



MORE[®] | 茂昌电子
CHANCE

CUSTOMER : STD
PRODUCTS : Molding Typ SMD Power Inductor
PART NO : MCSMTE-H Series
CUST P/ NO :
DATE : 2024.7.18
SALES DEP :
E-MAIL :

VERSION : REV.A
CHANGE PROJECT : -
BEFORE : -
AFTER : -
CHANGE DATE : -
CUSTOMER SIGNATURE : -

APPROVAL BY :	CHECK BY :	DRAWN BY :
<i>Honey Wei</i>	<i>Leo Wang</i>	<i>Qian</i>



MORE[®]
CHANCE

茂昌电子

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Specifications subject to change without notice. Please confirm according to our company for latest information.

TEL : 0512-6856-2977
TEL : 0755-2738-9457

MCSMTE-H Series



- SHIELDED SMD POWER INDUCTOR
- Operating Temperature up to $-40\text{ }^{\circ}\text{C} \sim 125\text{ }^{\circ}\text{C}$
- High Current up to 52 A
- Low DCR down to 2.5mOhms
- Environmental Lead free
- Environmental RoHS2.0 compliant
- Environmental halogen free
- Storage Temperature : $-40\text{ }^{\circ}\text{C} \sim +85\text{ }^{\circ}\text{C}$
- Packaging 13"Reel, Plastic tape: 12/16/32 mm wide

FEATURES

- Lowest DCR/UH in this package size
- Ultra low buzz noise due to composite construction
- High performance (Isat) realized by metal dust core

Applications

- Laptops and PCs and Graphics cards.
- Voltage Regulator Module (VRM).
- DC/DC converter in distributed power systems or VRM applications
- Battery power systems
- DC/DC converters

PRODUCT IDENTIFICATION

MC SMTE 42 Z 1R0 M H
 ① ② ③ ④ ⑤ ⑥ ⑦

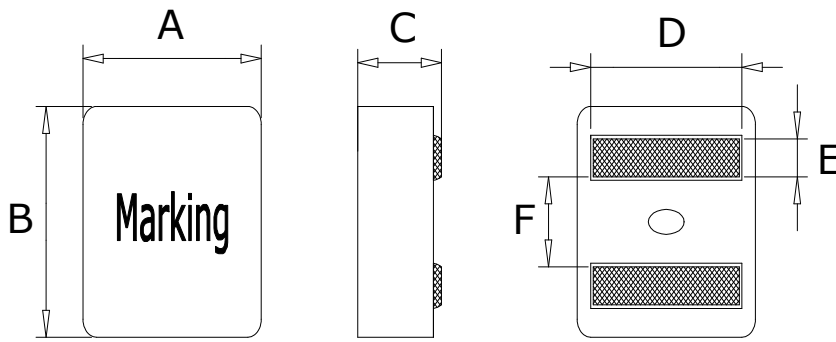
- ① Brand & Product classification
- ② Product Series NO.
- ③ External Dimensions.(42 : L:4.0 × W:4.0 × H:2.0) [mm]
- ④ Separator code.
- ⑤ Inductance. (Exp. 1.0 uH = 1R0)

Example	Nominal Value
R10	0.10uH
R22	0.22uH
R36	0.36uH
R47	0.47uH

- ⑥ Inductance Tolerance.(L: $\pm 15\%$; M: $\pm 20\%$; N: $\pm 30\%$)
- ⑦ Material Code.(H : H Type material.)

Mechanical & Dimensions

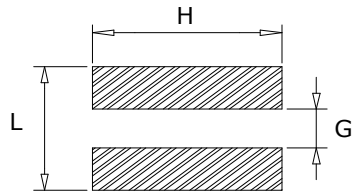
(Unit: mm)



Code	Dimensions
A	4.1± 0.2
B	4.1± 0.2
C	1.9± 0.2
D	3.4± 0.3
E	0.88± 0.3
F	1.6 ± 0.3

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
G	1.4 Typ
H	3.8 Typ
L	3.4 Typ

