

# Hi-Q® High RF Power MLC Surface Mount Capacitors

For 600V to 7200V Applications



## 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.

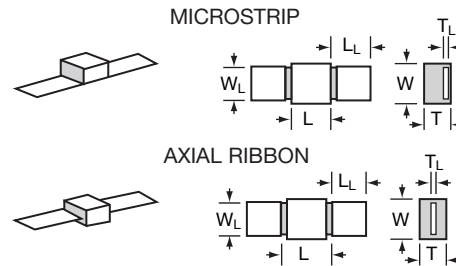
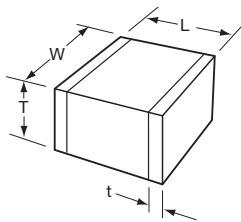
## HOW TO ORDER

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

\*HQCC & HQCE only

## DIMENSIONS

millimeters (inches)



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.
(Y) Overlap	1.20 ± (0.040) max.	1.02 ± (0.040) max.

STYLE	HQLC	HQLE
(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.
(Y) Overlap	N/A	N/A
(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

**Not RoHS Compliant**



For RoHS compliant products,  
please select correct termination style.



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## 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>	C0G: 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.

## HQCC 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			B, C, D	2500	180		18	F, G, J K, M			2500	151		150	F, G, J K, M	2500	102	1000	F, G, J K, M	500								
2R7	2.7					220		22					181		180			122	1200										
3R3	3.3					270		27					221		220			152	1500										
3R9	3.9					B, C, D		2500					330		33			F, G, J K, M	2500		271	270	F, G, J K, M	2500	182	1800	F, G, J K, M	500	
4R7	4.7												390		39						331	330			222	2200			
5R6	5.6	470	47				391			390	152		1500																
6R8	6.8	B, C, D	2500				560			56	F, G, J K, M		2500	272	2700						F, G, J K, M	2500			272	2700		F, G, J K, M	300

## HQCC 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			
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			
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			
2R0	2.0				270	27				391	390			
2R1	2.1				300	30				431	430			
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											

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## HQCE 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	3600	NA
1R2	1.2				271	270								
1R5	1.5				331	330								
1R8	1.8				391	390								
2R2	2.2				471	470								
2R7	2.7				561	560								
3R3	3.3				681	680								
3R9	3.9				821	820								
4R7	4.7				102	1000								
5R6	5.6				122	1200								
6R8	6.8	152	1500											
8R2	8.2	182	1800											
100	10	G, J, K, M	3600	7200	121	120	G, J, K, M	3600	5000	222	2200	G, J, K, M	1000	NA
120	12				151	150								
					181	180								

