



MORE[®] | 茂昌电子
CHANCE

CUSTOMER : STD
PRODUCTS : SHIELDED SMD POWER INDUCTOR
PART NO : MCSHT Series
CUST P/ NO :
DATE : 2021.08.09
SALES DEP :
E-MAIL :

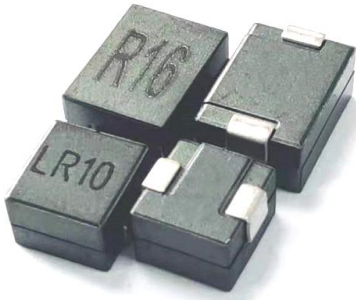
VERSION : REV.A
CHANGE PROJECT : -
BEFORE : -
AFTER : -
CHANGE DATE : -
CUSTOMER SIGNATURE : -

APPROVAL BY :	CHECK BY :	DRAWN BY :
Honey Wei	Leo Wang	May Gao

CHANGE HISTORY

[illegible]

MCSHT Series



- SHIELDED SMD POWER INDUCTOR
- Operating Temperature up to $-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$
- High Current up to 90.0A
- Low DCR down to 0.17mOhms
- Environmental Lead free
- Environmental RoHS2.0 compliant
- Environmental halogen free
- Storage Temperature : -40°C to $+125^{\circ}\text{C}$.
- Packaging 13"Reel, Plastic tape: 24 mm wide

FEATURES

- Ferrite based with lower core loss
- Ferrite High Bs material.
- Accurate&low DCR design
- The pad surface design is directly completed by the Clip.
- Low thickness by 1.5 turn loop design.

Applications

- Multi-phase and Vcore regulators.
- Server and desktop VRMs and EVRDs.
- Data networking and storage systems.
- Graphics cards and battery power systems.
- Buck Converter,VRMs.

PRODUCT IDENTIFICATION

MC SHT 75 Z R10 L R25
 ① ② ③ ④ ⑤ ⑥ ⑦

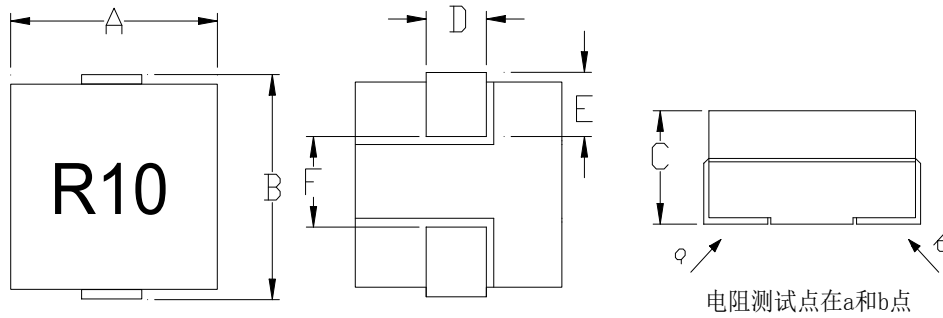
- ① Brand & Product classification
- ② Product Series NO.(SHC : SMD Power Inductors.)
- ③ External Dimensions.(75 : L:7.0 × W:7.0 × H:5.0) [mm]
- ④ Separator code.
- ⑤ Nominal Inductance

Example	Nominal Value
R22	0.22uH
1R0	1.0uH
100	10uH
101	100uH
70NH	70nH

- ⑥ Inductance Tolerance.(L: $\pm 15\%$; M: $\pm 20\%$; N: $\pm 30\%$)
- ⑦ Nominal DC Resistance.(R25 : 0.25m Ω)

Mechanical & Dimensions

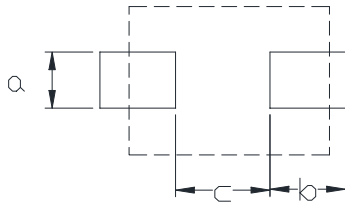
(Unit: mm)



Code	Dimensions
A	7.2 Max
B	7.0 Max
C	4.95 Max
D	2.45±0.2
E	1.52±0.3
F	3.65±0.5

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
a	3.1 Ref
b	2.0 Ref
c	3.35 Ref

