SPECIFICATION FOR APPROVAL

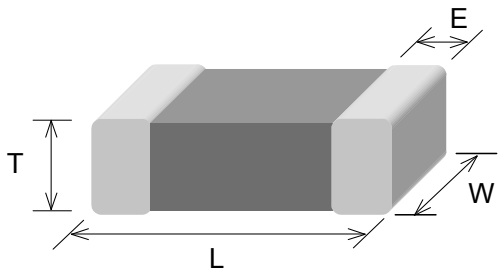
INDEX

RoHS

PRODUCT DETAIL

Electrical Characteristics			Test Instruments
Z	See Page P.7-10	**TEST FREQ:** See Page P.7-10	•HP4291B RF IMPEDANCE / MATERIAL ANALYZER •HP4338A/B MILLIOHMMETER •Agilent 8720ES S-PARAMETER NETWORK ANALYZER •HP6632B SYSTEM DC POWER SUPPLY
DCR	See Page P.7-10	**TEST LEVEL:** See Page P.7-10	
IDC	See Page P.7-10		

SHAPES AND DIMENSIONS



Unit: mm

TYPE	100505 (EIA0402)	160808 (EIA0603)	201209 (EIA0805)	321611 (EIA1206)	322513 (EIA1210)	451616 (EIA1806)	453215 (EIA1812)
L	1.0±0.10	1.6±0.15	2.0±0.20	3.2±0.20	3.2±0.20	4.5±0.25	4.5±0.25
W	0.5±0.10	0.8±0.15	1.25±0.2	1.6±0.20	2.5±0.20	1.6±0.20	3.2±0.25
T	0.5±0.10	0.8±0.15	0.9±0.20	1.1±0.20	1.3±0.20	1.6±0.20	1.5±0.25
E	0.25±0.1	0.3±0.20	0.5±0.30	0.5±030	0.5±0.30	0.6±0.40	0.6±0.40

PART NUMBER CODE

MCB 1608 S 60 1 E A
1 2 3 4 5 6 7

1 Series Name
2 Size Code：the first two digitals：length(mm), the last two digitals：width(mm)
3 Product Characteristics：
S = For Standard, H=For High Speed, U=for Ultra High Speed
4 Impedance(Ω) + 25%
5 Fixed Decimal Point ┐ (ex：600=60Ω ；121=120Ω)
6 Rated Current Code

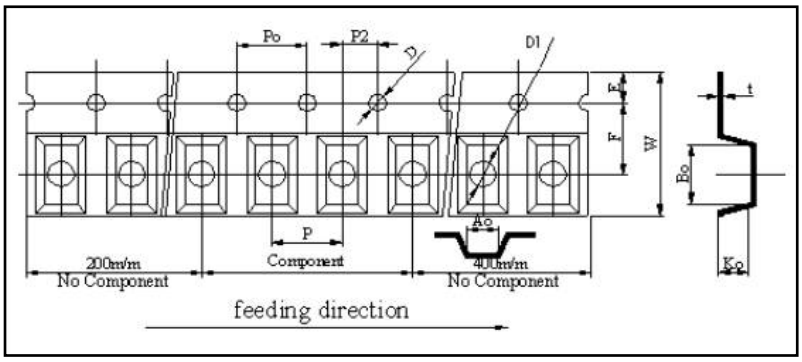
A=50mA	B=80mA	C=100mA	D=150mA	E=200mA	F=300mA
G=400mA	H=500mA	I =600mA	J =700mA	K=800mA	