Electrical Characteristics

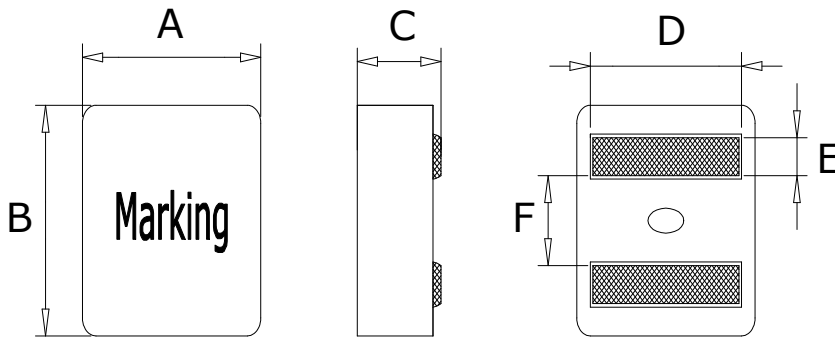
Part Number	Inductance ¹ (μH)	DCR ² (mΩ) Max	I-sat ³ (Amps)Typ	I-rms ⁴ (Amps)Typ	Marking
MCSMTE42ZR10MH	0.10±20%	2.45	33.0	18.0	R10
MCSMTE42ZR22MH	0.22±20%	4.6	18.8	16.8	R22
MCSMTE42ZR36MH	0.36±20%	6.3	15.0	14.5	R36
MCSMTE42ZR40MH	0.40±20%	7.75	13.5	14.0	R40
MCSMTE42ZR47MH	0.47±20%	8.6	13.0	12.5	R47
MCSMTE42ZR56MH	0.56±20%	9.3	12.6	12.0	R56
MCSMTE42ZR60MH	0.60±20%	9.55	12.3	11.7	R60
MCSMTE42ZR72MH	0.72±20%	11.6	10.6	10.5	R72
MCSMTE42Z1R0MH	1.0±20%	14.6	8.8	9.6	1R0
MCSMTE42Z1R2MH	1.2±20%	17.9	7.8	9.0	1R2
MCSMTE42Z1R5MH	1.5±20%	23.5	7.4	7.6	1R5
MCSMTE42Z1R8MH	1.8±20%	28.0	7.0	7.0	1R8
MCSMTE42Z2R2MH	2.2±20%	38.7	6.0	5.6	2R2

Note:

1. Inductance is measured at 100 KHz and 0.1 Vrms.
2. The nominal DCR is measured at 25°C ambient temperature.
3. The I-sat that will cause initial inductance value approximately 35% rolloff at 25°C.
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

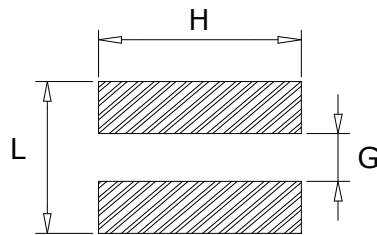
(Unit: mm)



Code	Dimensions
A	5.5± 0.2
B	5.3± 0.2
C	1.9 ± 0.2
D	4.3 ± 0.3
E	1.1 ± 0.3
F	2.3 ± 0.3

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
G	2.0 Typ
H	4.7 Typ
L	4.5 Typ

Electrical Characteristics

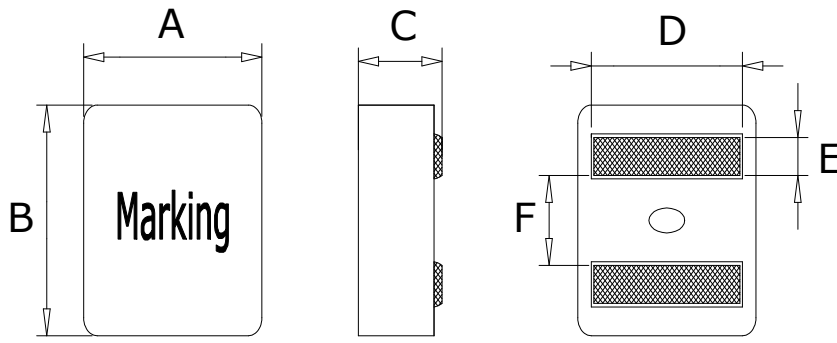
Part Number	Inductance ¹ (μH)	DCR ² (mΩ) Max	I-sat ³ (Amps)Typ	I-rms ⁴ (Amps)Typ	Marking
MCSMTE52ZR15MH	0.15 ± 20%	4.6	27.0	18.8	R15
MCSMTE52ZR16MH	0.16 ± 20%	4.6	27.0	18.8	R16
MCSMTE52ZR33MH	0.33 ± 20%	7.0	24.0	14.4	R33
MCSMTE52ZR47MH	0.47 ± 20%	8.1	20.0	14.1	R47
MCSMTE52ZR56MH	0.56 ± 20%	9.5	16.0	13.9	R56
MCSMTE52ZR68MH	0.68 ± 20%	10.2	14.0	13.4	R68
MCSMTE52ZR80MH	0.80 ± 20%	11.8	13.5	13.0	R80
MCSMTE52ZR82MH	0.82 ± 20%	12.7	13.0	12.0	R82
MCSMTE52Z1R0MH	1.0 ± 20%	13.8	12.8	10.5	1R0
MCSMTE52Z1R2MH	1.2 ± 20%	16.3	12.2	9.4	1R2
MCSMTE52Z1R5MH	1.5 ± 20%	18.7	11.7	8.8	1R5