Electrical Characteristics

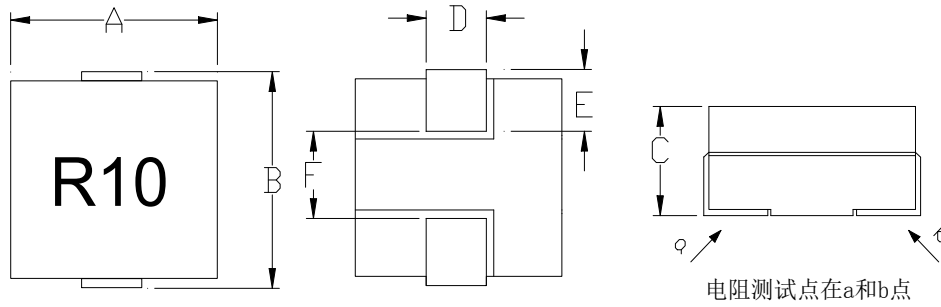
Part Number	Inductance ¹ (nH)	DCR ² (mΩ)	I-sat ^{3.1} (Amps)Max	I-sat ^{3.2} (Amps)Max	I-rms ⁴ (Amps)Types	
MCSHT75Z72NHRLR25	72±15%	0.25±10%	65.0	50.0	43.0	
MCSHT75ZR10LR25	105±15%	0.25±10%	44.0	34.0	43.0	
MCSHT75ZR12LR25	120±15%	0.25±10%	37.0	30.0	43.0	
MCSHT75ZR15LR25	150±15%	0.25±10%	30.0	24.0	43.0	
MCSHT75ZR18LR25	180±15%	0.25±10%	25.0	20.0	43.0	
MCSHT75ZR22LR25	226±15%	0.25±10%	20.0	16.0	43.0	

Note:

1. Inductance is measured at 100 KHz and 1.0 Vrms at 25°C
2. The nominal DCR is measured at 20°C ambient temperature.
- 3.1 The I-sat that will cause initial inductance value approximately 20% rolloff at 25°C
- 3.2 The I-sat that will cause initial inductance value approximately 20% rolloff at 125°C
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

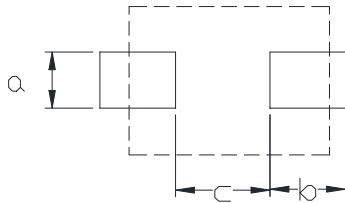
(Unit: mm)



Code	Dimensions
A	7.2 Max
B	7.0 Max
C	4.95 Max
D	2.45±0.2
E	1.52±0.3
F	3.65±0.5

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
a	3.1 Ref
b	2.0 Ref
c	3.35 Ref

Electrical Characteristics

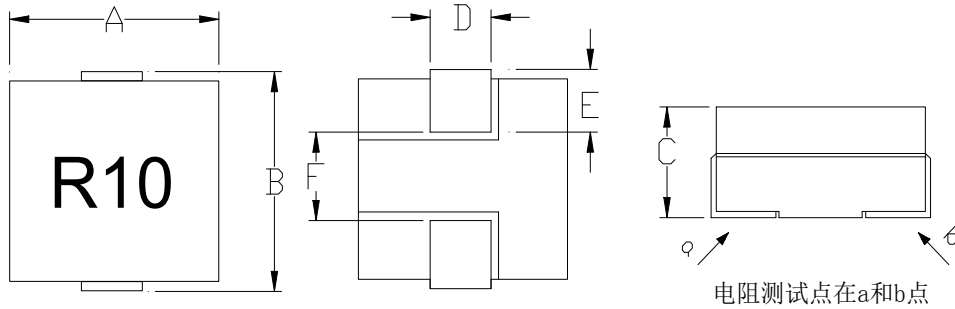
Part Number	Inductance ¹ (nH)	DCR ² (mΩ)	I-sat ^{3.1} (Amps)Max	I-sat ^{3.2} (Amps)Max	I-rms ⁴ (Amps)Types	
MCSHT75Z72NHRLR32	72±15%	0.32±10%	65.0	50.0	38.0	
MCSHT75ZR10LR32	105±15%	0.32±10%	44.0	34.0	38.0	
MCSHT75ZR12LR32	120±15%	0.32±10%	37.0	30.0	38.0	
MCSHT75ZR15LR32	150±15%	0.32±10%	30.0	24.0	38.0	
MCSHT75ZR18LR32	180±15%	0.32±10%	25.0	20.0	38.0	
MCSHT75ZR22LR32	226±15%	0.32±10%	20.0	16.0	38.0	

Note:

1. Inductance is measured at 100 KHz and 1.0 Vrms at 25°C
2. The nominal DCR is measured at 20°C ambient temperature.
- 3.1 The I-sat that will cause initial inductance value approximately 20% rolloff at 25°C
- 3.2 The I-sat that will cause initial inductance value approximately 20% rolloff at 125°C
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

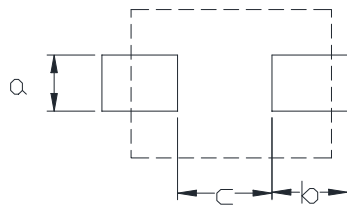
(Unit: mm)