7 Soldering：Green Parts：A— Lead-Free.

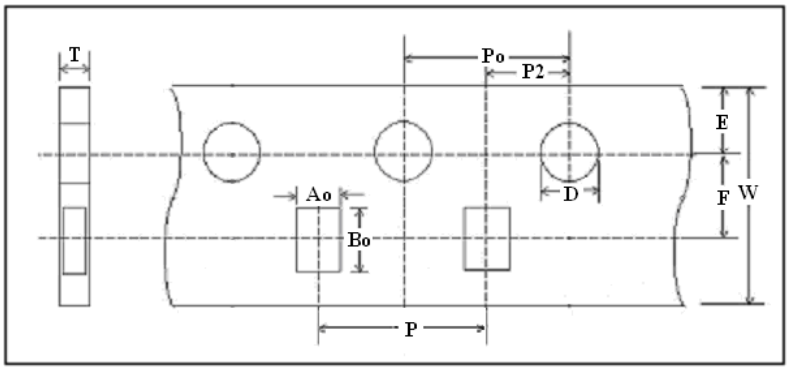
RoHS

TAPE AND REEL SPECIFICATIONS

PLASTIC CARRIER



PAPER CARRIER



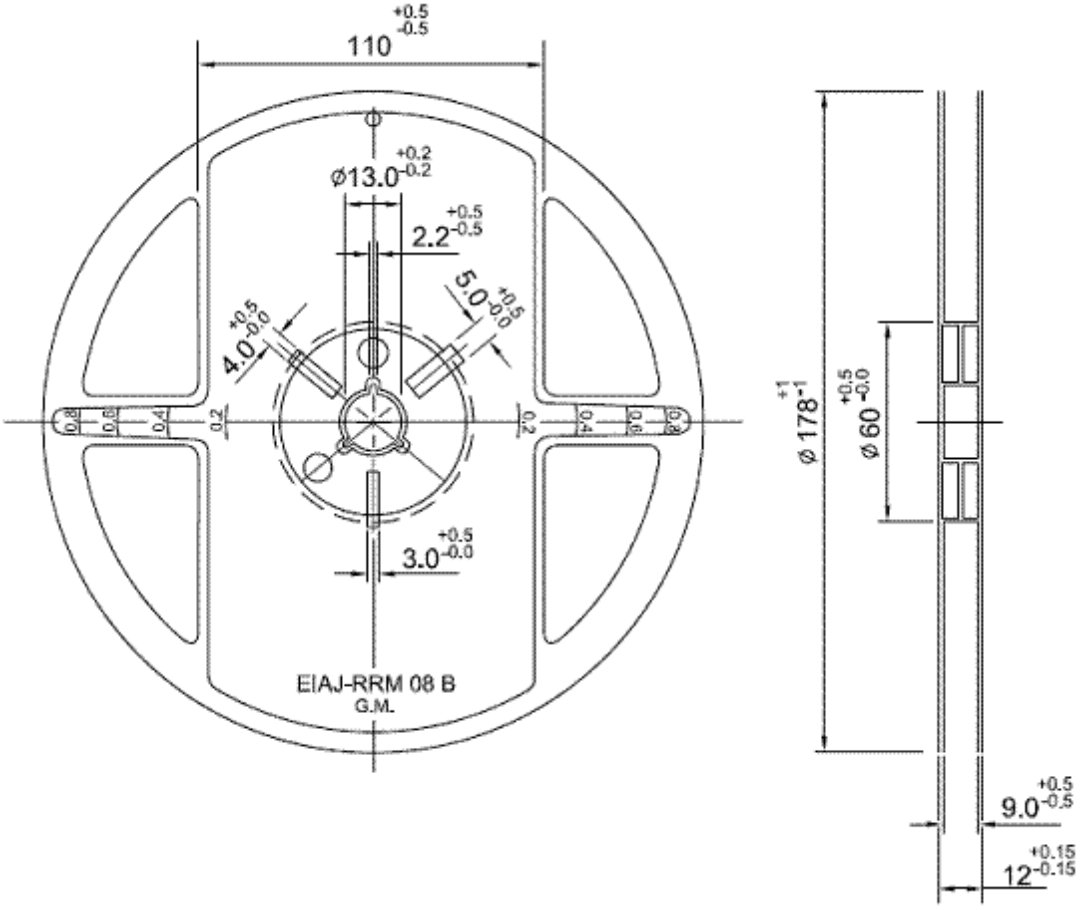
TAPING DIMENSIONS

Unit: mm

	453215	451616	322513	321611	201212	201209	201209	160808	100505
Symbol	PLASTIC	PLASTIC	PLASTIC	PLASTIC	PLASTIC	PLASTIC	PAPER	PAPER	PAPER
W	12 ±0.1	11.7~12.3	7.7~8.3	7.9~8.3	7.9~8.3	7.9~8.3	8.0 ±0.1	8.0 ±0.1	8.0 ±0.1
P	8.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	2.0 ±0.05
E	1.75 ±0.1	1.75 ±0.1	1.75 ±0.1	1.75 ±0.1	1.75 ±0.1	1.75 ±0.1	1.75 ±0.1	1.75 ±0.10	1.75 ±0.05
F	5.5 ±0.05	5.5 ±0.05	3.5 ±0.05	3.5 ±0.05	3.5 ±0.05	3.5 ±0.05	3.5 ±0.1	3.5 ±0.1	3.5 ±0.05
D	1.55 ±0.05	1.55 ±0.05	1.55 ±0.05	1.55 ±0.05	1.50 ±0.05	1.50 ±0.10	1.56 ±0.10	1.56 ±0.10	1.55 ±0.05
D1	1.5~1.75	1.5~1.75	0.95~1.20	0.95~1.20	0.95~1.20	1.0~1.25	NA	NA	NA
Po	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1
Po10	40 ±0.2	40 ±0.2	40 ±0.2	40 ±0.2	40 ±0.2	40 ±0.2	40 ±0.2	NA	NA
P2	2.0 ±0.05	2.0 ±0.05	2.0 ±0.05	2.0 ±0.05	2.0 ±0.05	2.0 ±0.05	2.0 ±0.1	2.0 ±0.1	2.0 ±0.05
Ao	3.66 ±0.1	1.83 ±0.1	2.57 ±0.1	1.85 ±0.1	1.42 ±0.1	1.42 ±0.1	1.50 ±0.05	1.05 ±0.05	0.62 ±0.03
Bo	4.95 ±0.1	4.85 ±0.1	3.4 ±0.1	3.43 ±0.1	2.26 ±0.1	2.24 ±0.1	2.30 ±0.05	1.85 ±0.05	1.12 ±0.03
Ko(T)	1.83 ±0.1	1.83 ±0.1	1.32 ±0.1	1.22 ±0.1	1.30 ±0.1	1.04 ±0.10	0.95 ±0.05	0.95 ±0.05	0.60 ±0.03
t	0.23 ±0.1	0.29±0.1	0.25 ±0.1	0.25 ±0.1	0.23 ±0.1	0.25 ±0.1	NA	NA	NA