Note:

1. Inductance is measured at 100 KHz and 0.1 Vrms.
2. The nominal DCR is measured at 25°C ambient temperature.
3. The I-sat that will cause initial inductance value approximately 35% rolloff at 25°C.
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

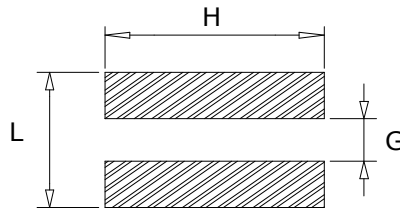
(Unit: mm)



Code	Dimensions
A	5.5± 0.2
B	5.3± 0.2
C	2.9± 0.2
D	4.3 ± 0.3
E	1.1 ± 0.3
F	2.3 ± 0.3

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
G	2.0 Typ
H	4.7 Typ
L	4.5 Typ

Electrical Characteristics

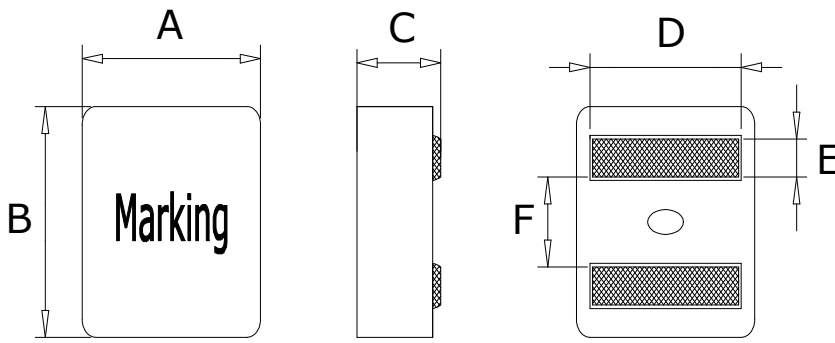
Part Number	Inductance ¹ (μH)	DCR ² (mΩ) Max	I-sat ³ (Amps)Typ	I-rms ⁴ (Amps)Typ	Marking
MCSMTE53ZR15MH	0.15± 20%	2.31	32.5	22.2	R15
MCSMTE53ZR16MH	0.16± 20%	2.33	32.0	22.2	R16
MCSMTE53ZR33MH	0.33± 20%	3.52	26.0	19.2	R33
MCSMTE53ZR47MH	0.47± 20%	4.13	24.0	18.4	R47
MCSMTE53ZR56MH	0.56± 20%	4.52	20.2	17.7	R56
MCSMTE53ZR60MH	0.60± 20%	4.52	20.0	17.7	R60
MCSMTE53ZR80MH	0.80± 20%	5.65	18.0	13.1	R80
MCSMTE53ZR82MH	0.82± 20%	5.78	17.6	12.9	R82
MCSMTE53Z1R0MH	1.0± 20%	7.6	14.3	12.2	1R0
MCSMTE53Z1R2MH	1.2± 20%	9.7	13.5	11.0	1R2
MCSMTE53Z1R5MH	1.5± 20%	11.2	12.5	10.5	1R5
MCSMTE53Z1R8MH	1.8± 20%	12.7	11.3	10.1	1R8
MCSMTE53Z2R2MH	2.2± 20%	14.5	9.0	9.7	2R2
MCSMTE53Z3R3MH	3.3± 20%	23.1	8.7	8.1	3R3
MCSMTE53Z4R7MH	4.7± 20%	36.3	7.0	5.9	4R7