Code	Dimensions
A	7.2 Max
B	7.0 Max
C	4.95 Max
D	2.45±0.2
E	1.52±0.3
F	3.65±0.5

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
a	3.1 Ref
b	2.0 Ref
c	3.35 Ref

Electrical Characteristics

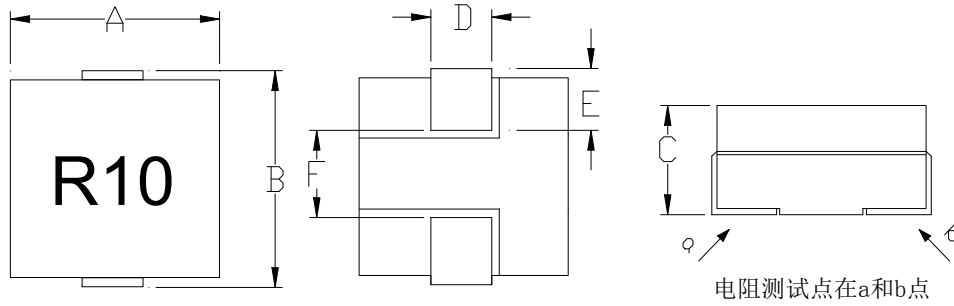
Part Number	Inductance ¹ (nH)	DCR ² (mΩ)	I-sat ^{3.1} (Amps)Max	I-sat ^{3.2} (Amps)Max	I-rms ⁴ (Amps)Types	
MCSHT75Z72NH46	72±15%	0.46±10%	65.0	50.0	38.0	
MCSHT75ZR10LR46	105±15%	0.46±10%	44.0	34.0	38.0	
MCSHT75ZR12LR46	120±15%	0.46±10%	37.0	30.0	38.0	
MCSHT75ZR15LR46	150±15%	0.46±10%	30.0	24.0	38.0	
MCSHT75ZR18LR46	180±15%	0.46±10%	25.0	20.0	38.0	
MCSHT75ZR22LR46	226±15%	0.46±10%	20.0	16.0	38.0	

Note:

1. Inductance is measured at 100 KHz and 1.0 Vrms at 25°C
2. The nominal DCR is measured at 20°C ambient temperature.
- 3.1 The I-sat that will cause initial inductance value approximately 20% rolloff at 25°C
- 3.2 The I-sat that will cause initial inductance value approximately 20% rolloff at 125°C
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

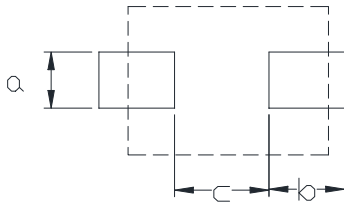
(Unit: mm)



Code	Dimensions
A	7.5 Max
B	7.82 Max
C	5.2 Max
D	3.12±0.2
E	2.16±0.3
F	3.25±0.5

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
a	3.43 Ref
b	2.79 Ref
c	2.4 Ref

Electrical Characteristics

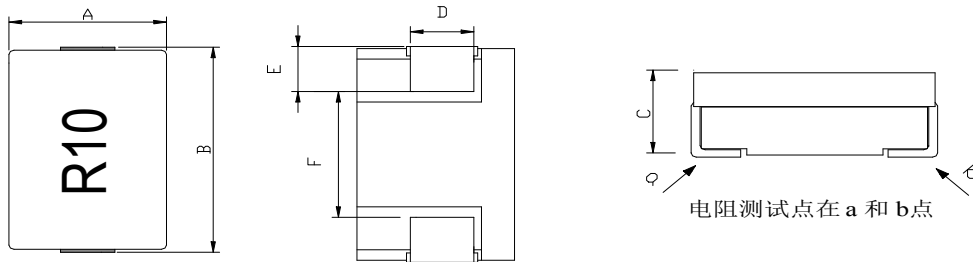
Part Number	Inductance ¹ (nH)	DCR ² (mΩ)	I-sat ^{3.1} (Amps)Max	I-sat ^{3.2} (Amps)Max	I-rms ⁴ (Amps)Types	
MCSHT85Z32NHRLR17	32±20%	0.17±10%	110.0	95.0	65.0	
MCSHT85Z58NHRLR17	58±15%	0.17±10%	83.0	61.0	65.0	
MCSHT85Z72NHRLR17	72±15%	0.17±10%	67.0	49.0	65.0	
MCSHT85ZR10LR17	100±15%	0.17±10%	50.0	35.0	65.0	
MCSHT85ZR20LR17	200±15%	0.17±10%	20.0	16.0	65.0	

Note:

1. Inductance is measured at 100 KHz and 1.0 Vrms at 25°C
2. The nominal DCR is measured at 20°C ambient temperature.
- 3.1 The I-sat that will cause initial inductance value approximately 20% rolloff at 25°C
- 3.2 The I-sat that will cause initial inductance value approximately 20% rolloff at 125°C
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

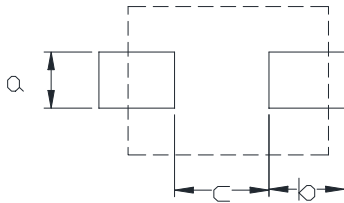
(Unit: mm)



Code	Dimensions
A	6.8±0.2
B	10.0±0.3
C	5.0±0.2
D	2.54±0.2
E	2.03±0.3
F	5.94 Ref

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
a	2.8 Ref
b	2.3 Ref
c	5.6 Ref

Electrical Characteristics

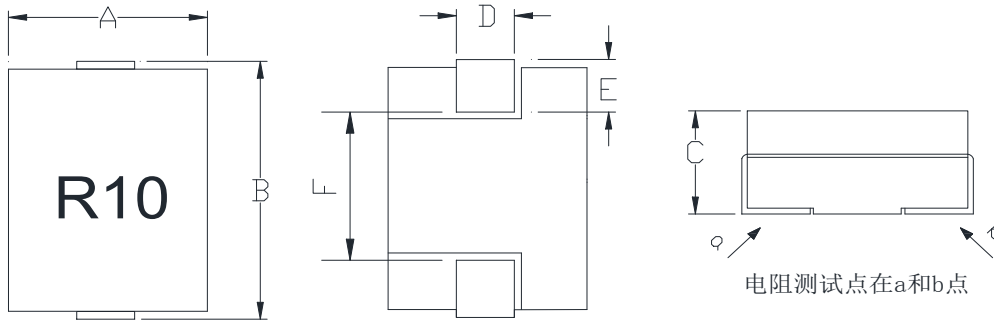
Part Number	Inductance ¹ (nH)	DCR ² (mΩ)	I-sat ^{3.1} (Amps)Max	I-sat ^{3.2} (Amps)Max	I-sat ^{3.3} (Amps)Max	I-rms ⁴ (Amps)Types
MCSHT10705ZR10LR125	100±15%	0.125±10%	65, ≥ 80nH	55, ≥ 80nH	48, ≥ 80nH	40.0
MCSHT10705ZR12LR125	120±15%	0.125±10%	55, ≥ 96nH	-	-	40.0

Note:

1. Inductance is measured at 100 KHz and 1.0 Vrms at 25°C
2. The nominal DCR is measured at 20°C ambient temperature.
- 3.1 The I-sat that will cause rolloff nominal inductance value at 25°C
- 3.2 The I-sat that will cause rolloff nominal inductance value at 100°C
- 3.3 The I-sat that will cause rolloff nominal inductance value at 125°C
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

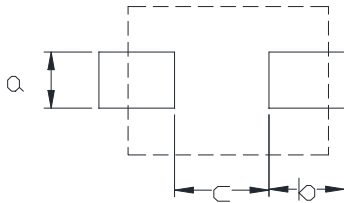
(Unit: mm)



Code	Dimensions
A	7.0 Max
B	10.4 Max
C	4.95 Max
D	2.5±0.2
E	1.52±0.3
F	6.9±0.5

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
a	3.1 Ref
b	2.0 Ref
c	6.35 Ref

Electrical Characteristics

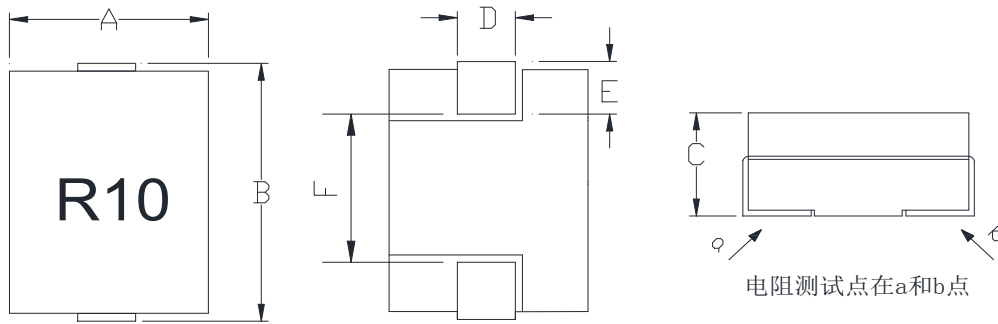
Part Number	Inductance ¹ (nH)	DCR ² (mΩ)	I-sat ^{3.1} (Amps)Max	I-sat ^{3.2} (Amps)Max	I-rms ⁴ (Amps)Types	
MCSHT10705Z80NHLR31	80±15%	0.31±10%	90.0	64.0	53.0	
MCSHT10705ZR10LR31	100±15%	0.31±10%	73.0	57.0	53.0	
MCSHT10705ZR12LR31	120±15%	0.31±10%	60.0	48.0	53.0	
MCSHT10705ZR15LR31	150±15%	0.31±10%	47.0	37.0	53.0	
MCSHT10705ZR22LR31	220±15%	0.31±10%	33.0	26.0	53.0	