## HQCE CAPACITANCE VALUES (M DIELECTRIC)

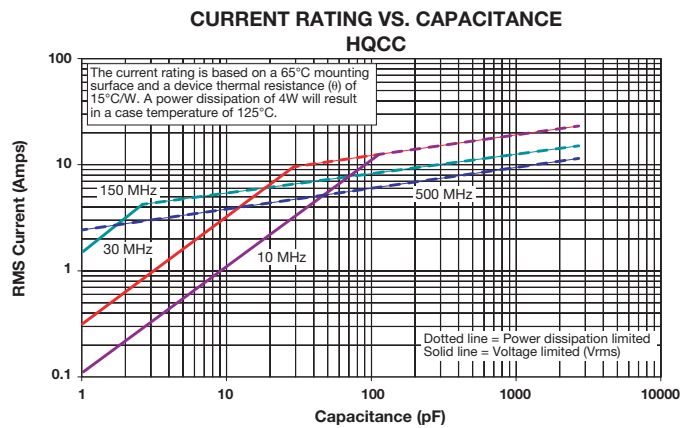
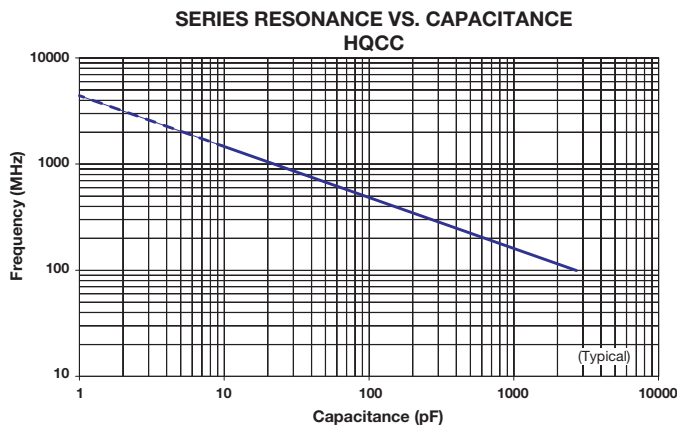
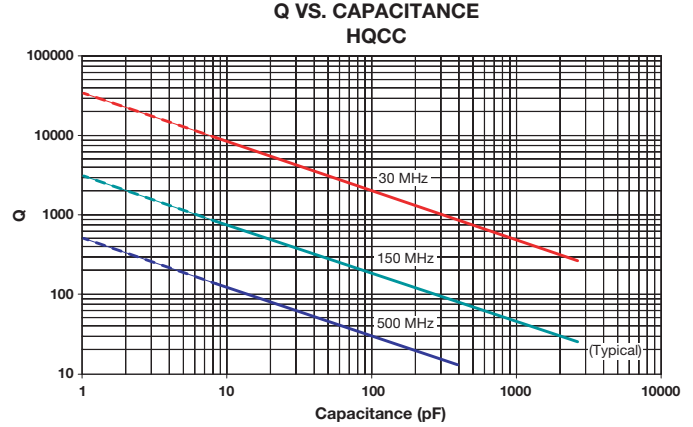
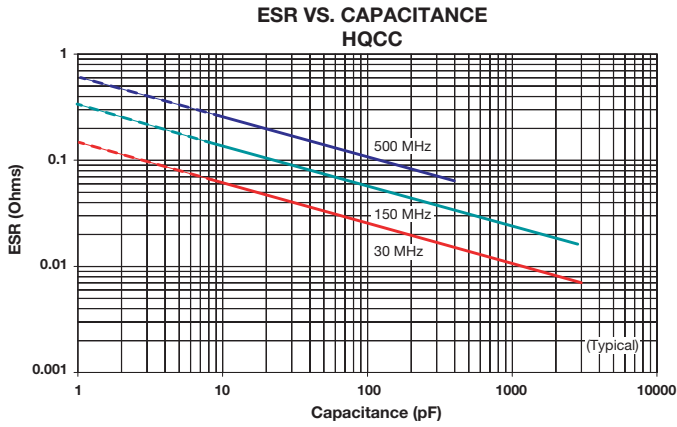
Cap Code	Cap (pF)	Tol.	Rated WVDC		Cap Code	Cap (pF)	Tol.	Rated WVDC		Cap Code	Cap (pF)	Tol.	Rated WVDC	
			Standard	Extended				Standard	Extended				Standard	Extended
1R0	1.0	B, C, D	3600	7200	180	18	F, G, J, K, M	3600	7200	331	330	F, G, J, K, M	3600	NA
1R2	1.2				391	390								
1R5	1.5				471	470								
1R8	1.8				561	560								
2R2	2.2				681	680								
2R7	2.7				821	820								
3R3	3.3				102	1000								
3R9	3.9				122	1200								
4R7	4.7				152	1500								
5R6	5.6				182	1800								
6R8	6.8	222	2200											
8R2	8.2	272	2700											
100	10	F, G, J, K, M	3600	7200	121	120	F, G, J, K, M	3600	5000	332	3300	G, J, K, M	500	NA
120	12				151	150								
					181	180								
150	15				221	220								
		271	270											

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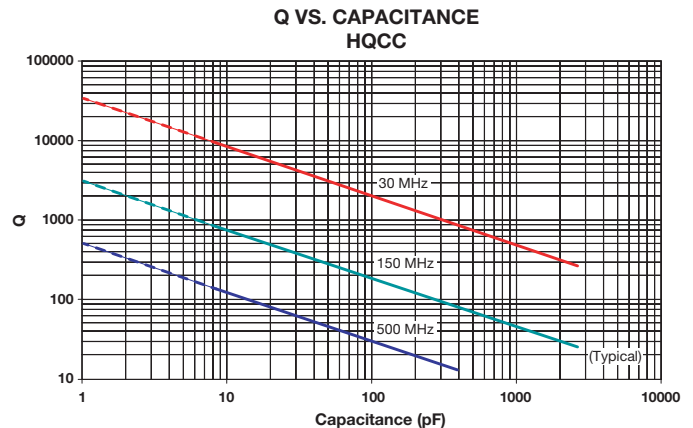
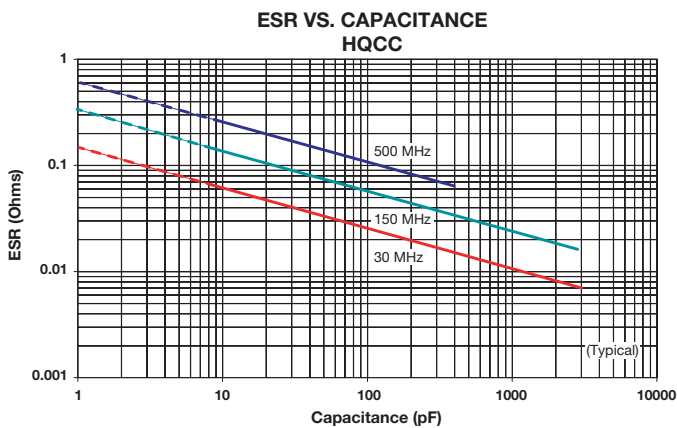
For 600V to 7200V Applications