Note:

1. Inductance is measured at 100 KHz and 0.1 Vrms.
2. The nominal DCR is measured at 25°C ambient temperature.
3. The I-sat that will cause initial inductance value approximately 35% rolloff at 25°C.
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

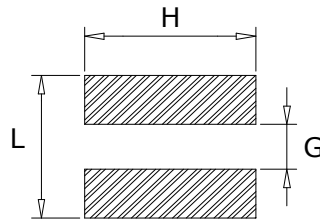
(Unit: mm)



Code	Dimensions
A	6.6 ± 0.20
B	6.4 ± 0.20
C	2.8±0.2(L≤1.2μH)
	2.9±0.2(L≥1.5μH)
D	See SPEC
E	1.4 ± 0.30
F	2.6 ± 0.30

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
G	2.5 Typ
H	5.6 Typ
L	5.6 Typ

Electrical Characteristics

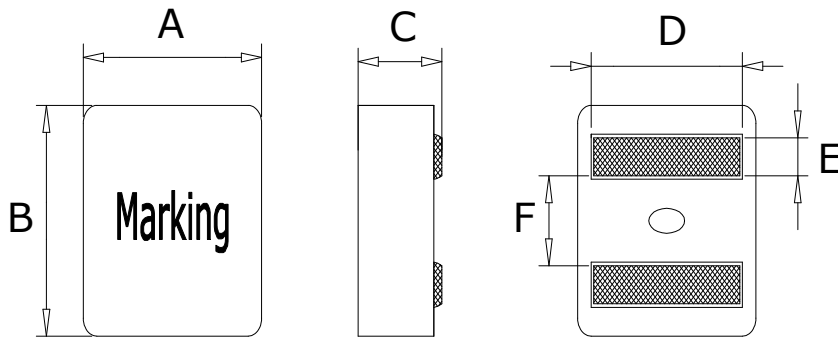
Part Number	Inductance ¹ (μH)	DCR ² (mΩ) Max	I-sat ³ (Amps)Typ	I-rms ⁴ (Amps)Typ	Marking	D(mm)± 0.3
MCSMTE63ZR18MH	0.18 ± 20%	1.75	39.0	32.0	R18	5.3
MCSMTE63ZR33MH	0.33 ± 20%	2.5	30.0	25.0	R33	5.3
MCSMTE63ZR56MH	0.56 ± 20%	3.31	29.0	22.0	R56	5.3
MCSMTE63ZR68MH	0.68 ± 20%	5.17	25.0	20.0	R68	5.3
MCSMTE63Z1R0MH	1.0 ± 20%	6.05	23.0	18.0	1R0	5.2
MCSMTE63Z1R2MH	1.2 ± 20%	7.4	22.0	16.0	1R2	5.15
MCSMTE63Z1R5MH	1.5 ± 20%	9.13	20.0	15.0	1R5	5.15
MCSMTE63Z1R8MH	1.8 ± 20%	10.2	18.2	14.0	1R8	5.1
MCSMTE63Z2R2MH	2.2 ± 20%	12.2	15.9	10.0	2R2	5.05
MCSMTE63Z3R3MH	3.3 ± 20%	20.8	12.2	8.0	3R3	5.0
MCSMTE63Z4R5MH	4.5 ± 20%	25.3	10.0	7.0	4R5	5.0
MCSMTE63Z4R7MH	4.7 ± 20%	26.0	9.0	6.0	4R7	5.0

Note:

1. Inductance is measured at 100 KHz and 0.1 Vrms.
2. The nominal DCR is measured at 25°C ambient temperature.
3. The I-sat that will cause initial inductance value approximately 35% rolloff at 25°C.
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

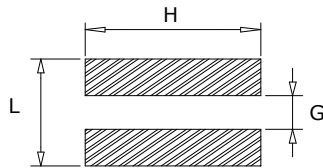
(Unit: mm)



Code	Dimensions
A	6.6 ± 0.20
B	6.4 ± 0.20
C	4.8 ± 0.20
D	See SPEC
E	1.4 ± 0.30
F	2.6 ± 0.30

