MPH 25(MHPO25)

High Voltage High Current, High RF Power Capacitors

Features

- Capacitance Range: 1pF to 2700pF
- High Q Low ESR/ESL
- High RF Power
- Ultra Stable Performance
- Operating Voltages
  - DC Voltage: 300Vdc to 2500Vdc
  - RF Voltage: 200Vrms to 1800Vrms
- RF Current Rating 6A rms
- Available with Encapsulation Option

Applications

- MRI Coils
- HF/RF Power Amplifiers
- Plasma Chambers
- Antenna Tuning
- High Power RF Transmitters
- Inductive Heating
- Semiconductor Equipment

AFM Part Number Code

M P H 25 W 101 J H C B B

Product Series:
M: High Frequency

Product Type:
H: High Power

Dielectrics:
P: Porcelain

Chip Size:
25: 2325

Termination Code:
A: Axial Wire;
AN: Non-Mag Axial Wire
B: Axial Ribbon
BN: Non-Mag Axial Ribbon
C: Pd/Ag Term
G: Ag Term, Ni/Au Plated
M: Microstrip
MN: Non-Mag Microstrip
N: Non Magnetic Term (Ag Term., Cu/Sn Plated)
P: Solder Dipped W Term in 60/40 Sn/Pb
Q: Radial Wire
QN: Non-Mag Radial Wire
T: Ag Term, Ni/100% Sn Plated (Pb Free)
W: Ag Term, Ni Barrier, 90/10 Sn/Pb Plated

Capacitance Code:
1st two digits are significant: Third digit denotes number of zero(s); R=Decimal point
2R0=2.0pF
101=100pF

Tolerance:*
B: ±0.1pF
C: ±0.25pF
D: ±0.5pF
F: ±1%
G: ±2%
J: ±5%
K: ±10%
M: ±20%

*B,C,D for C<10pF

Voltage:
H: 300 Vdc
J: 500 Vdc
L: 1000 Vdc
N: 1500 Vdc
P: 2500 Vdc

Test Code:
C: Commercial Test
S: Special (Customer Defined)
M: Hi-Rel

Marking:
B: Not Marked
M: Marked (Cap code and tolerance)
S: Special Marking

Packaging:
B: Bulk
T: Tape & Reel
W: Waffle Pack

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Standard Capacitance Values

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

* Special capacitance, tolances and WVDC are available, please consult with AFM.

Specification and Performance

Piezoelectric and Aging Effect:	None
Temperature Range:	-55°C to +125°C
Temperature Coefficient of Capacitance:	+90±20ppm/°C
Quality Factor (Q) :	>10,000 (1pF~1000pF) at 1MHz >10,000 (1100pF~2700pF) at 1KHz
Insulation Resistance (IR, at Rated Voltage):	10^5MΩ min. at +25°C at rated WVDC 10^4MΩ min. at +125°C at rated WVDC
Dielectric Withstand Voltage (DWV):	1pF~470pF: 120% of rated WVDC for 5 secs; 560pF~1200pF: 150% of rated WVDC for 5 secs; 1500pF~2700pF: 250% of rated WVDC for 5 secs;
Capacitance Drift:	±0.02% or ±0.02pF, whichever is greater

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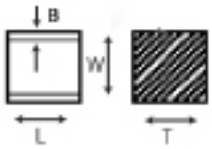
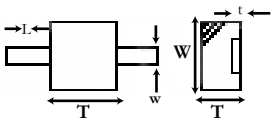
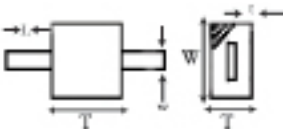
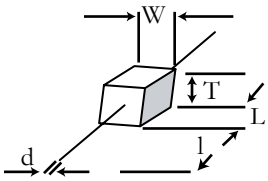
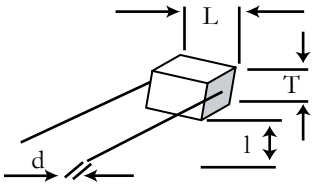
Chip Dimensions

Termination	Outline	Lin (mm)	W in (mm)	T in (mm)		B in(mm)
				min	max	
MPH25C, MPH25G, MPH25N, MPH25T, MPH25W		.230 +.020~-.010 (5.84 +0.51~- 0.25))	.250±.015 (6.35±0.38)	.138 (3.50)	.165 (4.19)	.040 (1.02) max
MPH25P		230 +.070~-.010 (5.84 +1.78~-0.25)				

