10	F, G, J, K, M	2500	3600	161	160	F, G, J, K, M	2500	3000		
1R1	1.1				110	11				181	180				1500	2000
1R2	1.2				120	12				201	200					
1R3	1.3				130	13				221	220					
1R4	1.4				150	15				241	240					
1R5	1.5				160	16				271	270				1000	1500
1R6	1.6				180	18				301	300					
1R7	1.7				200	20				331	330					
1R8	1.8				220	22				331	330					
1R9	1.9				240	24				361	360				500	800
2R0	2.0	270	27	391	390											
2R1	2.1	300	30	431	430	300	500									
2R2	2.2	330	33	471	470											
2R4	2.4	360	36	511	510											
2R5	2.5	390	39	561	560											
3R0	3.0	430	43	621	620											
3R3	3.3	470	47	681	680											
3R6	3.6	510	51	751	750											
3R9	3.9	560	56	821	820											
4R3	4.3	620	62	911	910											
4R7	4.7	680	68	102	1000											
5R1	5.1	750	75	112	1100											
5R6	5.6	820	82	122	1200											
6R2	6.2	910	91	152	1500											
6R8	6.8	101	100	182	1800											
7R5	7.5	111	110	222	2200											
8R2	8.2	121	120	242	2400											
9R1	9.1	131	130	272	2700											
		151	150													

#### HQCE/HQLE CAPACITANCE VALUES (A DIELECTRIC)

Cap Code	Cap (pF)	Tol.	Rated WVDC		Cap Code	Cap (pF)	Tol.	Rated WVDC		Cap Code	Cap (pF)	Tol.	Rated WVDC			
			Standard	Extended				Standard	Extended				Standard	Extended		
1R0	1.0	C, D	3600	7200	150	15	G, J, K, M	3600	7200	221	220	G, J, K, M	2500	NA		
1R2	1.2				180	18				271	270				3600	
1R5	1.5				220	22				331	330					
1R8	1.8				270	27				391	390					
2R2	2.2				330	33				471	470					1000
2R7	2.7				390	39				561	560					
3R3	3.3				470	47				681	680					
3R9	3.9				560	56				821	820					
4R7	4.7				680	68				102	1000					
5R6	5.6				820	82				122	1200					
6R8	6.8	101	100	152	1500											
8R2	8.2	121	120	182	1800											
100	10	G, J, K, M		151	150											
120	12			181	180											

#### HQCE/HQLE CAPACITANCE VALUES (M DIELECTRIC)

Cap Code	Cap (pF)	Tol.	Rated WVDC		Cap Code	Cap (pF)	Tol.	Rated WVDC		Cap Code	Cap (pF)	Tol.	Rated WVDC			
			Standard	Extended				Standard	Extended				Standard	Extended		
1R0	1.0	B, C, D	3600	7200	180	18	F, G, J, K, M	3600	7200	331	330	F, G, J, K, M	2500	NA		
1R2	1.2				220	22				391	390				3600	
1R5	1.5				270	27				471	470					
1R8	1.8				330	33				561	560					
2R2	2.2				390	39				681	680					1000
2R7	2.7				470	47				821	820					
3R3	3.3				560	56				102	1000					
3R9	3.9				680	68				122	1200					
4R7	4.7				820	82				152	1500					
5R6	5.6				101	100				182	1800					
6R8	6.8	121	120	222	2200											
8R2	8.2	151	150	272	2700											
100	10	F, G, J, K, M		181	180											
120	12			221	220											
150	15			271	270											