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
G	2.5 Typ
H	5.6 Typ
L	5.6 Typ

Electrical Characteristics

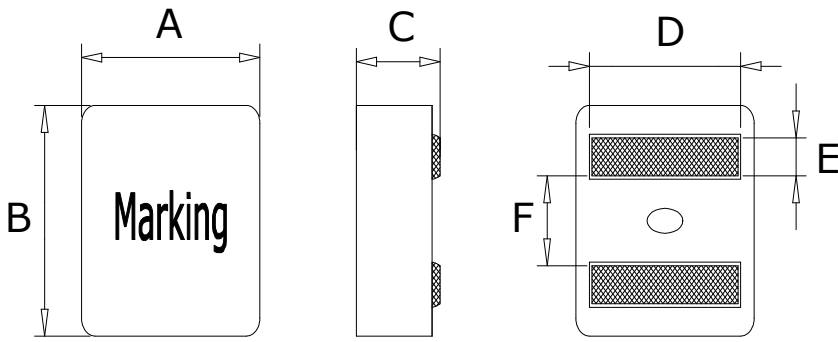
Part Number	Inductance ¹ (μH)	DCR ² (mΩ) Max	I-sat ³ (Amps)Typ	I-rms ⁴ (Amps)Typ	Marking	D(mm)± 0.3
MCSMTE65ZR82MH	0.82± 20%	4.18	20.0	21.0	R82	5.3
MCSMTE65Z1R0MH	1.0± 20%	4.52	18.0	20.0	1R0	5.3
MCSMTE65Z1R2MH	1.2± 20%	5.83	16.0	18.0	1R2	5.3
MCSMTE65Z1R5MH	1.5± 20%	6.3	14.5	17.0	1R5	5.3
MCSMTE65Z1R8MH	1.8± 20%	7.1	13.5	16.0	1R8	5.3
MCSMTE65Z2R2MH	2.2± 20%	8.5	12.0	13.0	2R2	5.2
MCSMTE65Z3R3MH	3.3± 20%	12.5	10.0	11.0	3R3	5.2
MCSMTE65Z4R3MH	4.3± 20%	16.2	8.5	9.0	4R3	5.2
MCSMTE65Z4R7MH	4.7± 20%	18.4	8.0	8.5	4R7	5.2
MCSMTE65Z5R6MH	5.6± 20%	22.0	8.3	7.0	5R6	5.2
MCSMTE65Z6R8MH	6.8± 20%	25.4	7.0	6.6	6R8	5.2
MCSMTE65Z8R2MH	8.2± 20%	31.5	6.8	6.2	8R2	5.2

Note:

1. Inductance is measured at 100 KHz and 0.1 Vrms.
2. The nominal DCR is measured at 25°C ambient temperature.
3. The I-sat that will cause initial inductance value approximately 35% rolloff at 25°C.
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

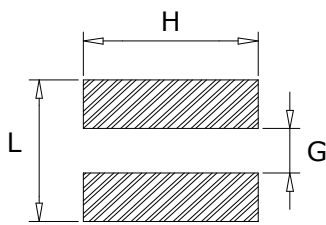
Mechanical & Dimensions

(Unit: mm)

	Code	Dimensions
	A	7.8± 0.25
	B	7.6± 0.20
	C	2.9± 0.20
	D	See SPEC
	E	1.75 ± 0.3
	F	3.15 ± 0.3

Recommend Land Pattern Dimensions

(Unit: mm)