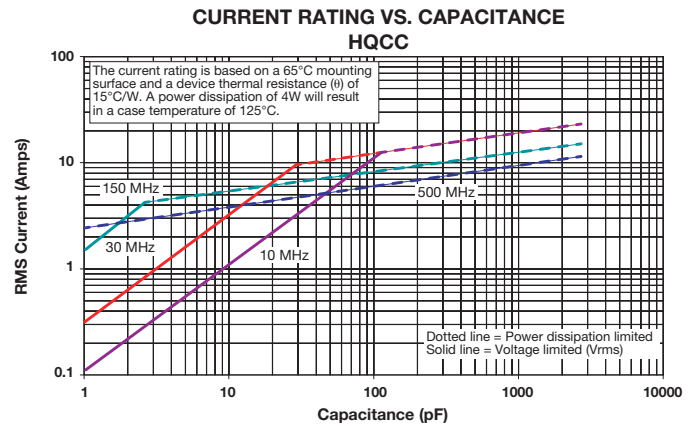
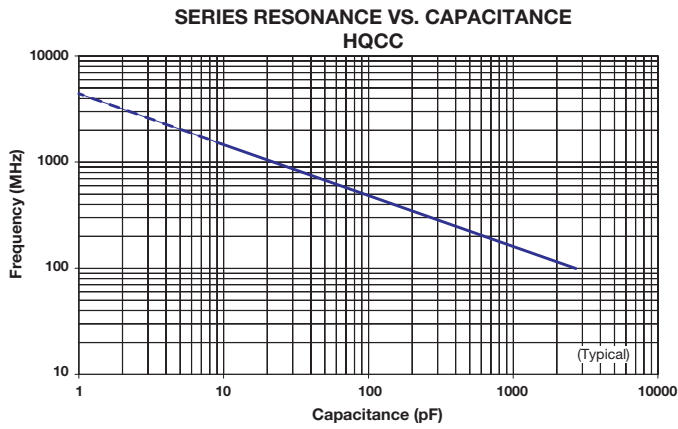
## HQCC PERFORMANCE CHARACTERISTICS (A DIELECTRIC)



