

Multilayer Power Inductor



◆ **Features**

- 1、High DC bias current due to developed material.
- 2、Low profile and thin thickness.
- 3、Monolithic structure for high reliability.
- 4、Excellent solderability and high heat resistance
- 5、Low DC resistance.
- 6、No cross coupling due to magnetic shield

◆ **Applications**

DC-DC converter circuits for mobile phones,
DSCs, DVCs, HDDs, PDAs, etc.

◆ **Lead Free Part Numbering**

CMLM 2520 4R7 M I T
(1) (2) (3) (4) (5) (6)

- (1) Series Type
- (2) Dimension: Length x Width
- (3) Inductance: 4R7=4.7 μ H ;
- (4) Inductance Tolerance : M=±20%;N=±30%
- (5) Company Code
- (6) Packaging : P – Embossed paper tape, 7" reel
E – Embossed plastic tape, 7" reel
T – Tape & reel

◆ **Dimensions**

Unit: mm [inch]

Size(EIA)	1608(0603)	2012 (0805)	2016 (0806)	2520 (1008)	3216 (1206)
L	1.60±0.150	2.00±0.20	2.00±0.20	2.50±0.20	3.20±0.20
W	0.80±0.150	1.25±0.20	1.60±0.20	2.00±0.20	1.60±0.20
T	0.80±0.150	0.80±0.10	0.90±0.10	0.90±0.10	0.90±0.10
E	0.30±0.20	0.50±0.30	0.50±0.30	0.50±0.30	0.50±0.30

◆ **Package**

Size EIA (EIA)	1608(0603)	2012(0805)	2016(0806)	2520(1008)	3216(1206)
Standard Packing Quantity (pcs / reel)	4000	3000/4000	3000	3000	4000



◆ **Test Instruments**

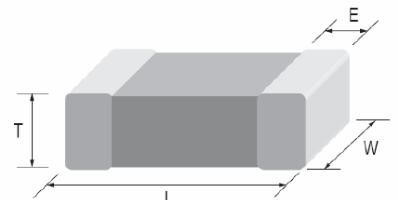
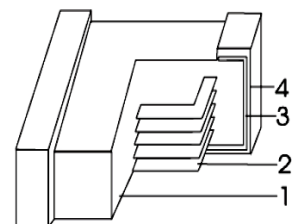
◎HP4291B

RF IMPEDANCE / MATERIAL ANALYZER

◎HP4338A/B MILLIOHMMETER

◆ **Materials**

No.	Homogeneous Material Name	Element name composition
1	Ferrite	Ferrite Powder
2	Inner Coils(Ag)	Ag、Pd
3	Terminal Electrode(Ag)	Ag
4	Electro-Plating (Ni/Sn)	Ni、Sn