RoHS

REEL DIMENSIONS



Reel Packaging Quantity									
PART SIZE (EIA SIZE)		1005 (0402)	1608 (0603)	201209 (0805)	201212 (0805)	3216 (1206)	3225 (1210)	4516 (1806)	4532 (1812)
7" REEL	Qty. (pcs)	10,000	4,000	4,000	3,000	3,000	2,000	2,000	1,000

The Contents of a box：

4532 (1812): 4 reels / inner box ;

4516(1806): 4 reels / inner box ;

3225 (1210): 5 reels / inner box ;

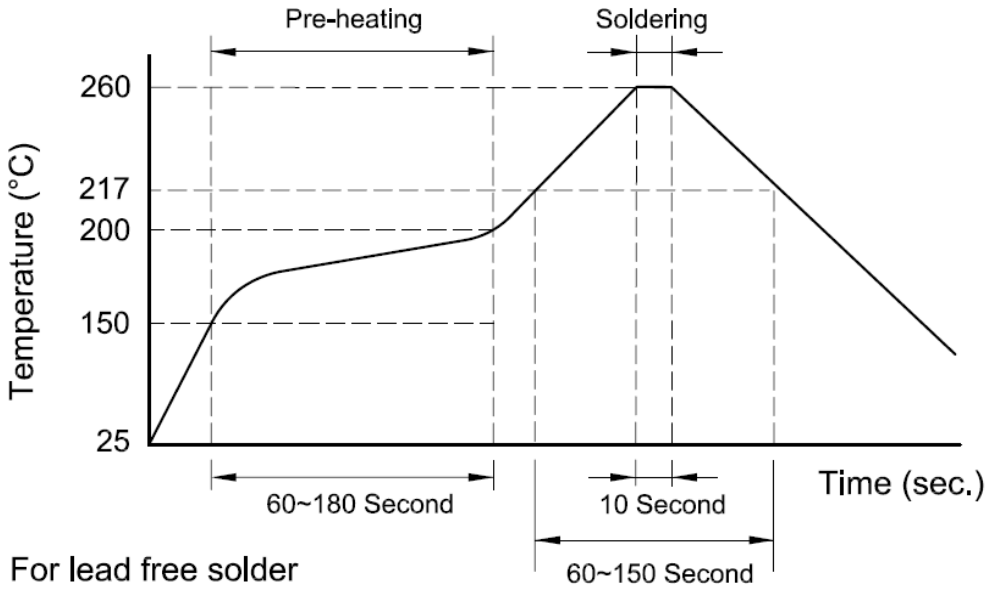
3216 (1206): 5 reels / inner box ;

2012(0805): 5 reels / inner box ;

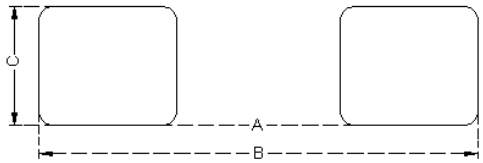
1608 (0603): 5 reels / inner box ;

1005(0402): 5 reels / inner box .

RECOMMENDED SOLDERING CONDITIONS



Land Patterns for Reflow Soldering



Solder Land Information

Unit: mm (inches)

Size	A	B	C
1005	0.4 ~ 0.6 (0.015 ~ 0.023)	1.6 ~ 2.6 (0.063 ~ 0.102)	0.4 ~ 0.7 (0.016 ~ 0.027)
1608	0.5 ~ 0.7 (0.019 ~ 0.027)	2.1 ~ 3.1 (0.083 ~ 0.122)	0.65 ~ 0.95 (0.026 ~ 0.037)
2012	1.0 ~ 1.2 (0.039 ~ 0.047)	3.0 ~ 4.0 (0.118 ~ 0.157)	0.8 ~ 1.1 (0.031 ~ 0.043)
3216	2.0 ~ 2.4 (0.079 ~ 0.094)	4.2 ~ 5.2 (0.165 ~ 0.204)	1.0 ~ 1.4 (0.039 ~ 0.055)
3225	2.1 ~ 2.3 (0.082 ~ 0.090)	4.2 ~ 5.2 (0.165 ~ 0.204)	2.2 ~ 2.5 (0.086 ~ 0.098)
4516	3.4 ~ 3.7 (0.133 ~0.145)	6.3 ~ 7.3 (0.248 ~ 0.287)	1.3 ~ 1.7 (0.051 ~ 0.067)
4532	3.4 ~ 3.7 (0.133 ~0.145)	6.3 ~ 7.3 (0.248 ~ 0.287)	2.9 ~ 3.2 (0.144 ~ 0.126)