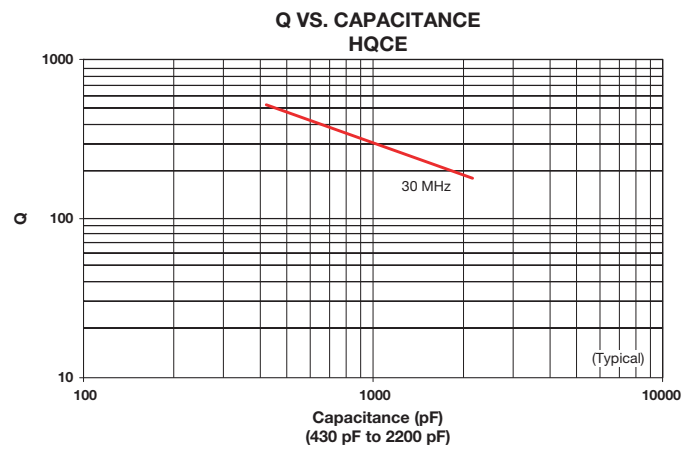
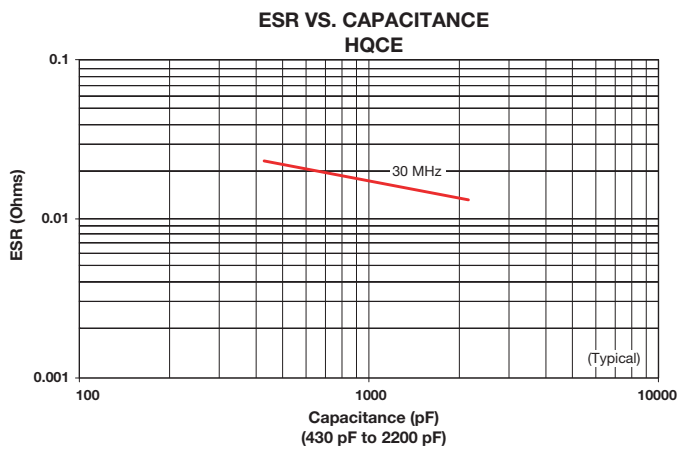
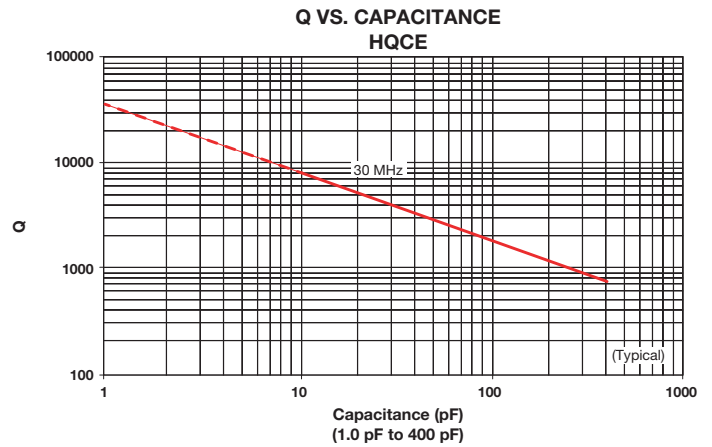
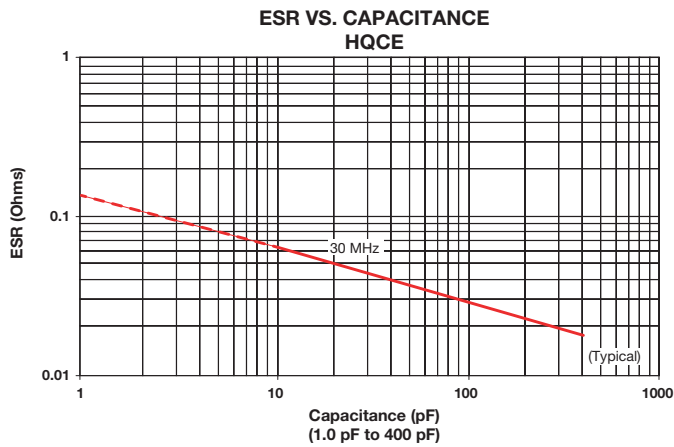
## HQCC PERFORMANCE CHARACTERISTICS (M DIELECTRIC)