Note:

1. Inductance is measured at 100 KHz and 1.0 Vrms at 25°C
2. The nominal DCR is measured at 20°C ambient temperature.
- 3.1 The I-sat that will cause initial inductance value approximately 20% rolloff at 25°C
- 3.2 The I-sat that will cause initial inductance value approximately 20% rolloff at 125°C
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

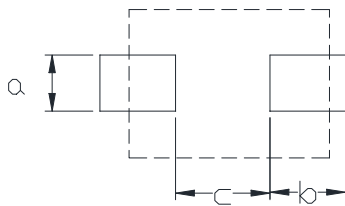
(Unit: mm)



Code	Dimensions
A	7.0 Max
B	10.4 Max
C	4.95 Max
D	2.5±0.2
E	1.52±0.3
F	6.9±0.5

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
a	3.1 Ref
b	2.0 Ref
c	6.35 Ref

Electrical Characteristics

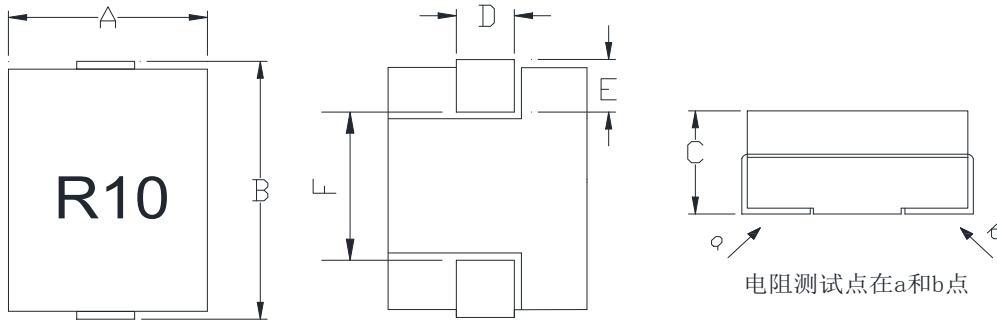
Part Number	Inductance ¹ (nH)	DCR ² (mΩ)	I-sat ^{3.1} (Amps)Max	I-sat ^{3.2} (Amps)Max	I-rms ⁴ (Amps)Types	
MCSHT10705Z80NH LR39	80±15%	0.39±10%	90.0	64.0	53.0	
MCSHT10705ZR10 LR39	100±15%	0.39±10%	73.0	57.0	53.0	
MCSHT10705ZR12 LR39	120±15%	0.39±10%	60.0	48.0	53.0	
MCSHT10705ZR15 LR39	150±15%	0.39±10%	47.0	37.0	53.0	
MCSHT10705ZR22 LR39	220±15%	0.39±10%	33.0	26.0	53.0	

Note:

1. Inductance is measured at 100 KHz and 1.0 Vrms at 25°C
2. The nominal DCR is measured at 20°C ambient temperature.
- 3.1 The I-sat that will cause initial inductance value approximately 20% rolloff at 25°C
- 3.2 The I-sat that will cause initial inductance value approximately 20% rolloff at 125°C
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

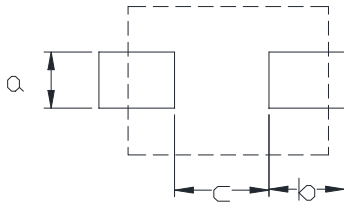
(Unit: mm)



Code	Dimensions
A	7.0 Max
B	10.4 Max
C	4.95 Max
D	2.5±0.2
E	1.52±0.3
F	6.9±0.5

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
a	3.1 Ref
b	2.0 Ref
c	6.35 Ref