RoHS

RELIABILITY AND TEST CONDITION

Stress	Performance	Test Condition
Resistance to Solder Heat	The chip should not crack; More than 90% of the terminal electrode should be covered with solder, free from defects, chip body should not expose.	1. Solder: SHEN MAU (Sn60A-B20) 2.Solder Temp: 265 ±5℃ 3.Flux: Rosin 4.Dip time: 10 ±1 sec
Solder ability 1 (IR Re-flow test)	1.Sn cover area need to over half thickness of chip 2.Chip shift distance under 50% of width 3.No short, open,…etc defect symptom	For Lead Process 1.Solder: Alpha (63Sn/37Pb) 2.General:135/135/195/235℃ For Lead-free Process 1.Solder: Alpha (SAC305) 2.100%TIN:155/155/220/250℃ 3.Sn:Ag:Cu=96.5:3:0.5
Solder ability 2 (After steam 8 hrs)	More than 90% of the terminal electrode should be covered with new solder	1.Steam 8 hrs 2.Solder: SHEN MAU (Sn60A-B20) 3.Solder Temp.:235 ±5℃ 4.Flux: Rosin 5.Dip time:5 ±1 sec
Terminal Strength	The terminal electrode should not peel off	100505>0.2kgt, 160808>0.3kgt, 201209>0.6kgt, 201212>0.6kgt, 321611>1.0kgt, 322513>1.0kgt, 451616>1.0kgt, 453215>1.5kgt, ; pulling time:30 ±5 sec
Bending Strength	The body should not be damaged by force applied on the right	100505>0.2kgf, 160808>0.3kgf, 201209>1.0kgf, 201212>1.0kgf, 321611>2.0kgf, 322513>2.5kgf, 451616>2.5kgf, 453215>2.5kgf,
Flexure Strength	No mechanical damage shall be noticed even when the board is bent 2 mm (0.079 inches)	1. At ambient temperature & Humidity 2.To bend 2 mm
Thermal Shock (Temperature Cycle)	1. No mechanical damage 2. Inductance should be within ±10% of the initial value 3.Q value should be within ±30% of the initial value 4.Impedance value should be within ±20% of the initial value	1. Temperature:-40 ~ 85℃ For 30 minutes each 2. Cycle: 100 cycles 3. Measurement: At ambient temperature 24 hours after test completion

Stress	Performance	Test Condition
Operational Life	1.No mechanical damage 2.Inductance should be within ± 10% of the initial value 3.Q value should be within ±30% of the initial value 4.Impedance value should be within ±20% of the initial value	1. Temperature: 125 ±5℃ 2. Testing time: 1000 hrs 3. Applied current: Full rated current 4. Measurement: At ambient temperature 24 hours after test completion
Biased Humidity	1.No mechanical damage 2.Inductance should be within ±10% of the initial value 3.Q value should be within ±30 % of the initial value 4.Impedance value should be within ±20% of the initial value	1.Temperature: 40℃ 2.Humidity: 90-95 % RH 3. Applied current: Full rated current 4.Testing time: 1000 hrs 5. Measurement: At ambient temperature 24 hours after test completion
Rated Current	1. MCB / MFI / MCI product Surface temperature below room temperature plus 10 ℃ 2. MHC product surface temp. below room temperature plus 40℃	1. At ambient temperature & humidity 2. Testing time:5 minutes (under full rated current)

GENERAL TECHNICAL DATA

Operating temperature range : - 55℃ ~ +125℃
Storage temperature (on board): - 40℃ ~ +85℃
Storage Condition : Less than 40℃ and 70% RH
Storage Time: 12 months Max.
Soldering method: Reflow or Wave Solderin

RoHS

PRODUCT DETAILS

MCB1005 Series

Part No.	Impedance(Ω) +/-25%	Test Freq.(MHz)	DCR(Ω) (max)	Rated Current (mA)
MCB1005S100FA	10	100	0.10	300
MCB1005S200FA	20	100	0.20	300
MCB1005S300FA	30	100	0.25	300
MCB1005S400FA	40	100	0.30	300
MCB1005S600FA	60	100	0.35	300
MCB1005S700FA	70	100	0.35	300
MCB1005S121FA	120	100	0.40	300
MCB1005S241EA	240	100	0.70	200
MCB1005S301EA	300	100	0.80	200
MCB1005S601EA	600	100	1.00	200
MCB1005S102EA	1000	100	1.50	200