	Code	Dimensions
	G	2.8 Typ
	H	7.2 Typ
	L	7.4 Typ

Electrical Characteristics

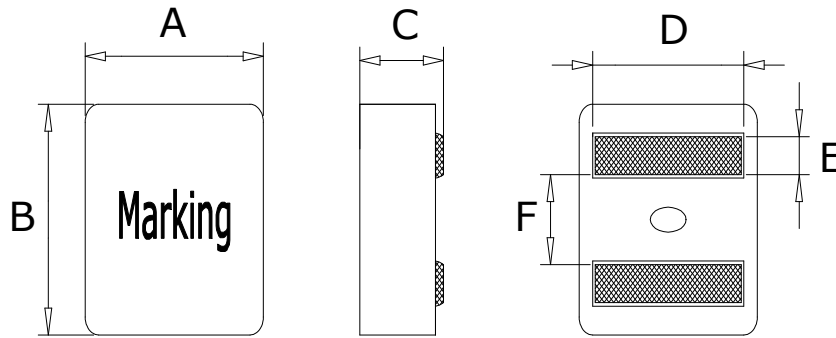
Part Number	Inductance ¹ (μH)	DCR ² (mΩ) Max	I-sat ³ (Amps)Typ	I-rms ⁴ (Amps)Typ	Marking	D(mm)±0.3
MCSMTE73Z1R0MH	1.0±20%	5.0	28.0	21.8	1R0	6.6
MCSMTE73Z1R5MH	1.5±20%	8.25	23.5	15.3	1R5	6.6
MCSMTE73Z2R2MH	2.2±20%	13.7	17.0	13.0	2R2	6.2
MCSMTE73Z2R7MH	2.7±20%	15.4	13.5	11.4	2R7	6.2
MCSMTE73Z3R3MH	3.3±20%	18.0	13.0	10.0	3R3	6.2
MCSMTE73Z4R7MH	4.7±20%	26.7	12.2	9.0	4R7	6.2
MCSMTE73Z5R6MH	5.6±20%	33.2	11.5	7.3	5R6	6.2
MCSMTE73Z6R8MH	6.8±20%	42.5	11.0	6.8	6R8	6.2
MCSMTE73Z8R2MH	8.2±20%	48.73	9.0	5.9	8R2	6.2

Note:

1. Inductance is measured at 100 KHz and 0.1 Vrms.
2. The nominal DCR is measured at 25°C ambient temperature.
3. The I-sat that will cause initial inductance value approximately 35% rolloff at 25°C.
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

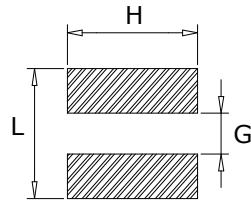
(Unit: mm)



Code	Dimensions
A	16.5± 0.3
B	15.5± 0.3
C	9.7 ± 0.3
D	13.2± 0.5
E	3.2 ± 0.3
F	7.4 ± 0.5

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
G	6.0 Typ
H	15.0 Typ
L	15.0 Typ

Electrical Characteristics

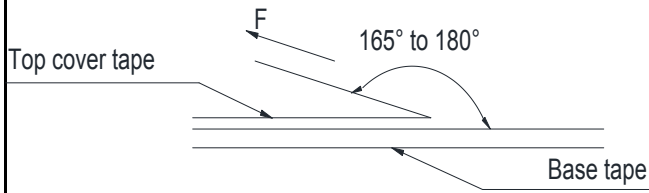
Part Number	Inductance ¹ (μH)	DCR ² (mΩ) Max	I-sat ³ (Amps)Typ	I-rms ⁴ (Amps)Typ	Marking
MCSMTE1510Z4R7MH	4.7± 20%	3.8	39.0	29.0	4R7
MCSMTE1510Z5R6MH	5.6± 20%	4.2	37.0	28.0	5R6
MCSMTE1510Z6R8MH	6.8± 20%	4.6	36.0	26.0	6R8
MCSMTE1510Z8R2MH	8.2± 20%	7.2	30.0	24.0	8R2
MCSMTE1510Z100MH	10.0± 20%	8.6	26.5	22.0	100
MCSMTE1510Z150MH	15.0± 20%	11.5	23.0	18.0	150
MCSMTE1510Z220MH	22.0± 20%	15.8	18.7	14.0	220
MCSMTE1510Z330MH	33.0± 20%	20.0	16.7	12.0	330

Note:

1. Inductance is measured at 100 KHz and 0.1 Vrms.
2. The nominal DCR is measured at 25°C ambient temperature.
3. The I-sat that will cause initial inductance value approximately 35% rolloff at 25°C.
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Packaging

Tearing Off Force:



The force tearing off cobe tape is 10 to 130 g.f			
in the arrow direction under the following conditions			
Room Temp (°C)	Room Humidity (%)	Room atrn (hPa)	Teaming Speed (mm/min)
5~35	45~85	860~1060	300

※Storage Conditions

1. Temperature and humidity conditions:
-40°C ~ +85°C and 70% RH.
2. Recommended products should be used within 6 months form the time of delivery.
3. The packaging material should be kept where no chlorine or sulfur exists in the air.