Electrical Characteristics

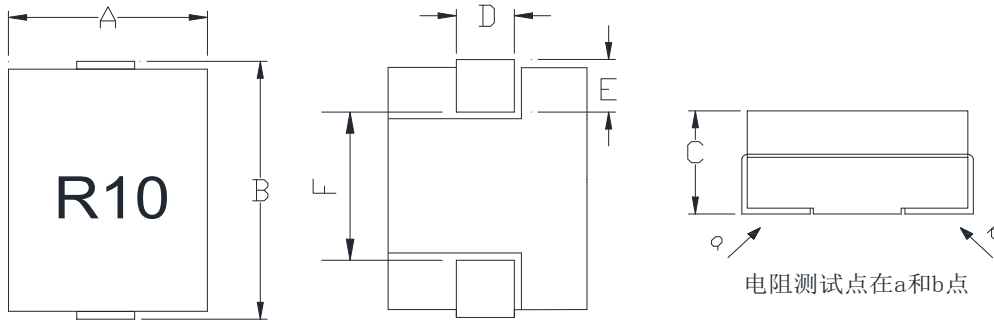
Part Number	Inductance ¹ (nH)	DCR ² (mΩ)	I-sat ^{3.1} (Amps)Max	I-sat ^{3.2} (Amps)Max	I-rms ⁴ (Amps)Types	
MCSHT10705Z80NH47	80±15%	0.47±10%	90.0	64.0	50.0	
MCSHT10705ZR10LR47	100±15%	0.47±10%	73.0	57.0	50.0	
MCSHT10705ZR12LR47	120±15%	0.47±10%	60.0	48.0	50.0	
MCSHT10705ZR15LR47	150±15%	0.47±10%	47.0	37.0	50.0	
MCSHT10705ZR22LR47	220±15%	0.47±10%	33.0	26.0	50.0	

Note:

1. Inductance is measured at 100 KHz and 1.0 Vrms at 25°C
2. The nominal DCR is measured at 20°C ambient temperature.
- 3.1 The I-sat that will cause initial inductance value approximately 20% rolloff at 25°C
- 3.2 The I-sat that will cause initial inductance value approximately 20% rolloff at 125°C
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

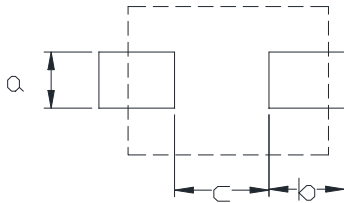
(Unit: mm)



Code	Dimensions
A	7.0 Max
B	10.4 Max
C	4.95 Max
D	2.5±0.2
E	1.52±0.3
F	6.9±0.5

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
a	3.1 Ref
b	2.0 Ref
c	6.35 Ref

Electrical Characteristics

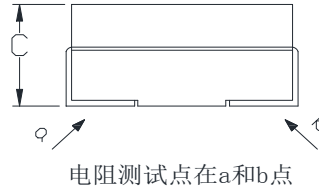
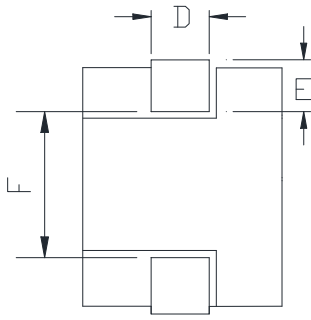
Part Number	Inductance ¹ (nH)	DCR ² (mΩ)	I-sat ^{3.1} (Amps)Max	I-sat ^{3.2} (Amps)Max	I-rms ⁴ (Amps)Types	
MCSHT10705Z80NHLR55	80±15%	0.55±10%	90.0	64.0	50.0	
MCSHT10705ZR10LR55	100±15%	0.55±10%	73.0	57.0	50.0	
MCSHT10705ZR12LR55	120±15%	0.55±10%	60.0	48.0	50.0	
MCSHT10705ZR15LR55	150±15%	0.55±10%	47.0	37.0	50.0	
MCSHT10705ZR22LR55	220±15%	0.55±10%	33.0	26.0	50.0	

Note:

1. Inductance is measured at 100 KHz and 1.0 Vrms at 25°C
2. The nominal DCR is measured at 20°C ambient temperature.
- 3.1 The I-sat that will cause initial inductance value approximately 20% rolloff at 25°C
- 3.2 The I-sat that will cause initial inductance value approximately 20% rolloff at 125°C
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

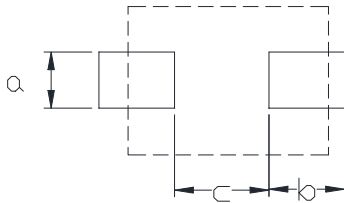
(Unit: mm)



Code	Dimensions
A	7.65±0.3
B	10.2±0.3
C	7.2±0.3
D	2.2±0.3
E	2.54±0.3
F	5.12±0.5

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
a	3.1 Ref
b	2.0 Ref
c	6.35 Ref

Electrical Characteristics

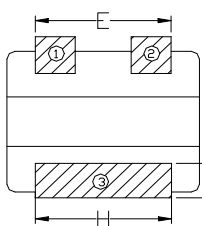
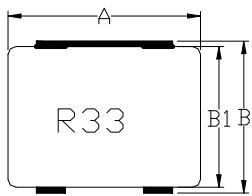
Part Number	Inductance ¹ (nH)	DCR ² (mΩ)	I-sat ^{3.1} (Amps)Max	I-sat ^{3.2} (Amps)Max	I-rms ⁴ (Amps)Types	
MCSHT107975ZR22LR29	215±15%	0.29±10%	52, ≥ 155nH	43.0	65.0	