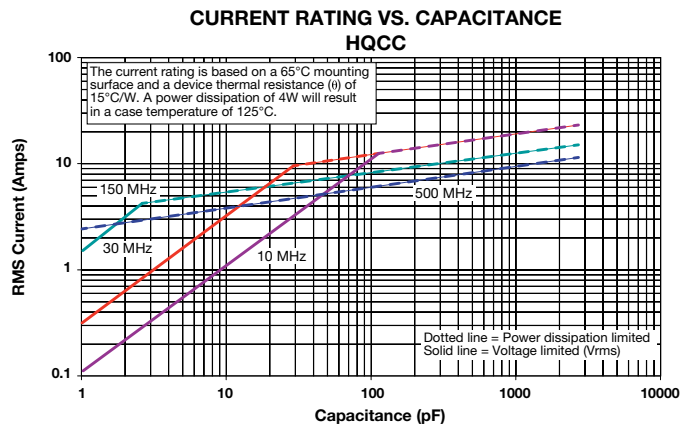
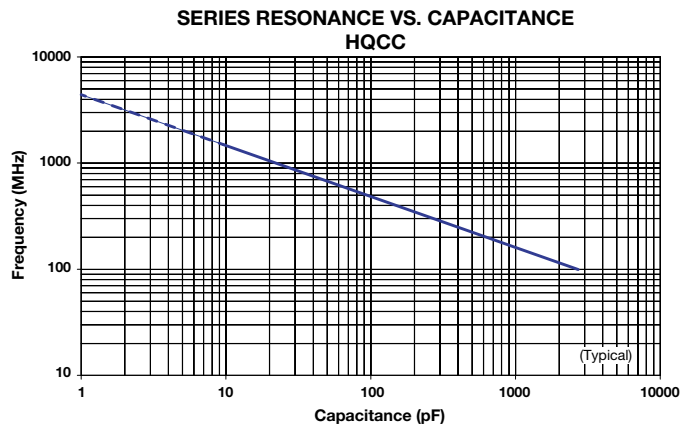
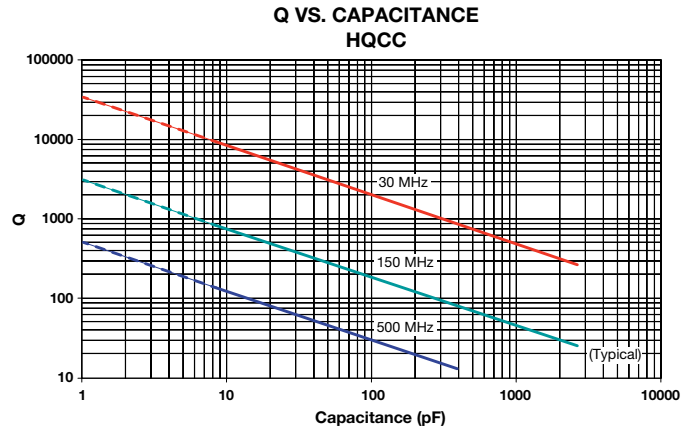
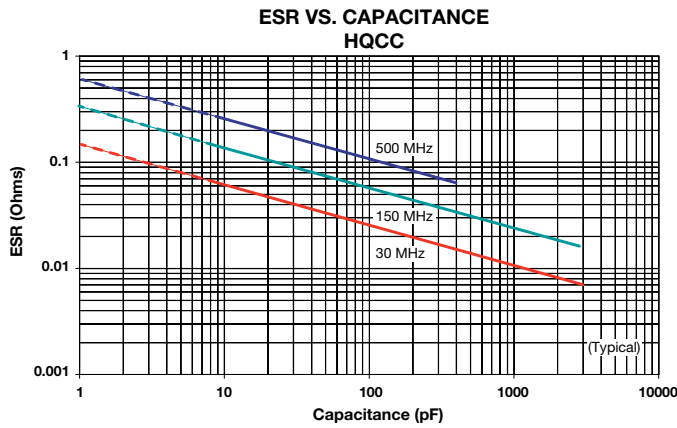
# RF/Microwave Capacitors

## RF/Microwave Multilayer Capacitors (MLC)

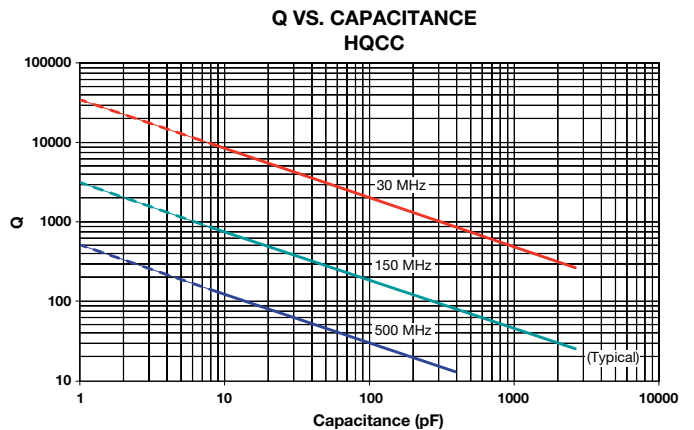
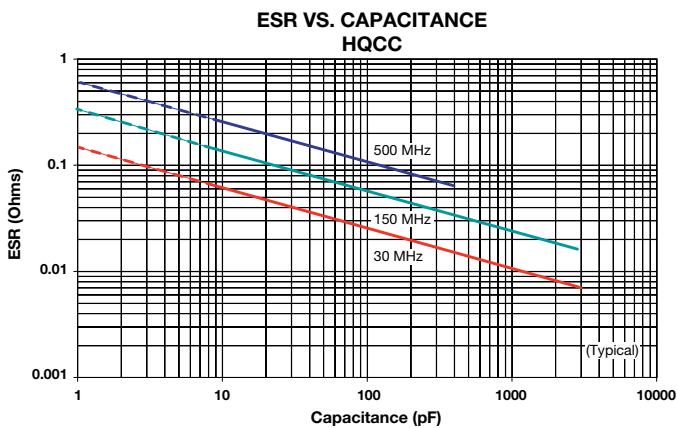
### HQ Series, High RF Power Capacitors