MCB1608 Series

Part No.	Impedance(Ω) +/-25%	Test Freq.(MHz)	DCR(Ω) (max)	Rated Current (mA)
MCB1608S100IA	10	100	0.05	600
MCB1608S220IA	22	100	0.05	600
MCB1608S300IA	30	100	0.08	600
MCB1608S400IA	40	100	0.10	600
MCB1608S600IA	60	100	0.10	600
MCB1608S700IA	70	100	0.10	600
MCB1608S800IA	80	100	0.10	600
MCB1608S101IA	100	100	0.15	600
MCB1608S121IA	120	100	0.15	600
MCB1608S181FA	180	100	0.30	300
MCB1608S221FA	220	100	0.30	300
MCB1608S301FA	300	100	0.35	300
MCB1608S471EA	470	100	0.40	200
MCB1608S601EA	600	100	0.45	200
MCB1608S751CA	750	100	0.60	100
MCB1608S102CA	1000	100	0.60	100

MCB2012 Series

Part No.	Impedance(Ω) +/-25%	Test Freq.(MHz)	DCR(Ω) (max)	Rated Current (mA)
MCB2012S070IA	7	100	0.05	600
MCB2012S110IA	11	100	0.05	600
MCB2012S170IA	17	100	0.05	600
MCB2012S260IA	26	100	0.05	600
MCB2012S300IA	30	100	0.05	600
MCB2012S320IA	32	100	0.05	600
MCB2012S400IA	40	100	0.05	600
MCB2012S600IA	60	100	0.15	600
MCB2012S800IA	80	100	0.15	600
MCB2012S900IA	90	100	0.15	600
MCB2012S121IA	120	100	0.15	600
MCB2012S151IA	150	100	0.15	600
MCB2012S181HA	180	100	0.20	500
MCB2012S221HA	220	100	0.20	500
MCB2012S301HA	300	100	0.20	500
MCB2012S401HA	400	100	0.30	500
MCB2012S601HA	600	100	0.30	500
MCB2012S102FA	1000	100	0.35	300
MCB2012S152FA	1500	100	0.40	300
MCB2012S202EA	2000	100	0.50	200

MCB3216 Series

Part No.	Impedance(Ω) +/-25%	Test Freq.(MHz)	DCR(Ω) (max)	Rated Current (mA)
MCB3216S190IA	19	100	0.05	600
MCB3216S260IA	26	100	0.05	600
MCB3216S310IA	31	100	0.05	600
MCB3216S500IA	50	100	0.08	600
MCB3216S700IA	70	100	0.10	600
MCB3216S900IA	90	100	0.15	600
MCB3216S121IA	120	100	0.15	600
MCB3216S151IA	150	100	0.15	600
MCB3216S201IA	200	100	0.20	600
MCB3216S221IA	220	100	0.20	600
MCB3216S301IA	300	100	0.20	600
MCB3216S601HA	600	100	0.30	500
MCB3216S102HA	1000	100	0.40	500
MCB3216S122HA	1200	100	0.40	500
MCB3216S152EA	1500	50	0.50	200
MCB3216S202EA	2000	30	0.50	200

MCB3225 Series

Part No.	Impedance(Ω) +/-25%	Test Freq.(MHz)	DCR(Ω) (max)	Rated Current (mA)
MCB3225S310GA	31	100	0.30	400
MCB3225S600GA	60	100	0.30	400
MCB3225S900GA	90	100	0.30	400

RoHS

MCB4516 Series

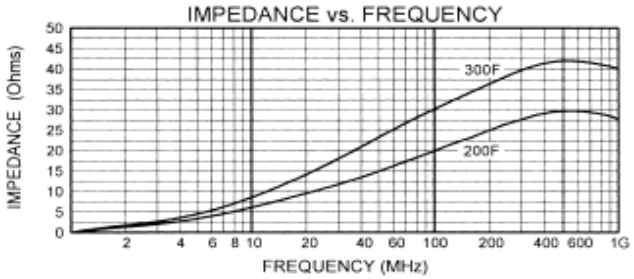
Part No.	Impedance(Ω) +/-25%	Test Freq.(MHz)	DCR(Ω) (max)	Rated Current (mA)
MCB4516S680HA	68	100	0.10	500
MCB4516S800GA	80	100	0.10	400
MCB4516S101FA	100	100	0.20	300
MCB4516S151EA	150	100	0.30	200