# Hi-Q<sup>®</sup> High RF Power MLC Surface Mount Capacitors For 600V to 7200V Applications



## HQCE PERFORMANCE CHARACTERISTICS (A DIELECTRIC)

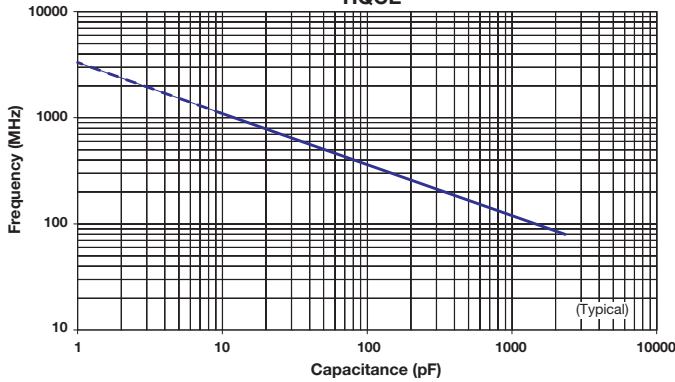


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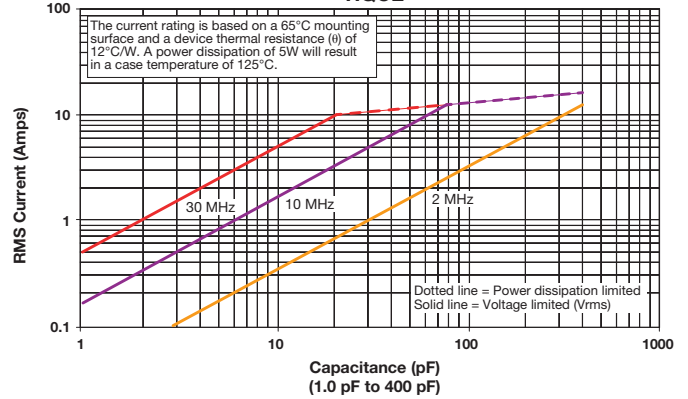
For 600V to 7200V Applications



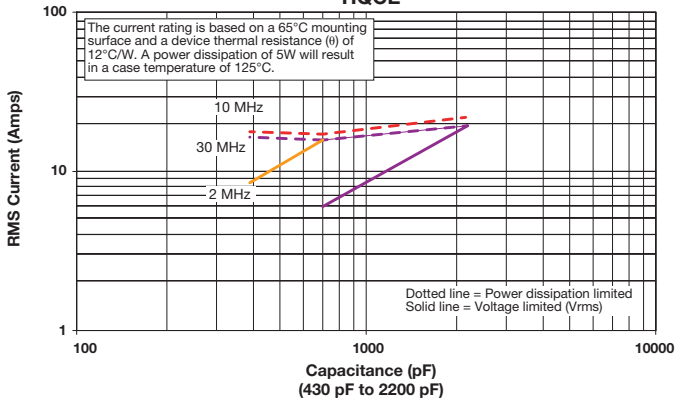
**SERIES RESONANCE VS. CAPACITANCE**  
HQCE



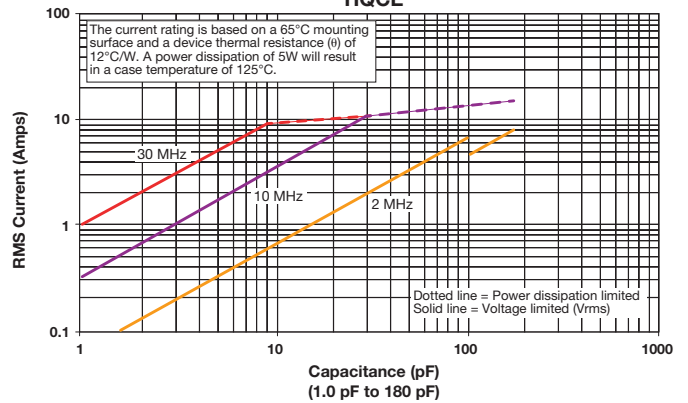
**CURRENT RATING VS. CAPACITANCE**  
HQCE



