



MNH 25

High Voltage, High Current, High RF Power Capacitors

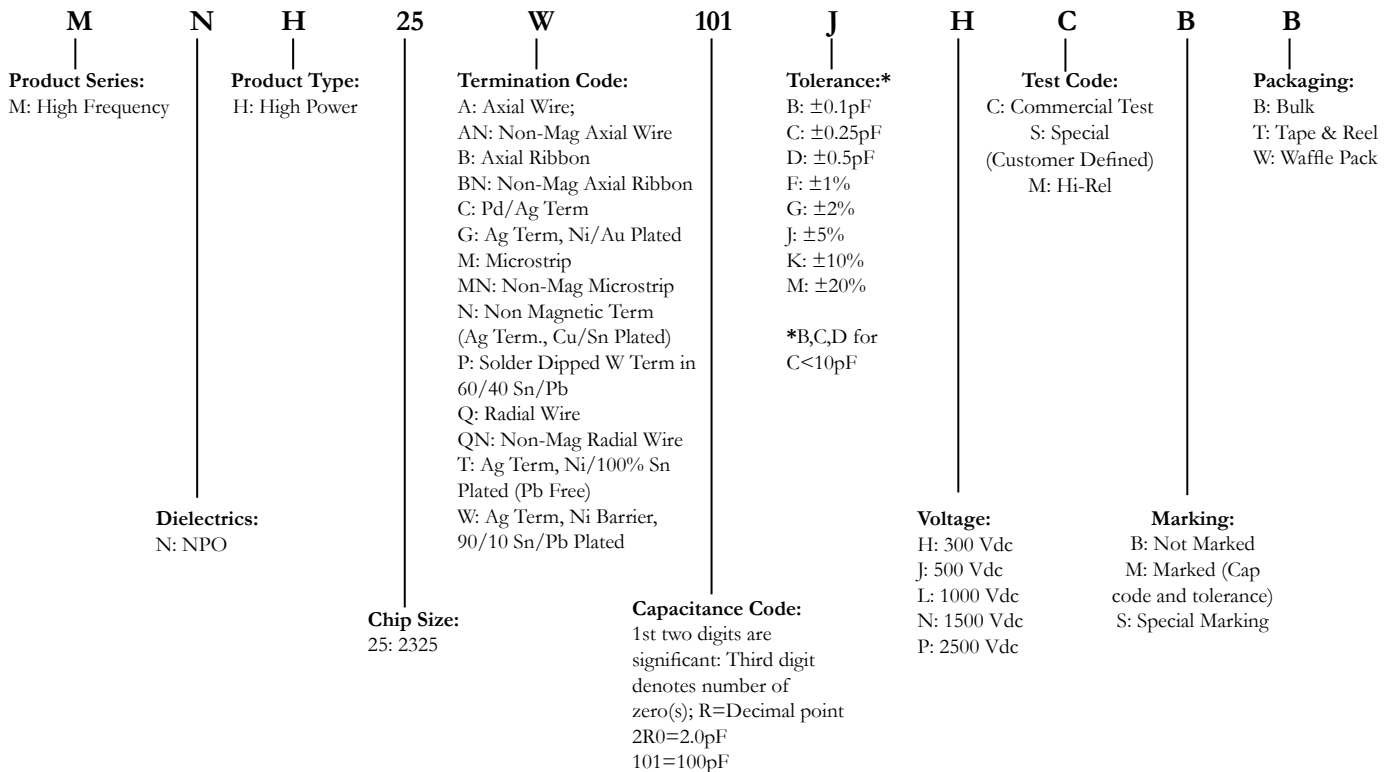
Features

- 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



Standard Capacitance Values

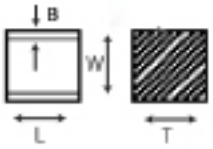
Cap. Code	Cap. pF	Tol.	WVDC V	Cap Code	Cap. pF	Tol.	WVDC V	Cap Code	Cap. pF	Tol.	WVDC V
1R0	1.0	C, D	2500	180	18	G, J, K, M	2500	331	330	G, J, K, M	1500
1R2	1.2			220	22			391	390		
1R5	1.5			270	27			471	470		
1R8	1.8			330	33			561	560		
2R2	2.2			390	39			681	680		
2R7	2.7			470	47			821	820		
3R3	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	500					
8R2	8.2	151	150	272	2700						
100	10	181	180								
120	12	G, J, K, M		221	220						
150	15			271	270						