Note:

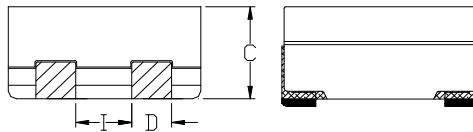
1. Inductance is measured at 100 KHz and 1.0 Vrms at 25°C
2. The nominal DCR is measured at 20°C ambient temperature.
- 3.1 The I-sat that will cause rolloff nominal inductance value at 25°C
- 3.2 The I-sat that will cause initial inductance value approximately 20% rolloff at 125°C
4. The I-rms that will cause temperature rise approximate 40°C without core loss.

Mechanical & Dimensions

(Unit: mm)



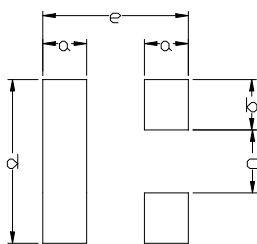
电阻测试点在 ① 和 ② 点



Code	Dimensions
A	12.3±0.3
B	11.5±0.3
C	3.91±0.15
D	3.05±0.2
E	9.1±0.25
F	2.54±0.3
H	9.1±0.25
I	3.0±0.2

Recommend Land Pattern Dimensions

(Unit: mm)



Code	Dimensions
a	2.8 Ref
b	3.35 Ref
c	2.7 Ref
d	9.4 Ref
e	12.0 Ref

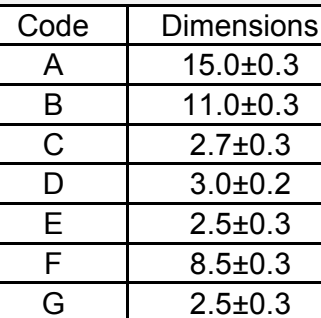
Electrical Characteristics

Part Number	Inductance ¹ (nH)	DCR ² (mΩ)	I-sat ³ (Amps)Max	I-rms ⁴ (Amps)Typs		
MCSHT124ZR33LR45Z2T	330±15%	0.45±10%	40, ≥ 240nH	38.0		

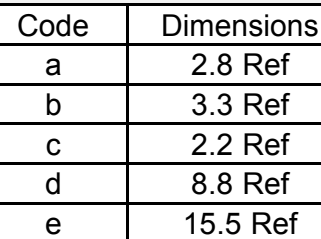
Note:

1. Inductance is measured at 100 KHz and 1.0 Vrms at 25°C, test point is Pin1-2.
2. The nominal DCR is measured at 20°C ambient temperature, test point is Pin1-2.
3. The I-sat that will cause rolloff nominal inductance value at 25°C, test point is Pin1-2.
4. The I-rms that will cause temperature rise approximate 40°C without core loss, test point is Pin1-2.

(Unit: mm)



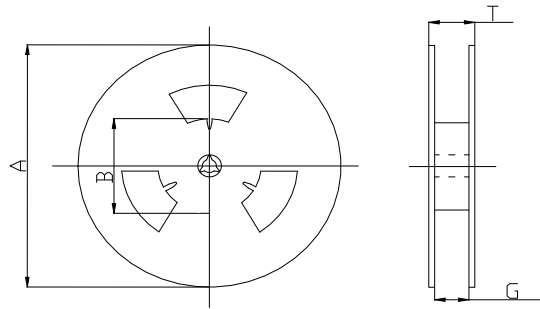
(Unit: mm)

[illegible]

1. Inductance is measured at 100 KHz and 1.0 Vrms at 25°C, test point is Pin1-2.
2. The nominal DCR is measured at 20°C ambient temperature, test point is Pin1-2.
- 3.1 The I-sat that will cause rolloff nominal inductance value at 25°C, test point is Pin1-2.
- 3.2 The I-sat that will cause rolloff nominal inductance value at 100°C, test point is Pin1-2.
4. The I-rms that will cause temperature rise approximate 40°C without core loss, test point is Pin1-2.