MCB4532 Series

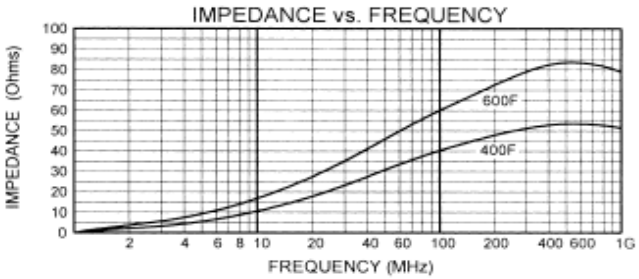
Part No.	Impedance(Ω) +/-25%	Test Freq.(MHz)	DCR(Ω) (max)	Rated Current (mA)
MCB4532S700EA	70	100	0.40	200
MCB4532S800EA	80	100	0.40	200
MCB4532S121EA	120	100	0.40	200

PRINT

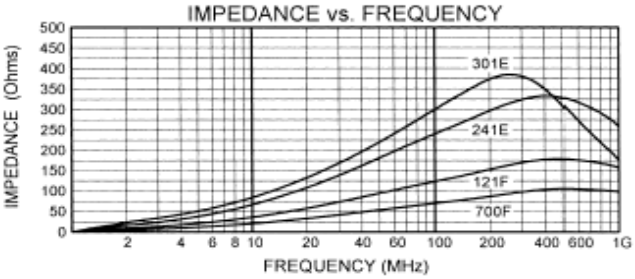
MCB1005S 200F&300F



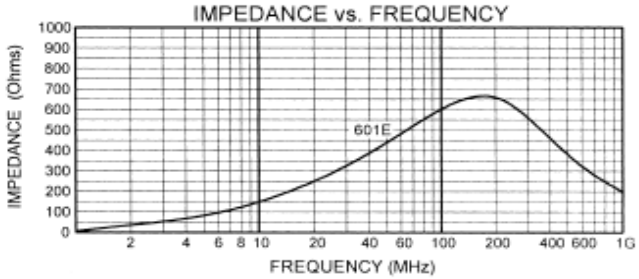
MCB1005S 400F & 600F



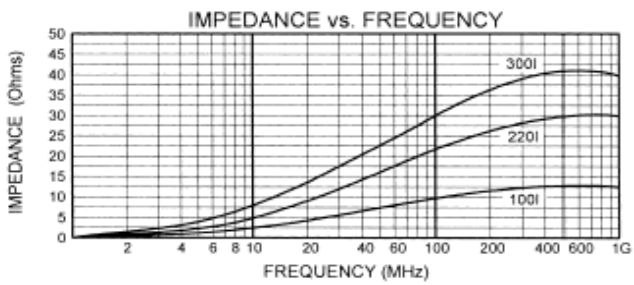
MCB1005S 700F,121F,241E&301E



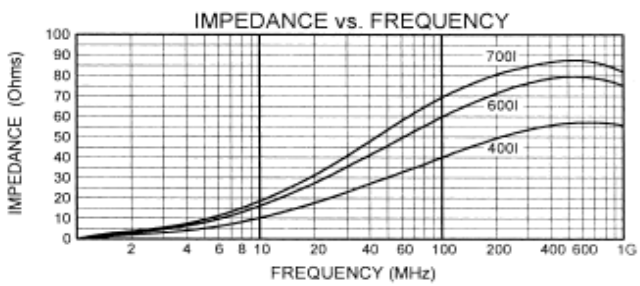
MCB1005S 601E



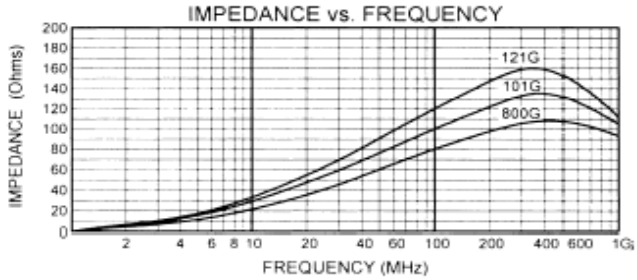
MCB1608S 100I,220I&300I