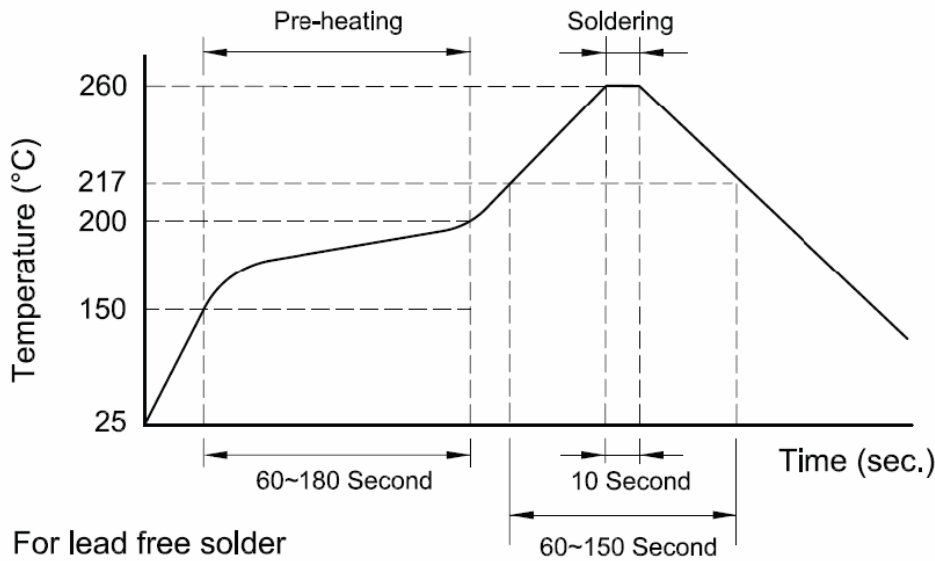
◆ **Specification**

Part Number	Inductance (μ H)	Test Freq (MHz)	S.R.F (MHz) Min.	DCR $\pm$ 25% (Ω)	Rated current (mA)
CMLM1608(EIA 0603)					
CMLM16081R0MIT	1.0	1	60	0.22	950
CMLM16082R2MIT	2.2	1	50	0.31	750
CMLM16083R3MIT	3.3	1	40	0.45	600
CMLM16084R7MIT	4.7	1	35	0.50	500
CMLM1608100MIT	10	1	33	0.55	350
CMLM 2012 (EIA 0805)					
CMLM2012R47MIT	0.47	1	100	0.09	1400
CMLM20121R0MIT	1.0	1	60	0.11	1300
CMLM20122R2MIT	2.2	1	50	0.17	1300
CMLM20124R7MIT	4.7	1	35	0.22	1100
CMLM2012100MIT	10	1	30	0.55	360
CMLM 2016 (EIA 0806)					
CMLM2016R47MIT	0.47	1	100	0.06	1600
CMLM20161R0MIT	1.0	1	70	0.10	1400
CMLM20161R5MIT	1.5	1	60	0.11	1200
CMLM20161R8MIT	1.8	1	55	0.11	1200
CMLM20162R2MIT	2.2	1	50	0.11	1200
CMLM20163R3MIT	3.3	1	40	0.12	1200
CMLM20164R7MIT	4.7	1	30	0.14	1100
CMLM 2520 (EIA 1008)					
CMLM2520R47MIT	0.47	1	100	0.040	1800
CMLM25201R0MIT	1.0	1	60	0.055	1600
CMLM25201R5MIT	1.5	1	60	0.070	1500
CMLM25202R2MIT	2.2	1	40	0.080	1200
CMLM25203R3MIT	3.3	1	35	0.100	1100
CMLM25204R7MIT	4.7	1	30	0.110	1000
CMLM2520100MIT	10	1	20	0.210	550
CMLM 3216(EIA 1206)					
CMLM32161R0MIT	1.0	1	60	0.150	1200
CMLM32161R5MIT	1.5	1	60	0.170	1000
CMLM32162R2MIT	2.2	1	50	0.240	900
CMLM32163R3MIT	3.3	1	41	0.300	800
CMLM32164R7MIT	4.7	1	35	0.380	700
CMLM32166R8MIT	6.8	1	29	0.450	500
CMLM3216100MIT	10	1	24	0.550	300

◆ **General Technical Data**

Operating Temperature Range	-55°C ~ +125°C
Storage Temperature (on board)	-40°C ~ +85°C
Storage Condition	Less than 40°C and 70% RH
Soldering Method	Reflow or Wave Soldering

◆ Recommended Soldering conditions



◆ Reliability And Test Condition

Test item	Test condition	Criteria
Resistance to Solder Heat	1. Solder temperature : $260 \pm 5^{\circ}\text{C}$ 2. Flux : Rosin 3. DIT time : 10 ± 1 sec	1. More than 95 % of terminal electrode should be covered with new solder 2. No mechanical damage 3. Inductance value should be within ± 20 % of the initial value
Adhesive Test	1. Reflow temperature : 245°C It shall be Soldered on the substrate applying direction parallel to the substrate 2. Apply force(F) : 5 N 3. Test time : 10 sec	1. No mechanical damage 2. Soldering the products on PCB after the pulling test force > 5 N
Steam Aging Test	1. Temperature : 93°C 2. Test time : 8 hrs 3. Solder temperature : $235 \pm 5^{\circ}\text{C}$ 4. Flux : Rosin 5. DIT time : 5 ± 1 sec	1. More than 95 % of terminal electrode should be covered with new solder
Temperature Cycle	1. Temperature: $-40 \sim 85^{\circ}\text{C}$ For 30 minutes each 2. Cycle: 100 cycles 3. Measurement: At ambient temperature 24 hours after test completion	1. No mechanical damage 2. Inductance should be within $\pm 20\%$ of the initial value
Operational Life	1. Temperature: $85 \pm 5^{\circ}\text{C}$ 2. Testing time: 1000 hrs 3. Applied current: Full rated current 4. Measurement: At ambient temperature 24 hours after test completion	1. No mechanical damage 2. Inductance should be within $\pm 20\%$ of the initial value
Biased Humidity	1. Temperature: $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 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	1. No mechanical damage 2. Inductance should be within $\pm 20\%$ of the initial value
Rated Current	At ambient temperature & humidity Testing time: 5 minutes (under full rated current)	CMLM product surface temp: below room temperature plus 40°C

◆ Characteristics

Inductance vs. Frequency Characteristics

