



MP252012CQ Series



Halogen Free

1. Features of MP252012CQ series:

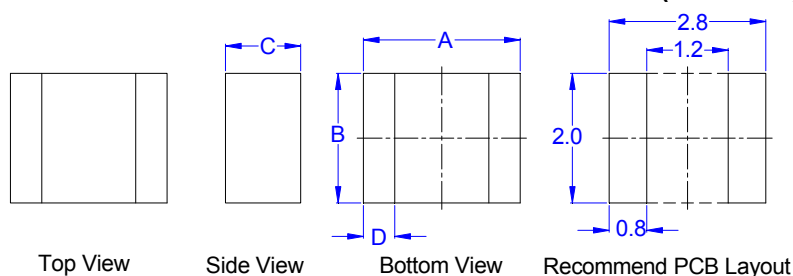
- 1008 Foot print (2.5 x 2.0 mm).
- Inductance range from 1.00uH to 10.00uH.
- High saturation current characteristics by distributed gapped metal dust core.
- Ideal for portable device, PAD, Notebook, smart phone & High Density DC to DC converter Board.
- Lower DC resistance for higher current application.
- Working Frequency up to 5MHz.
- Tape & Reel Quantity: 3,000 piece per 7 inches reel.
- RoHS, HF and AEC-Q200 Standard Compliant.
- Operating Temperature Range -55°C to + 155°C.



2. Electrical Characteristics of MP252012CQ series:

ITG Part Number	Inductance ¹	DCR	DCR ²	Isat ³	Irms ⁴
	(uH) ± 20%	(mΩ) Typ.	(mΩ) Max.	(A) Typ.	(A) Typ.
MP252012CQ-1R0MHF	1.00	40.00	50.00	3.30	3.20
MP252012CQ-2R2MHF	2.20	90.00	102.00	2.50	2.10
MP252012CQ-3R3MHF	3.30	117.00	130.00	2.10	1.60
MP252012CQ-4R7MHF	4.70	192.00	210.00	1.60	1.40
MP252012CQ-100MHF	10.00	400.00	460.00	1.30	1.10

3. Mechanical Dimensions of MP252012CQ series (unit: mm):



Type	A	B	C	D
MP252012CQ	2.50 ± 0.20	2.00 ± 0.20	1.20 Max.	0.60 Ref.

Notes:

1. Test conditions: 1MHz, 0.25V, 25°C ambient temperature .
2. DCR @ 25°C. (DCR test position at bottom Pad surface).
3. Isat: DC current that causes inductance to drop approximately 30%(Typ.) from OCL (Ta=25°C).
4. Irms: DC current for an approximate temperature rise of 40°C without core loss. Derating is necessary for AC currents. PCB pad layout, trace thickness and width, air-flow and proximity of other heat generating components will affect the temperature rise. It is recommended the part temperature not exceed 155° C under worst case operating conditions as verified in the end application.
5. Rated operating voltage (across inductor) = 25 VDC
6. Storage temperature range: -40°C to +125°C , 75%RH (Max.).