※Transportation

1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
3. Bulk handling should ensure that abrasion and mechanical shock are minimized.

Recommended Soldering Conditions

Figure 1. Re-flow Soldering

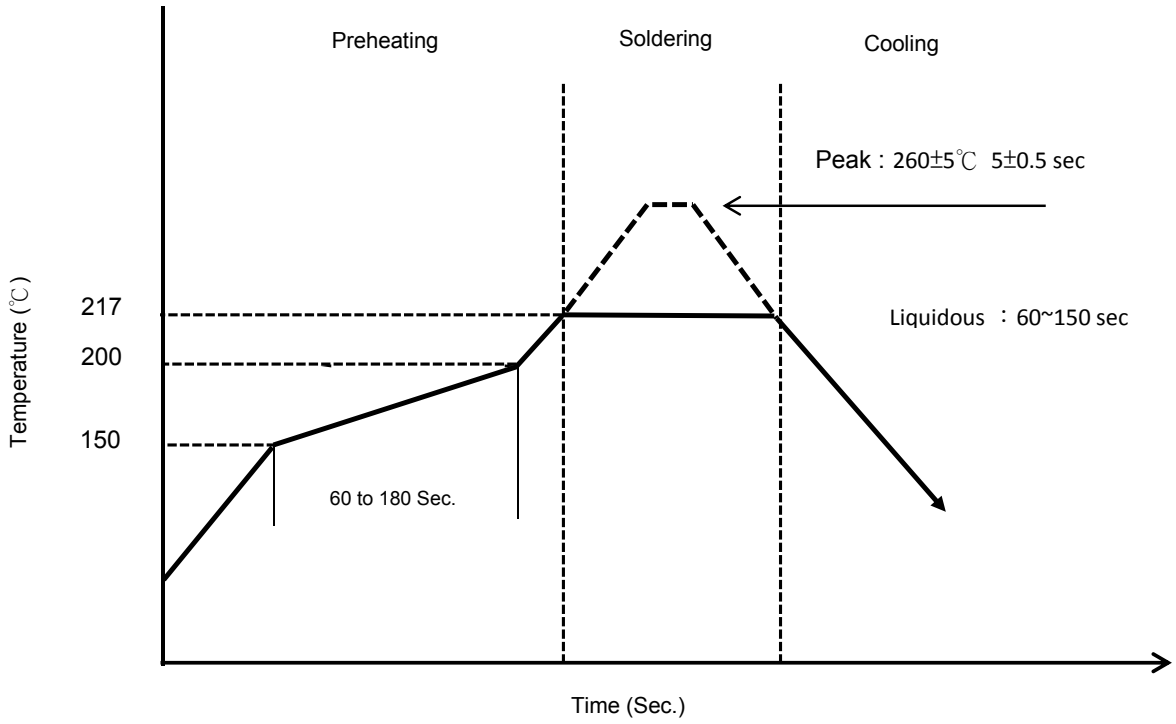
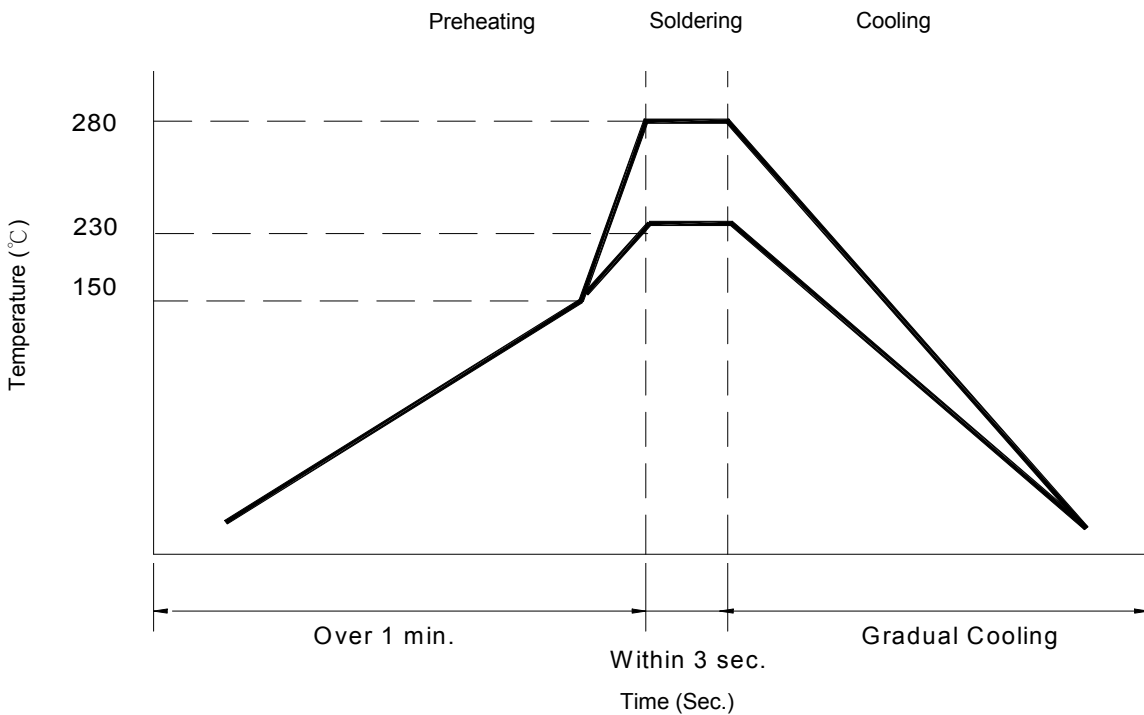
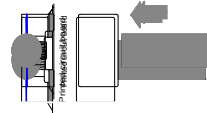