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

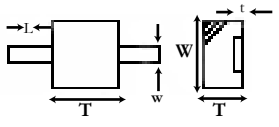
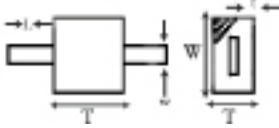
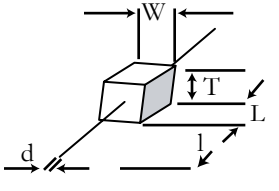
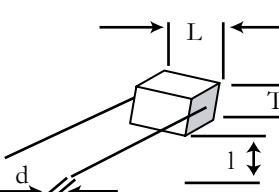
Specification and Performance

Piezoelectric and Aging Effect:	None
Temperature Range:	-55°C to +125°C
Temperature Coefficient of Capacitance:	0±30ppm/°C
Quality Factor (Q) :	>10,000 (1pF~1000pF) at 1MHz >10,000 (1100pF~2700pF) at 1KHz
Insulation Resistance (IR, at Rated Voltage):	1pF~2700pF: 10 ⁵ MΩ min. at +25°C at rated WVDC 10 ⁴ MΩ min. at +125°C at rated WVDC Max. test voltage is 500VDC.
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

Chip Dimensions

Termination	Outline	Lin (mm)	W in (mm)	T in (mm)		B in(mm)
				min	max	
MNH25C, MNH25G, MNH25N, MNH25T, MNH25W		.230 +.020~-0.010 (5.84 +0.51~-0.25))	.250±.015 (6.35±0.38)	.138 (3.50)	.165 (4.19)	.040 (1.02) max
MNH25P		230 +.070~-0.010 (5.84 +1.78~-0.25)				

Lead Options

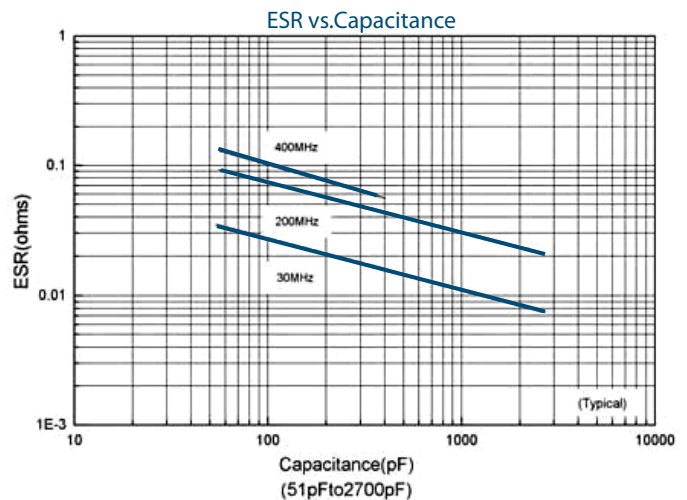
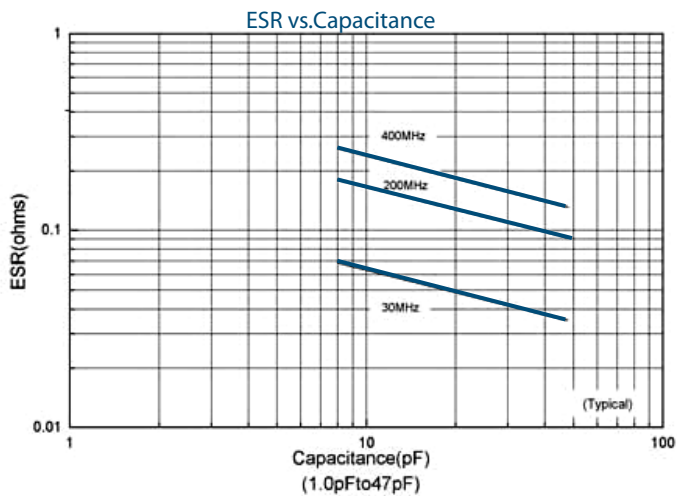
Term Code	Type	Outline	Dimensions in (mm)				Lead Style Designation	
			Add .070 inches (1.77mm) if Encapsulated					
			L	W	T	d		
M/MN	Microstrip/ Non-Magnetic		.245±.025 (6.22±0.64)	.250±.015 (6.35±0.38)	.145(3.68) Max for C≤680pF	/	1. Silver Braced leads attached for 99.9% Silver Leads l: .500(12.7)min W: .240±.005 (6.10±0.127) t: .010±.001 (0.25±0.025)	
B/BN	Axial Ribbon/Non-Magneti							.245±.025 (6.22±0.64)
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)	
Q/QN	Radial Wire/ Non-Magneti							.245±.025 (6.22±0.64)