**CURRENT RATING VS. CAPACITANCE**  
HQCE

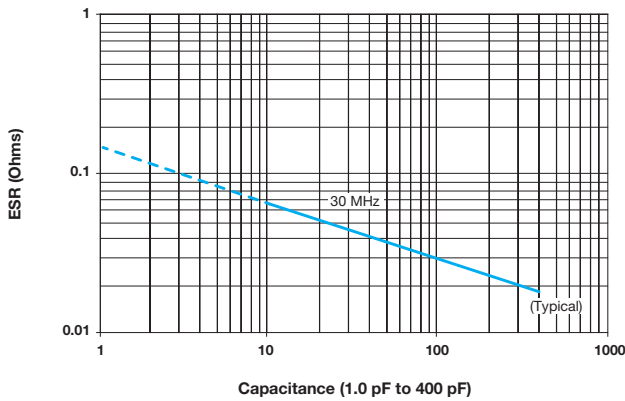


**CURRENT RATING VS. CAPACITANCE**  
HQCE

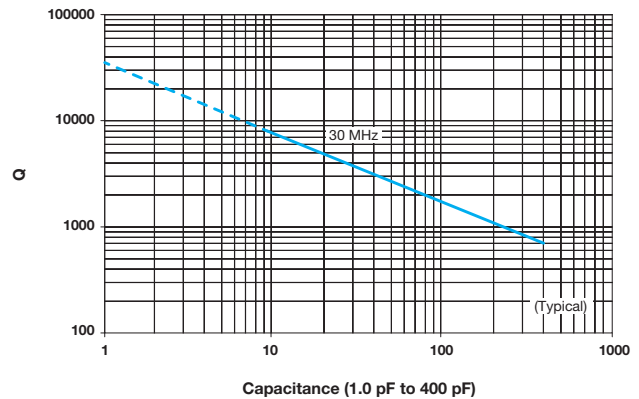


## HQCE PERFORMANCE CHARACTERISTICS (M DIELECTRIC)

**ESR VS CAPACITANCE**  
HQCE M Dielectric



**Q VS CAPACITANCE**  
HQCE M Dielectric

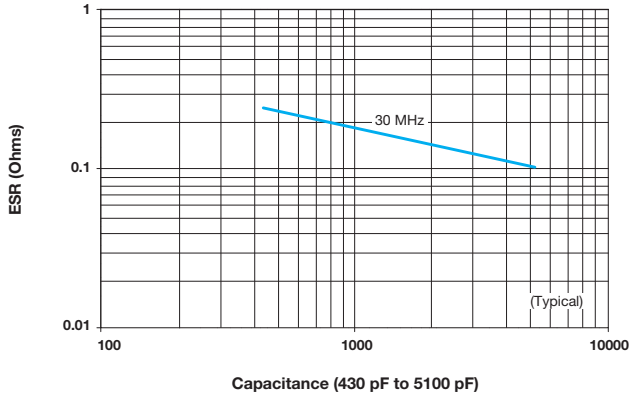


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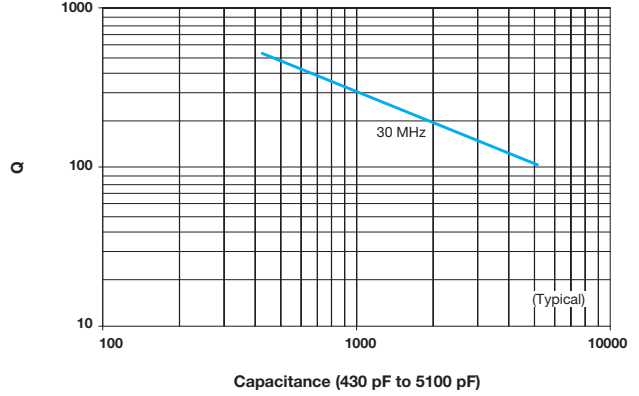
For 600V to 7200V Applications



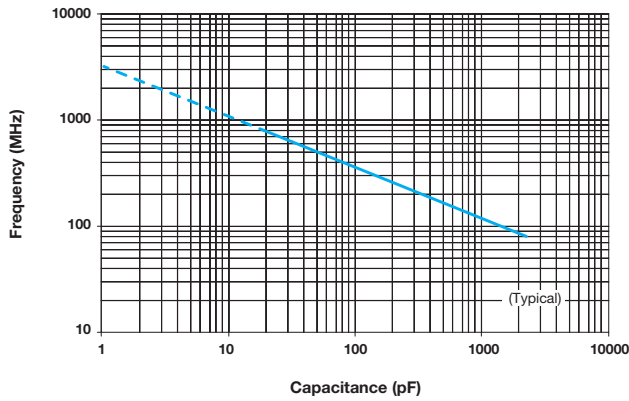
**ESR VS CAPACITANCE**  
HQCE M Dielectric



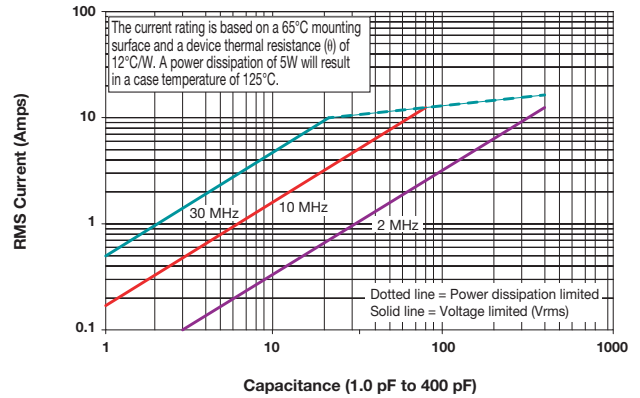
**Q VS CAPACITANCE**  
HQCE M Dielectric



**SERIES RESONANCE VS CAPACITANCE**  
HQCE M Dielectric



**CURRENT RATING VS CAPACITANCE**  
HQCE M Dielectric



**CURRENT RATING VS CAPACITANCE**  
HQCE M Dielectric