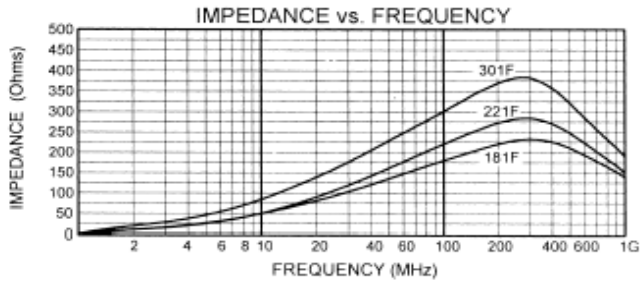
MCB1608S 400I,600I&700I



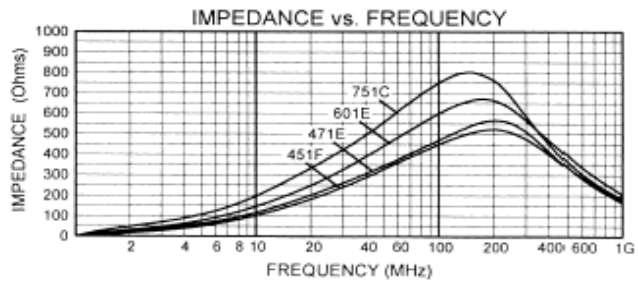
MCB1608S 800G,101G&121G



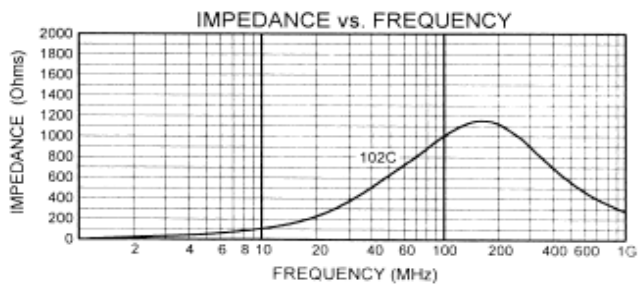
MCB1608S 181F,221F&301F



MCB1608S 451F,471E,601E&751C

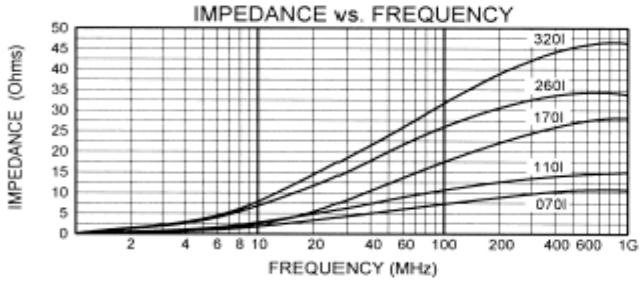


MCB1608S 102C

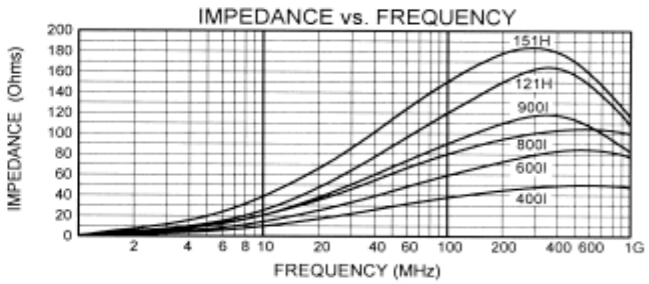


RoHS

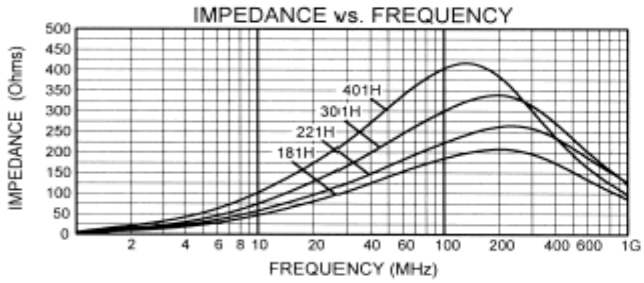
MCB2012S 070I,110I,170I,260I&320I



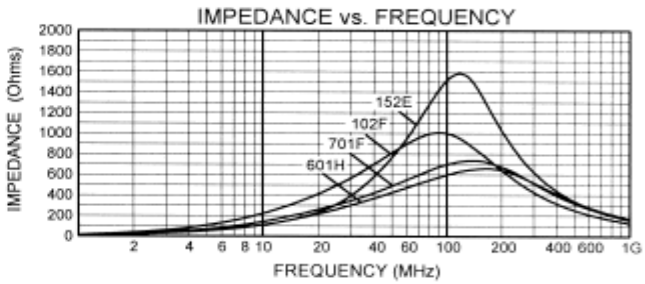
MCB2012S 400I,600I,800I,900I,121H&151H



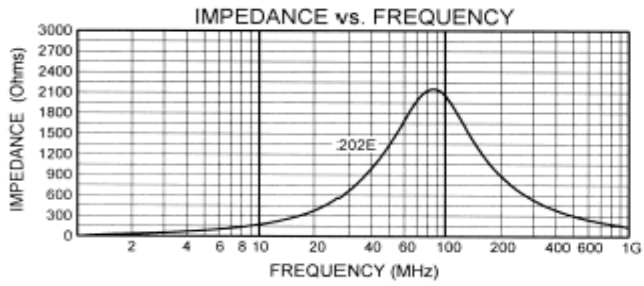
MCB2012S 181H,221H,301H&401H