Environmental Tests

MNH25 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%	MIL-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.

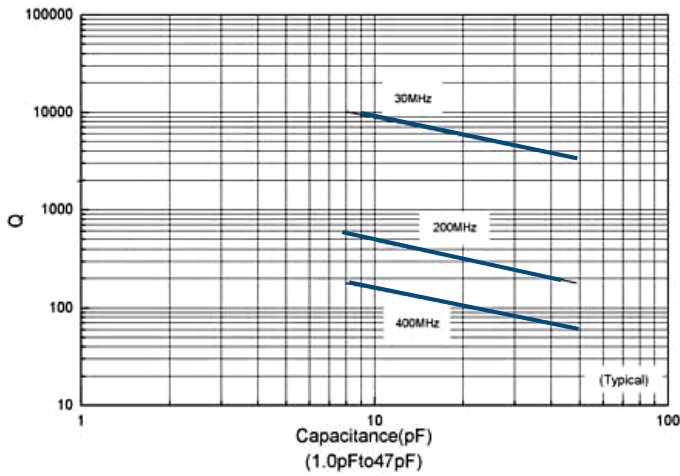
Performance Curve



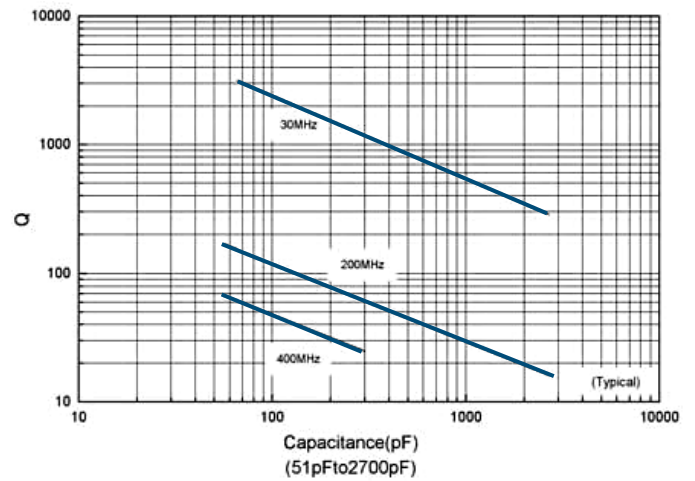
MNH 25

High Voltage, High Current, High RF Power Capacitors

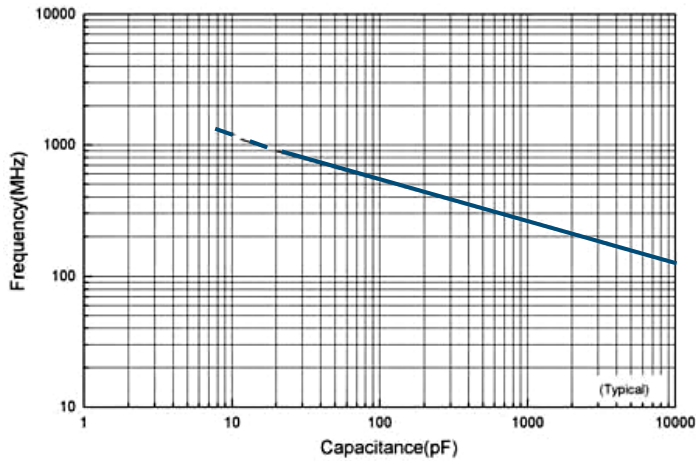
Q vs.Capacitance



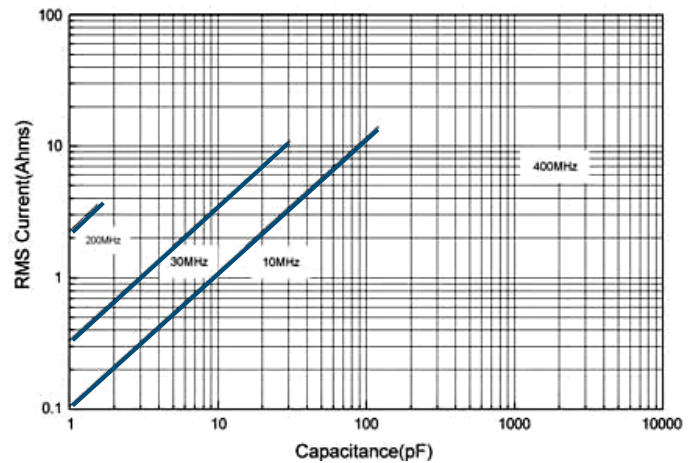
Q vs.Capacitance



Resonance vs.Capacitance