#### HQCC PERFORMANCE CHARACTERISTICS (A DIELECTRIC)



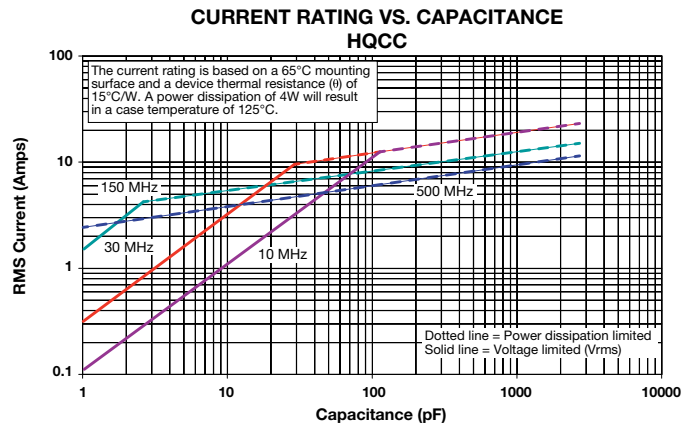
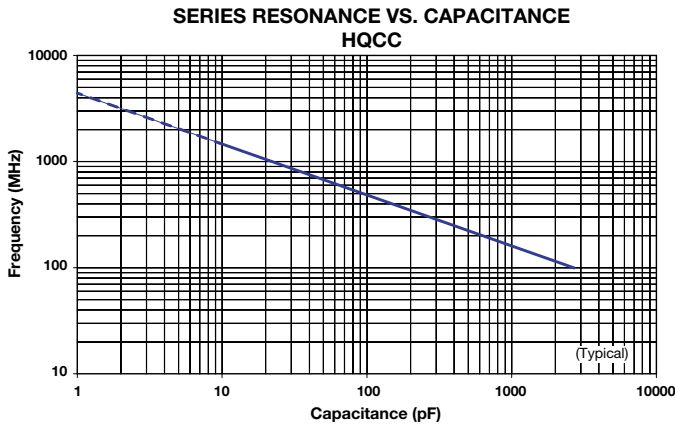
#### HQCC PERFORMANCE CHARACTERISTICS (M DIELECTRIC)