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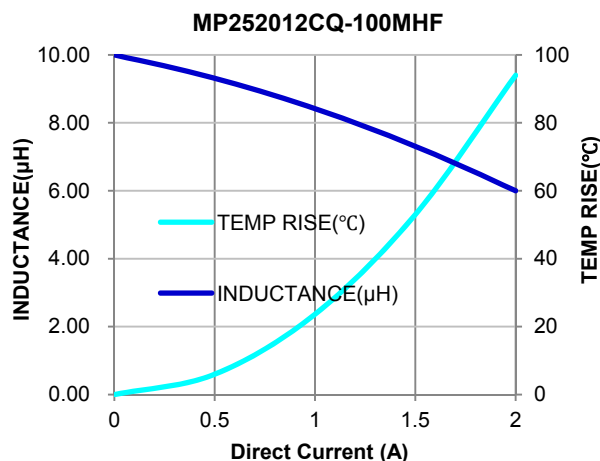
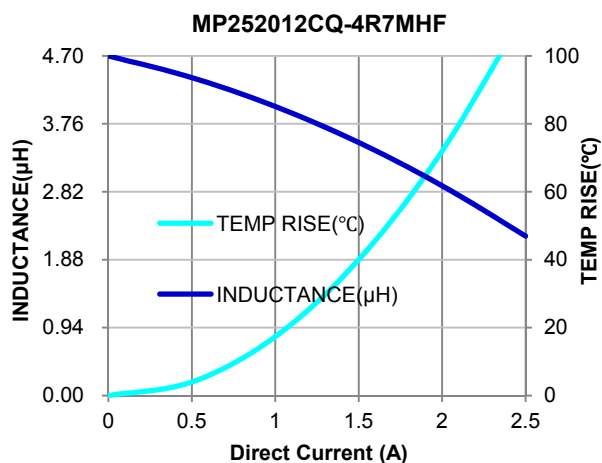
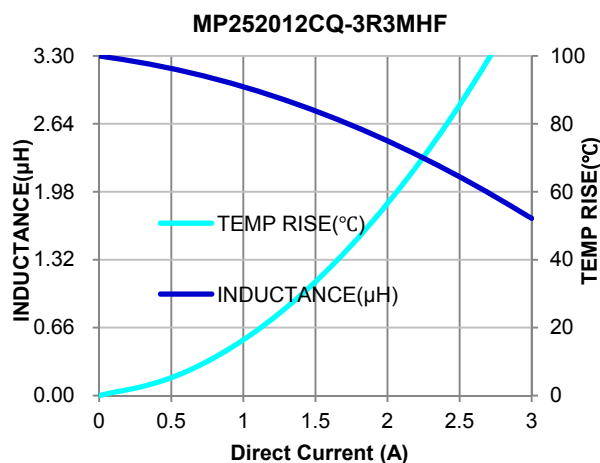
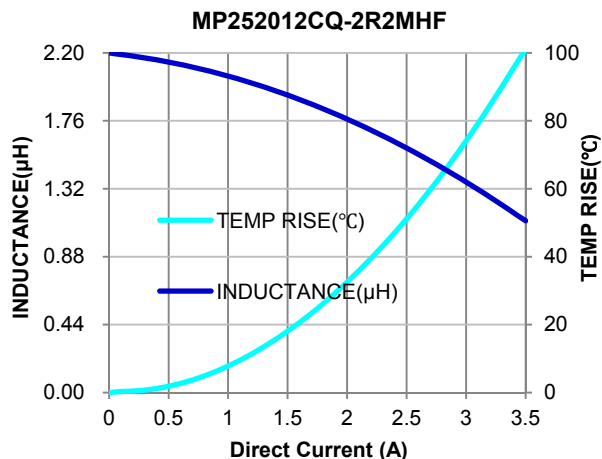
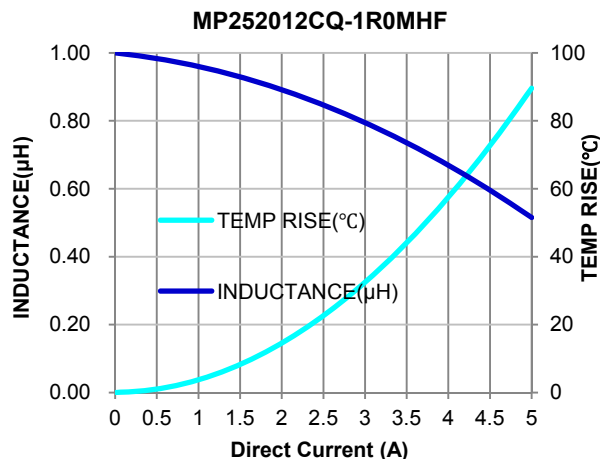
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4. Inductance vs. Current Characteristics of MP252012CQ Series :



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5.RELIABILITY TEST:

No.	Stress	Reference	Additional Requirements	Q'TY(pcs)	Remark
1	Pre- and Post-Stress Electrical Test	User Spec.	Test is performed except as specified in the applicable stress reference.		Not Applicable
2	High Temperature Exposure (Storage)	MIL-STD-202 Method 108	1000 hrs. at rated operating temperature (e.g. 125 °C part can be stored for 1000 hrs. @ 125 °C. Same applies for 105 °C and 85 °C. Unpowered. Measurement at 24±4 hours after test conclusion.	77	OK
3	Temperature Cycling	JESD22 Method JA-104	1000 cycles (-40 °C to +125 °C). Note: If 85 °C part or 105 °C part the 1000 cycles will be at that temperature. Measurement at 24±4 hours after test conclusion. 30min maximum dwell time at each temperature extreme. 1 min. maximum transition time.	77	OK
4	Biased Humidity	MIL-STD-202 Method 103	1000 hours 85 °C/85%RH. Unpowered. Measurement at 24±4 hours after test conclusion.	77	OK
5	Operational Life	MIL-PRF-27	1000 hrs. @ 105 °C. If 85 °C or 125 °C part will be tested at that temperature. Measurement at 24±4 hours after test conclusion.	77	OK
6	External Visual	MIL-STD-883 Method 2009	Inspect device construction, marking and workmanship. Electrical Test not required.	All parts	Follow SPEC
7	Physical Dimension	JESD22 Method JB-100	Verify physical dimensions to the applicable device detail specification. Note: User(s) and Suppliers spec. Electrical Test not required.	30	Follow SPEC
8	Terminal Strength (Leaded)	MIL-STD-202 Method 211	Test leaded device lead integrity only. Conditions: A (910 g), C (1.13 kg), E (1.45 kg-mm)	30	N/A
9	Resistance to Solvents	MIL-STD-202 Method 215	Note: Add Aqueous wash chemical. OKEM Clean or equivalent. Do not use banned solvents.	5	OK
10	Mechanical Shock	MIL-STD-202 Method 213	Figure 1 of Method 213. Condition C	30	OK
11	Vibration	MIL-STD-202 Method 204	5g's for 20 minutes, 12 cycles each of 3 orientations. Note: Use 8"X5" PCB, .031" thick, 7 secure points on one long side and 2 secure points at corners of opposite sides. Parts mounted within 2" from any secure point. Test from 10-2000 Hz.	30	OK
12	Resistance to Soldering Heat	MIL-STD-202 Method 210	Condition B No pre-heat of samples. Note: Single Wave Solder - Procedure 2 for SMD and Procedure 1 for Leaded with solder within 1.5mm of device body.	30	OK
13	ESD	AEC-Q200-002 or ISO/DIS10605		15	Not Applicable
14	Solderability	J-STD-002	For both Leaded & SMD. Electrical Test not required. Magnification 50X. Conditions: Leaded: Method A @ 235 °C, category 3. SMD: a) Method B, 4 hrs @ 155 °C dry heat @ 235 °C. b) Method B @ 215 °C category 3. c) Method D category 3 @ 260 °C.	15	OK
15	Electrical Characterization	User Spec.	Parametrically test per lot and sample size requirements, summary to show Min, Max, Mean and Standard deviation at room as well as Min and Max operating temperatures.	30	Follow SPEC
16	Flammability	UL-94	V-0 or V-1 Acceptable		OK/UL Card
17	Board Flex	AEC-Q200-005	60 sec minimum holding time.	30	OK
18	Terminal Strength (SMD)	AEC-Q200-006		30	OK

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Soldering Reflow Chart

Stage	Precaution	Recommended temperature profile
Reflow soldering	Temperature profile can be referenced after confirming of adhesion , temperature of resistance to soldering heat , component size , soldering etc. sufficient . Note: please refer to the latest IPC/JEDEC J-STD-020: "Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Surface Mount Devices"	Temperature °C 260 250 220 125 25 10s (MAX) 60s to 90s Natural cooling 150s to 210s 240s to 480s

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