Current Rating vs.Capacitance



MNH 1

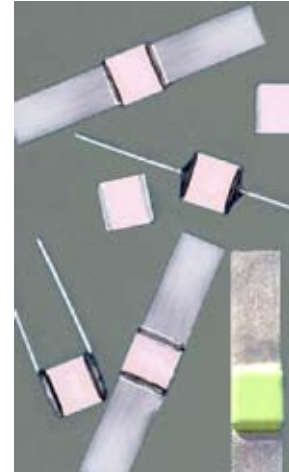
High Voltage High Current, High RF Power Capacitors

Features

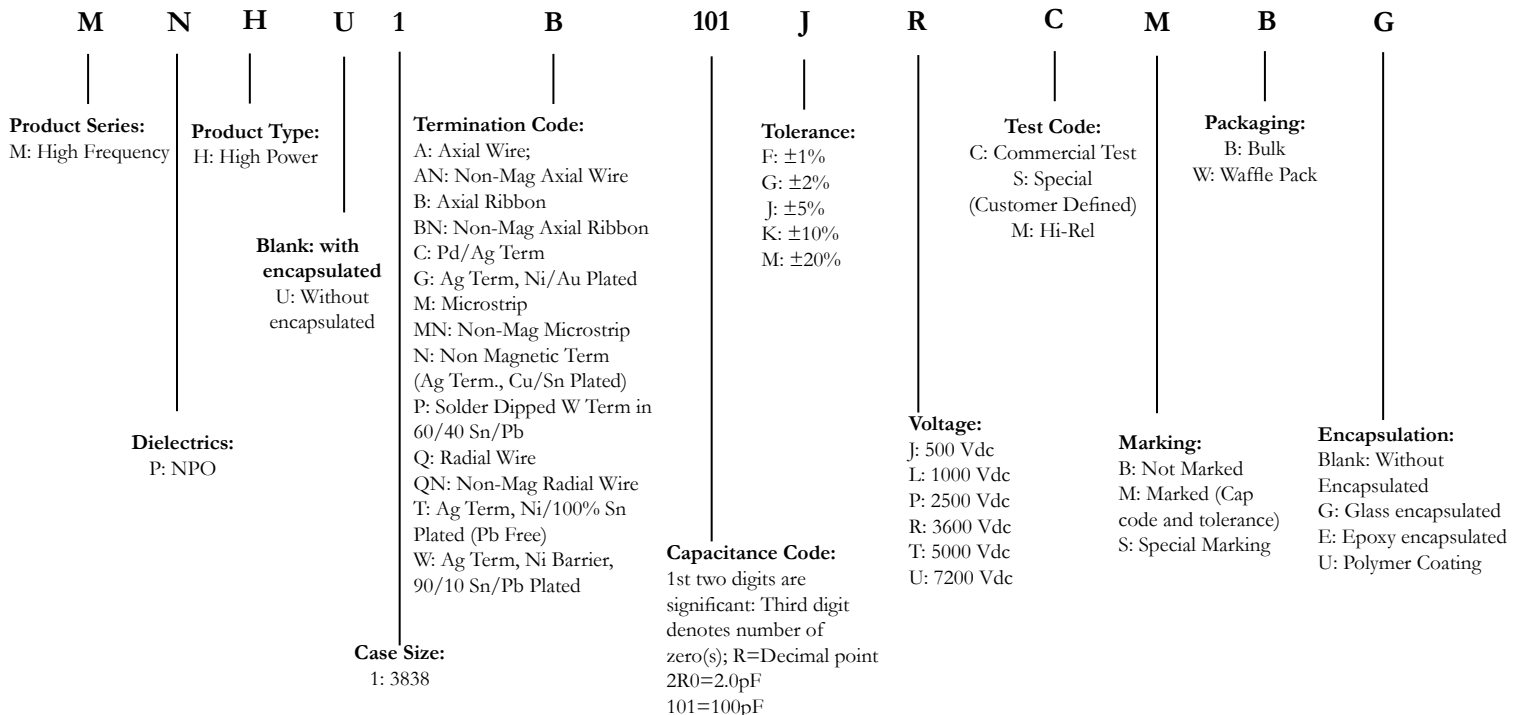
- Capacitance Range: 1pF to 2200pF
- High Q Low ESR/ESL
- High RF Power
- Ultra Stable Performance
- Operating Voltages
 - DC Voltage: 1000Vdc to 3600Vdc
 - RF Voltage: 425Vrms to 2500Vrms
- Extended WVDC up to 7200 Vdc
- RF Current Rating 12A rms
- Available with Encapsulation Option