Lead Options

Term Code	Type	Outline	Dimensions in (mm) Add .070 inches (1.77mm) if Encapsulated				Lead Style Designation
			L	W	T	d	
M/MN	Microstrip/ Non-Magnetic		.245±.025 (6.22±0.64)	.250±.015 (6.35±0.38)	.145(3.68) Max for C≤680pF		1. Silver Braced leads attached for 99.9% Silver Leads **l:** .500(12.7)min **W:** .240±.005 (6.10±0.127) **t:** .010±.001 (0.25±0.025) 2. Leads Attached with High Melting Temperature Solder plated copper lead
B/BN	Axial Ribbon/Non-Magneti				.165(4.19) Max for C>680pF		
A/AN	Axial Wire/ Non-Magneti		.245±.025 (6.22±0.64)	.250±.015 (6.35±0.38)	.145(3.68) Max for C≤680pF	.024 (.61) Dia. Nominal	Solder Coated Copper **l:** .500(12.7)min **d:** .024±.002 (0.610±0.051) Leads Attached with High Melting Temperature Solder Alloy
Q/QN	Radial Wire/ Non-Magneti				.165(4.19) Max for C>680pF		

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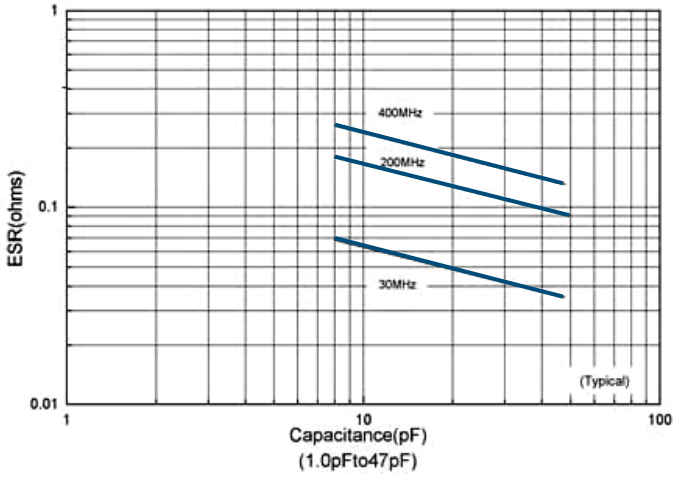
Environmental Tests

MPH25 Series Capacitors are designed and manufactured to meet and exceed the requirements of EIA-198, MIL-PRF-55681 and MIL-PRF-123.

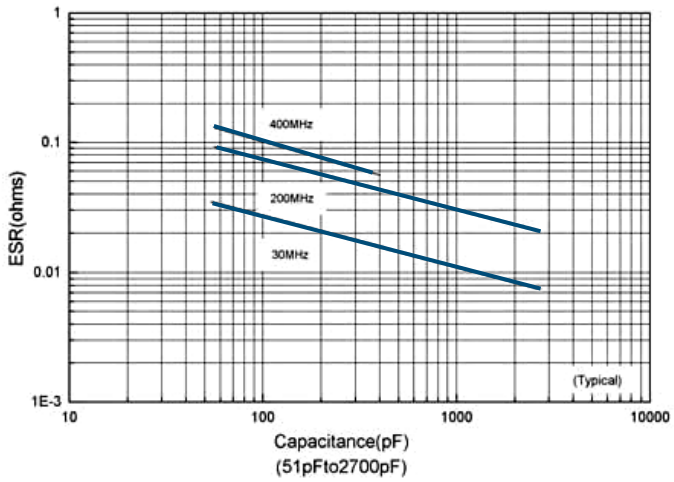
Item	Specifications	Method
Thermal Shock	DWV: the initial value IR: shall be not less than 30% the initial value Capacitance Change: no more than 0.5% or 0.5pF	MIL-STD-202, Method 107, Condition A. At the maximum rated temperature (-55°C and +125°C) stay 30 minutes, the time of removing shall be not more than 3 minutes. Perform the five cycles.
Moisture Resistance		MIL-STD-202, Method 106
Humidity (steady state)	DWV: the initial value IR: the initial value Capacitance Change: no more than 0.3% or 0.3pF	MIL-STD-202, Method 103, Condition A, with 1.5 volts D.C. applied while subjected to an environment of 85°C with 85% relative humidity for 240 hours min.
Life	IR: shall be not less than 30% the initial value Capacitance Change: no more than 0.2%	MiIL-Std-202, Method 108, for 2000 hours, at 125°C. no less than 1500V, 120% Rated voltage D.C. applied; less than 1500V, 150% rated voltage D.C. applied.