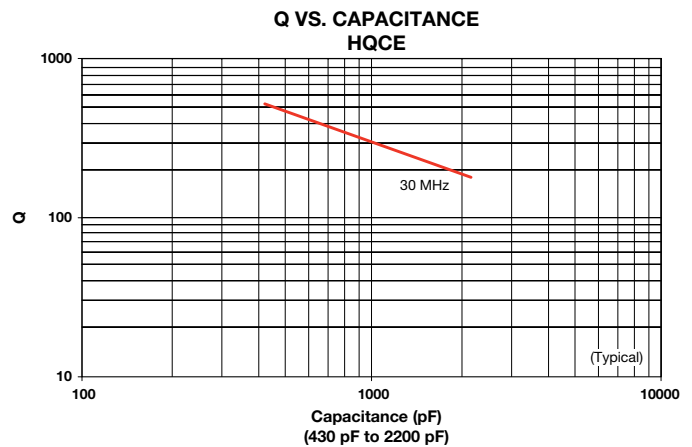
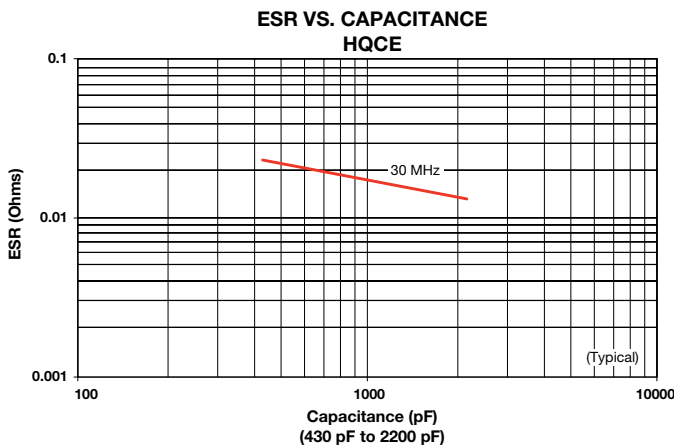
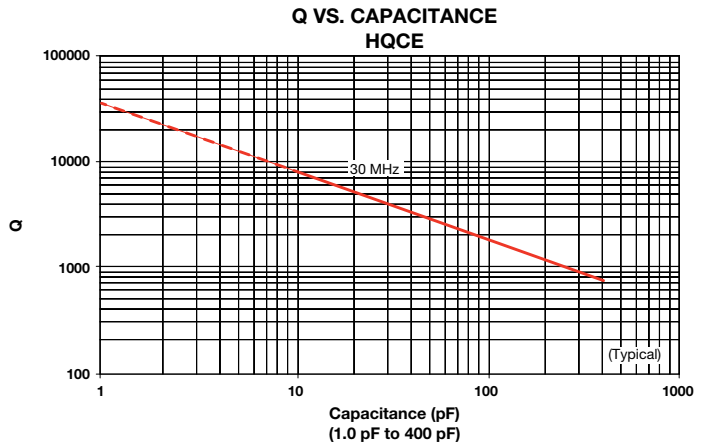
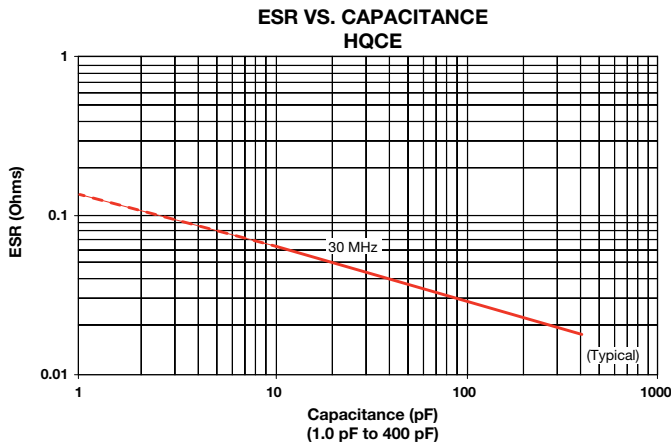
# RF/Microwave Capacitors