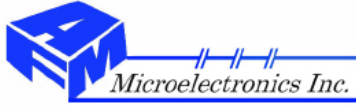
Applications

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



AFM Part Number Code





MNH 1

High Voltage, High Current, High RF Power Capacitors

Standard Capacitance Values

*STD.: Standard Voltage; EXT.: Extended Voltage

CAP CODE	CAP (pF)	TOL	RATED WVdc		CAP CODE	CAP (pF)	TOL	RATED WVdc		CAP CODE	CAP (pF)	TOL	RATED WVdc	
			STD.*	EXT.*				STD.	EXT.				STD.	EXT.
1R0	1.0	B, C, D	3600	7200	220	22	F, G, J, K, M	3600	7200	471	470	F, G, J, K, M	3600	NA
1R2	1.2				270	27				561	560			
1R5	1.5				330	33				681	680			
1R8	1.8				390	39				821	820			
2R2	2.2				470	47				102	1000			
2R7	2.7				560	56				122	1200			
3R3	3.3				680	68				152	1500			
3R9	3.9				820	82				182	1800			
4R7	4.7				101	100				222	2200			
5R6	5.6				121	120				272	2700			
6R8	6.8	F, G, J, K, M	3600	7200	151	150	F, G, J, K, M	3600	7200	332	3300	G, J, K, M	500	NA
8R2	8.2				181	180				472	4700			
100	10				221	220				512	5100			
120	12	F, G, J, K, M	3600	7200	271	270	F, G, J, K, M	3600	7200	NA		G, J, K, M	500	NA
150	15				331	330								
180	18				391	390								

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

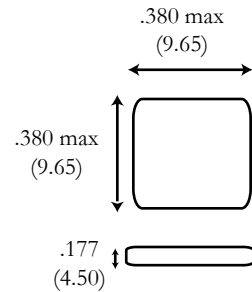
Specification and Performance

Piezoelectric and Aging Effect:	None
Temperature Range:	-55°C to +125°C
Temperature Coefficient of Capacitance:	0±30ppm/°C
Quality Factor (Q) :	>10,000 (1pF~1000pF) at 1MHz >10,000 (1100pF~5100pF) at 1KHz
Insulation Resistance (IR, at Rated Voltage):	10 ⁵ MΩ min. at +25°C at rated WVDC 10 ⁴ MΩ min. at +125°C at rated WVDC
Dielectric Withstand Voltage (DWV):	1pF~680pF: 120% of rated WVDC for 5 secs; 820pF~2200pF: 150% of rated WVDC for 5 secs; 2700pF~5100pF: 250% of rated WVDC for 5 secs;
Capacitance Drift:	±0.02% or ±0.02pF, whichever is greater