Performance Curve

ESR vs.Capacitance



ESR vs.Capacitance



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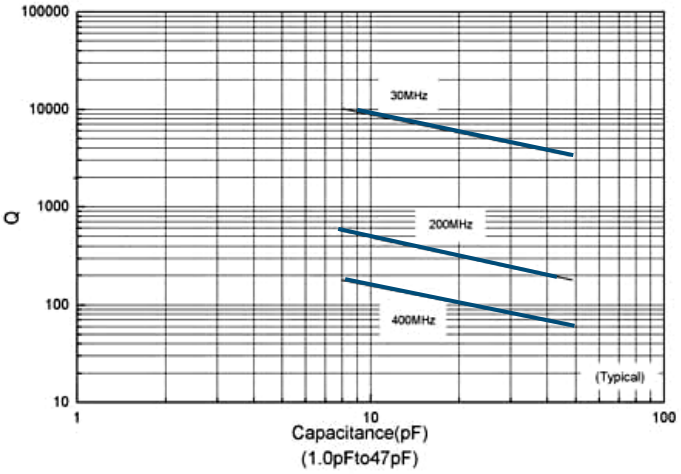
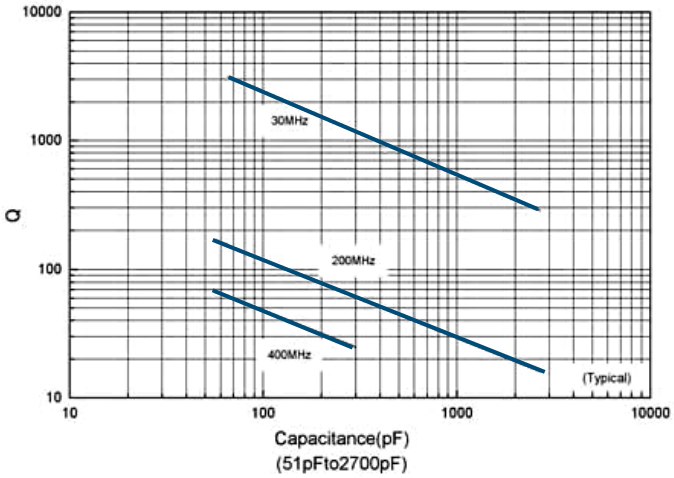
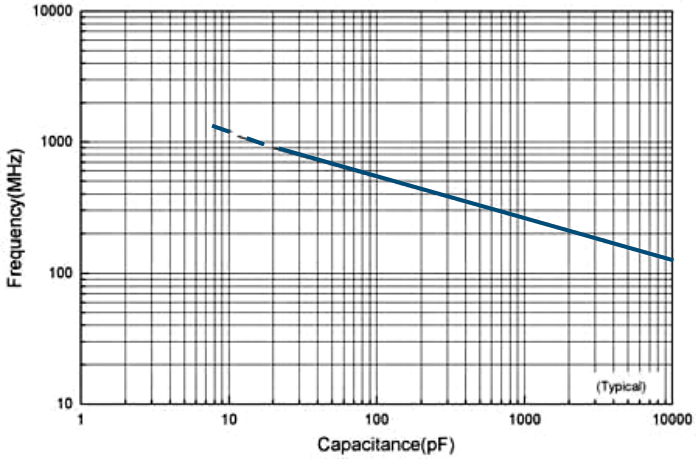
Q vs.Capacitance



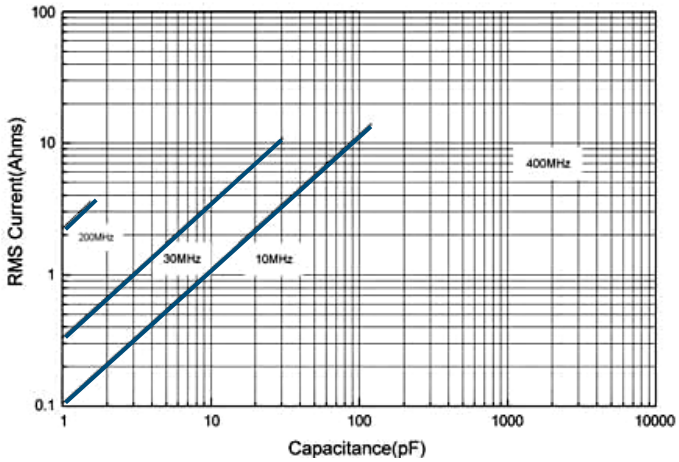
Q vs.Capacitance



Resonance vs.Capacitance



Current Rating vs.Capacitance



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