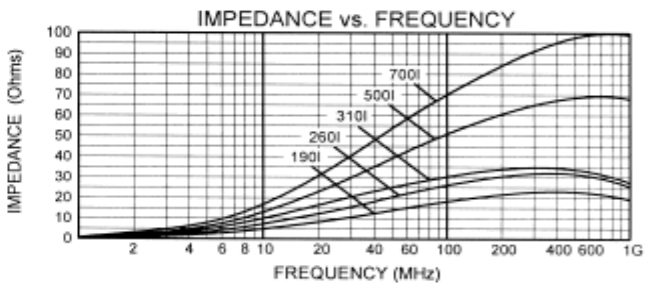
MCB2012S 601H,701F,102F&152E



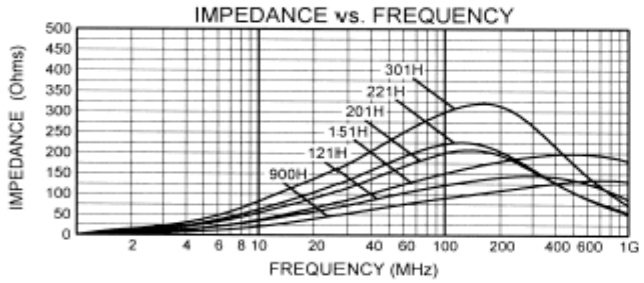
MCB2012S 202E



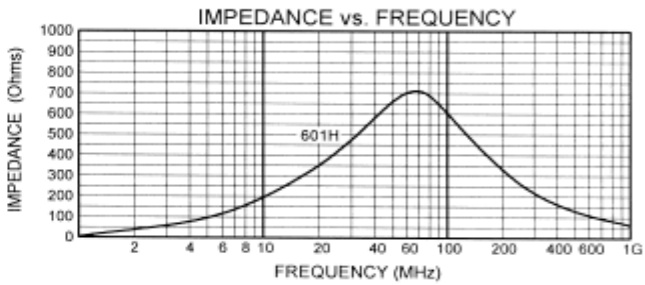
MCB3216S 190I,260I,310I,500I&700I



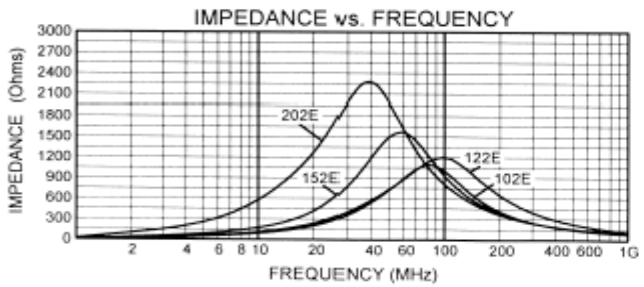
MCB3216S 900H,121H,151H,201H,221H&301H



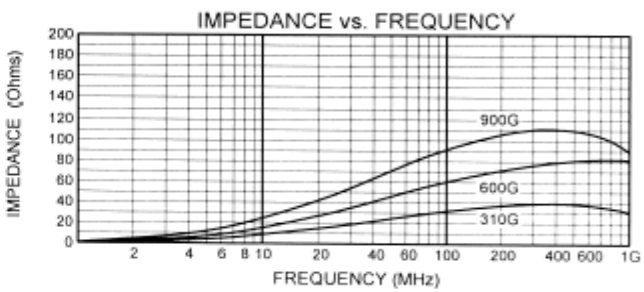
MCB3216S 601H



MCB3216S 102E,122E,152E&202E

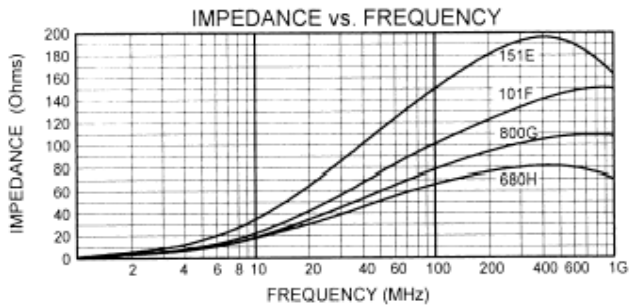


MCB3225S 310G,600G&900G

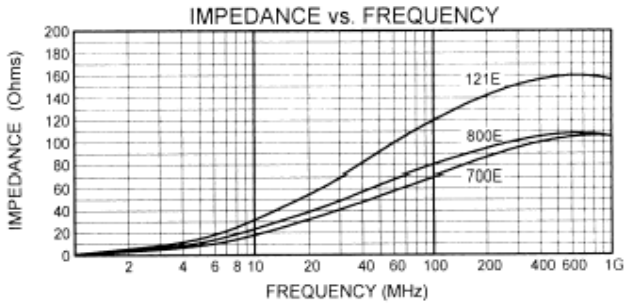


RoHS

MCB4516S 680H,800G,101F&151E



MCB4532S 700E,800E&121E



RoHS