Chip Dimensions

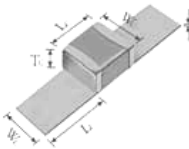
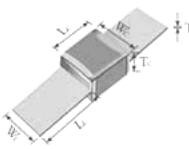
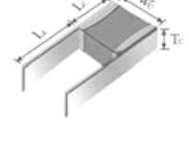
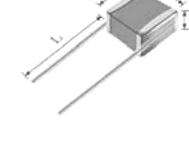
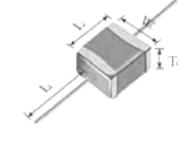
All Dimensions are in Inches (mm)

Dimensional Data	Length of Chip / Encapsulated (L) in (mm)	.380 (9.65) / .550(13.97) max after encapsulation
	Width of Chip/ Encapsulated (W) in (mm)	.380 (9.65) / .550(13.97) max after encapsulation
	Thickness of Chip (T) in (mm) (Encapsulated) (max)	.177 (4.50) may increase to .236 (5.99) max. after glass encapsulation



Lead Options

All Dimensions are in Inches (mm)

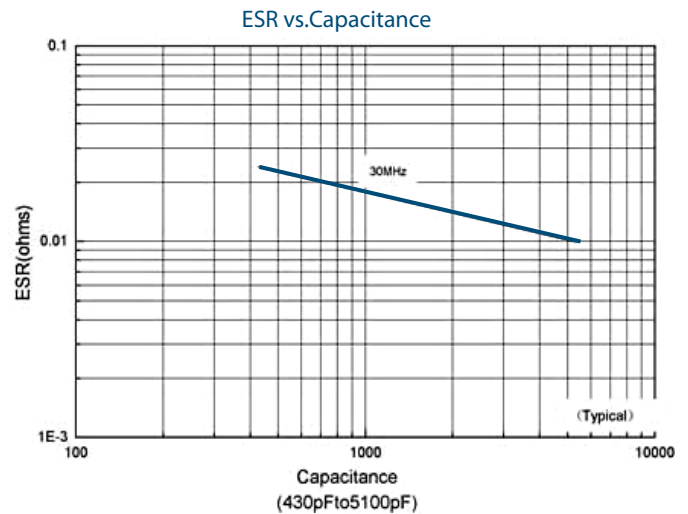
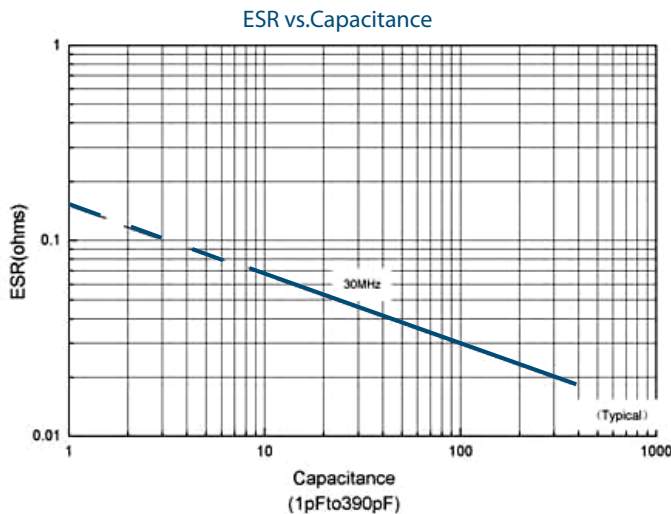
Term Code	Type	Outlines	Capacitor Dimensions			Lead Dimensions			Lead Material
			Length (Lc)	Width (Wc)	Thickness (Tc)	Length (Lc)	Width (Wc)	Thickness (Tc)	
M/MN	Microstrip/ Non-Magnetic		.380 +.015~-0.010 (9.65 +0.38~-0.25)	.038 ±.010 (9.65±0.25)	.177 (4.5) max	.750 (19.05) min	.350 ±.010 (8.89 ±0.25)	.010 ±.005 (0.25 ±0.13)	Solder-plated Copper leaded (Pure Silver Ribbon with Glass Encapsulation)
B/BN	Axial Ribbon/ Non-Magnetic					.787 (20) min	Dia.=.031 ±.004 (0.8 ±0.1)		
R	Radial Ribbon							1.18 (30) min	
Q/QN	Radial Wire/ Non-Magnetic								
A/AN	Axial Wire/ Non-Magnetic								

Environmental Tests

MNH1 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%	MIL-STD-202, Method 108, for 2000 hours, at 125°C. Rated voltage $\geq 7200V$: 100% Rated Voltage D.C. applied. 1500V \leq Rated Voltage $< 72000V$: 120% Rated Voltage D.C. applied. Rated voltage $> 1500V$: 150% Rated Voltage D.C. applied.