Figure 2. Hand Soldering



Reliability and Testing Conditions																	
Item	Specification	Conditions															
Operating temperature range	-40°C ~ +125°C (Including self-temperature rise)																
Storage temperature and humidity range	-40°C ~ +85°C , 70% RH Max																
Solderability	More than 90% of the terminal electrode should be covered with solder.	<ul style="list-style-type: none"> - Preheat: 150 °C , 60 sec - Solder: Sn96.5%-Ag3%-Cu0.5% - Temperature: 245±5°C - Flux for lead free: Rosin 9.5% - Dip time: 4±1 sec - Depth: completely cover the termination 															
Resistance to Soldering Heat	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	<ul style="list-style-type: none"> - Solder technique simulation: SMD - Temperature (°C): 260 ± 5 (solder temp) - Time (s): 10 ± 1 - Temperature ramp / immersion and emersion rate: 25 mm/s ± 6 mm/s - Number of heat cycles: 1 															
Resistance to High Temperature	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	500 hrs. at 125°C±3°C Unpowered. Measurement at 24±4 hours after test conclusion.															
Resistance to Low Temperature	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	500 hrs. at -40°C±2°C. Unpowered. Measurement at 24±4 hours after test conclusion.															
Resistance to Humidity	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	After 500 hours in 40±2°C and 90 to 95% humidity , and 2 hour drying under normal condition.															
Thermal shock	Inductance within ±20% of initial value. No disconnection or short circuit. The appearance shall not break.	<p>After 100 cycles of following condition.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Times (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40±2°C</td> <td>30</td> </tr> <tr> <td>2</td> <td>Room Temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td>125±3°C</td> <td>30</td> </tr> <tr> <td>4</td> <td>Room Temperature</td> <td>Within 3</td> </tr> </tbody> </table>	Step	Temperature (°C)	Times (min.)	1	-40±2°C	30	2	Room Temperature	Within 3	3	125±3°C	30	4	Room Temperature	Within 3
Step	Temperature (°C)	Times (min.)															
1	-40±2°C	30															
2	Room Temperature	Within 3															
3	125±3°C	30															
4	Room Temperature	Within 3															
Vibration Test	Inductance within ±10% of initial value and appearance shall not break.	After vibration for 1hour, In each of three orientations at sweep vibration (10~55~10Hz) with 1.52mm P-P Amplitudes.															
Terminal strength	The terminal electrode and the ferrite must not be damaged	<p>Solder a chip to test substrate, and then laterally apply a load 10N in the arrow direction, Duration :5s</p> 															
Drop Test	Inductance within ±20% of initial value. The appearance shall not break.	Drop 3 times on a concrete floor from a height of 75cm by inimum packing															