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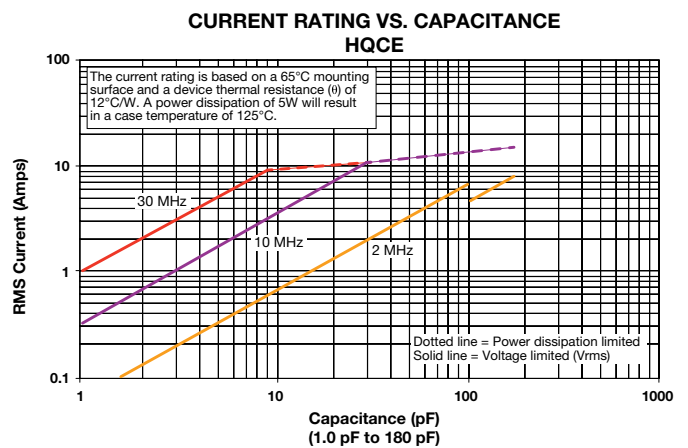
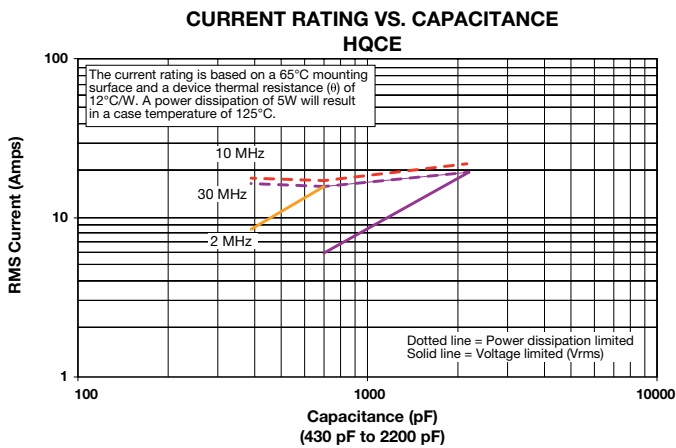
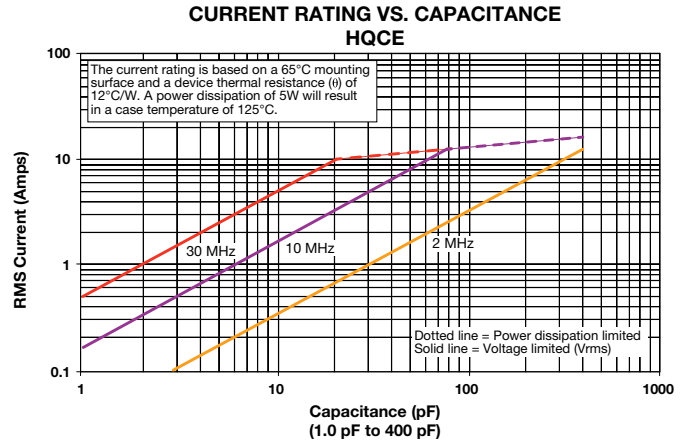
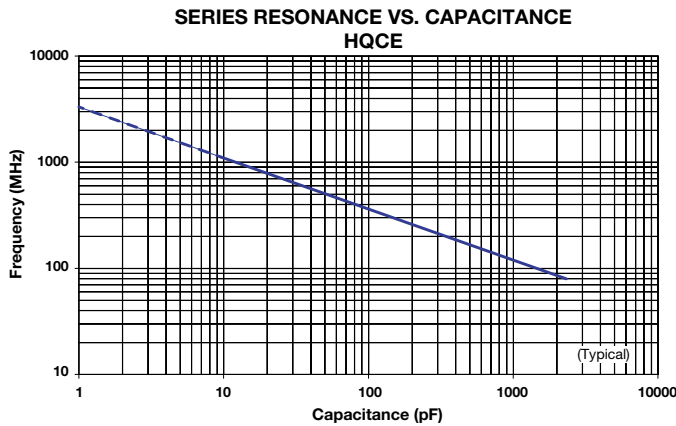
### HQCE PERFORMANCE CHARACTERISTICS (A DIELECTRIC)



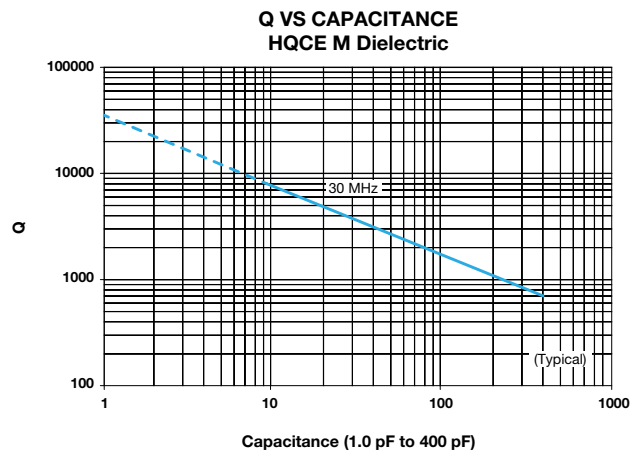
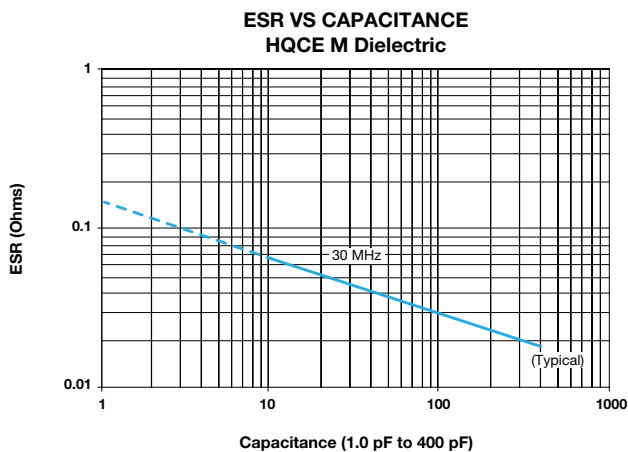
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## HQCE PERFORMANCE CHARACTERISTICS (M DIELECTRIC)



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