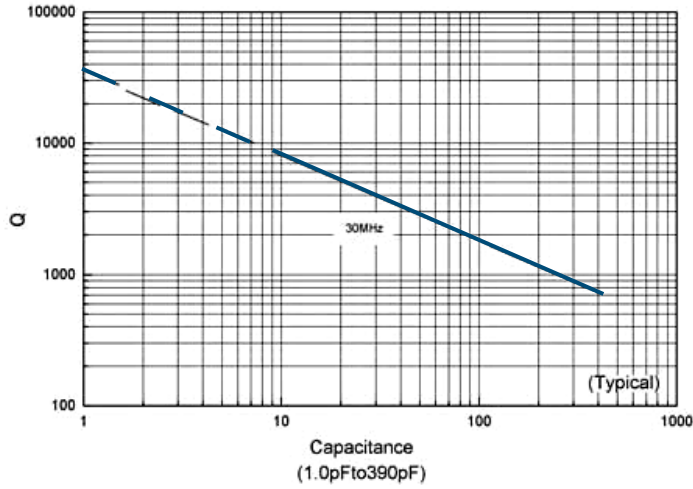
Performance Curve



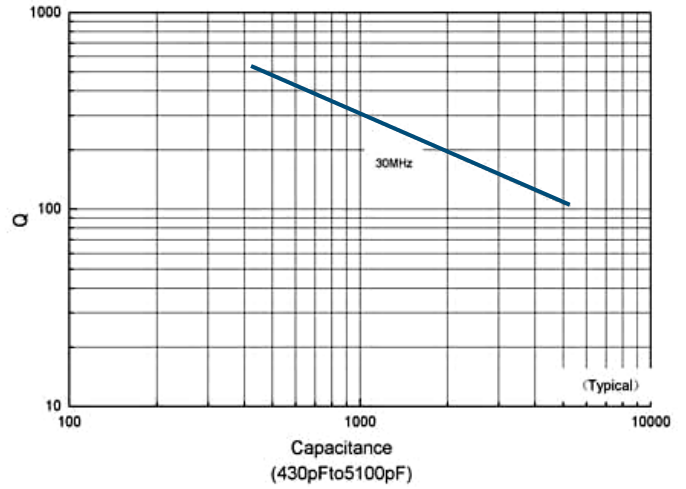
MNH 1

High Voltage, High Current, High RF Power Capacitors

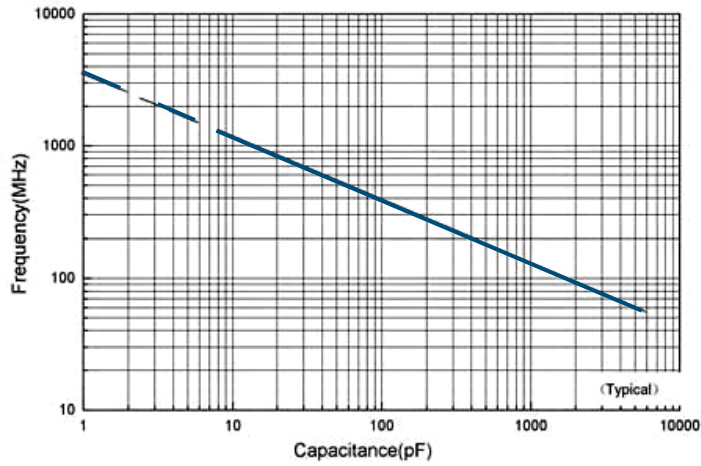
Q vs.Capacitance



Q vs.Capacitance



Resonance vs.Capacitance



Current Rating vs.Capacitance