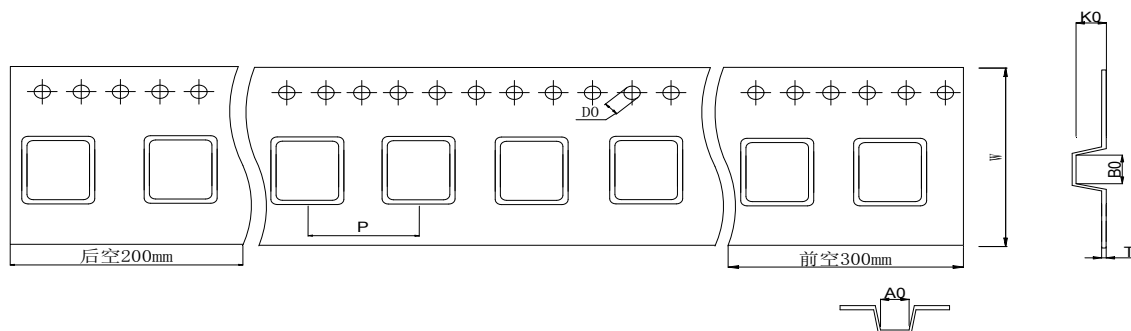
Packaging

Reel Dimension:

[illegible]

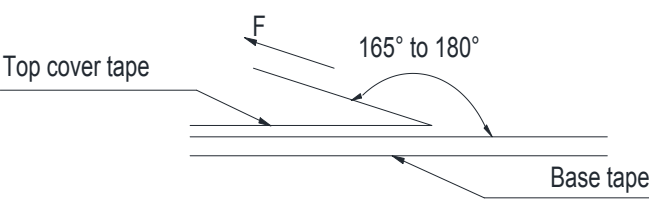
Packaging

Tape Dimension:

[illegible]

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 (℃)	Room Humidity (%)	Room atrn (hPa)	Teaming Speed (mm/min)
5~35	45~85	860~1060	300

※Storage Conditions

1. Recommended products should be used within 6 months form the time of delivery.
2. 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

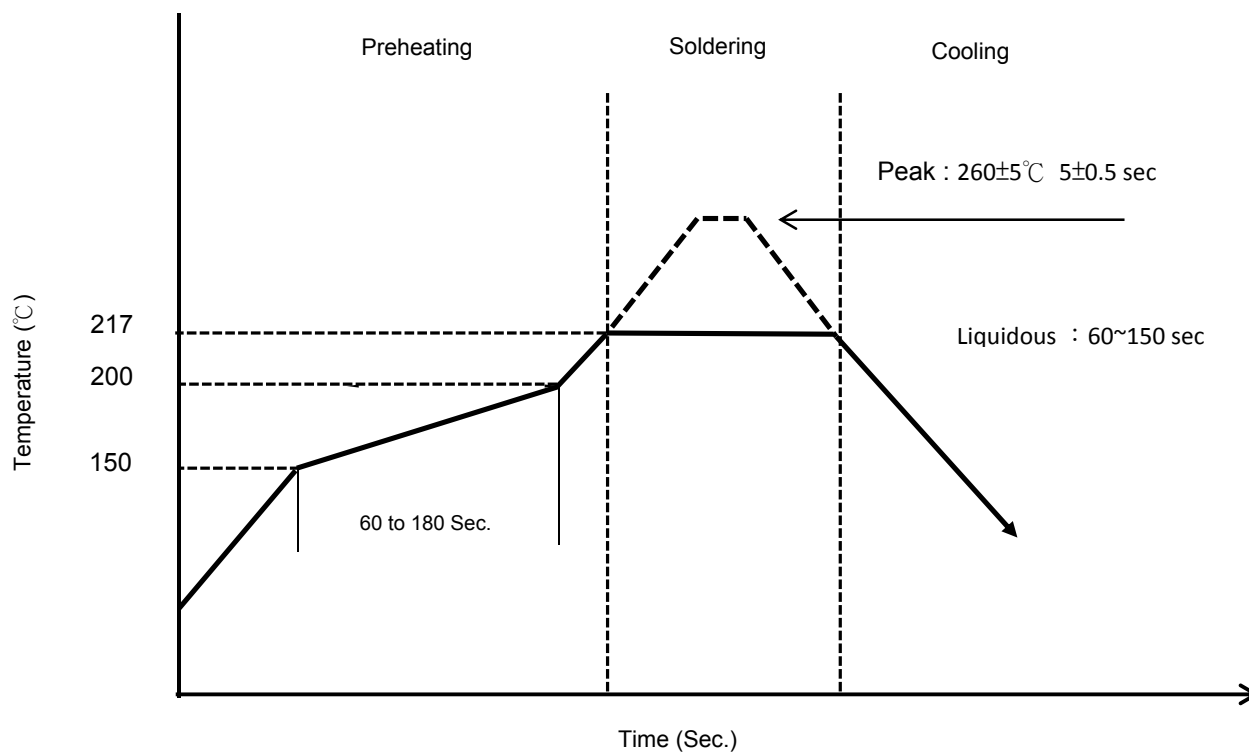
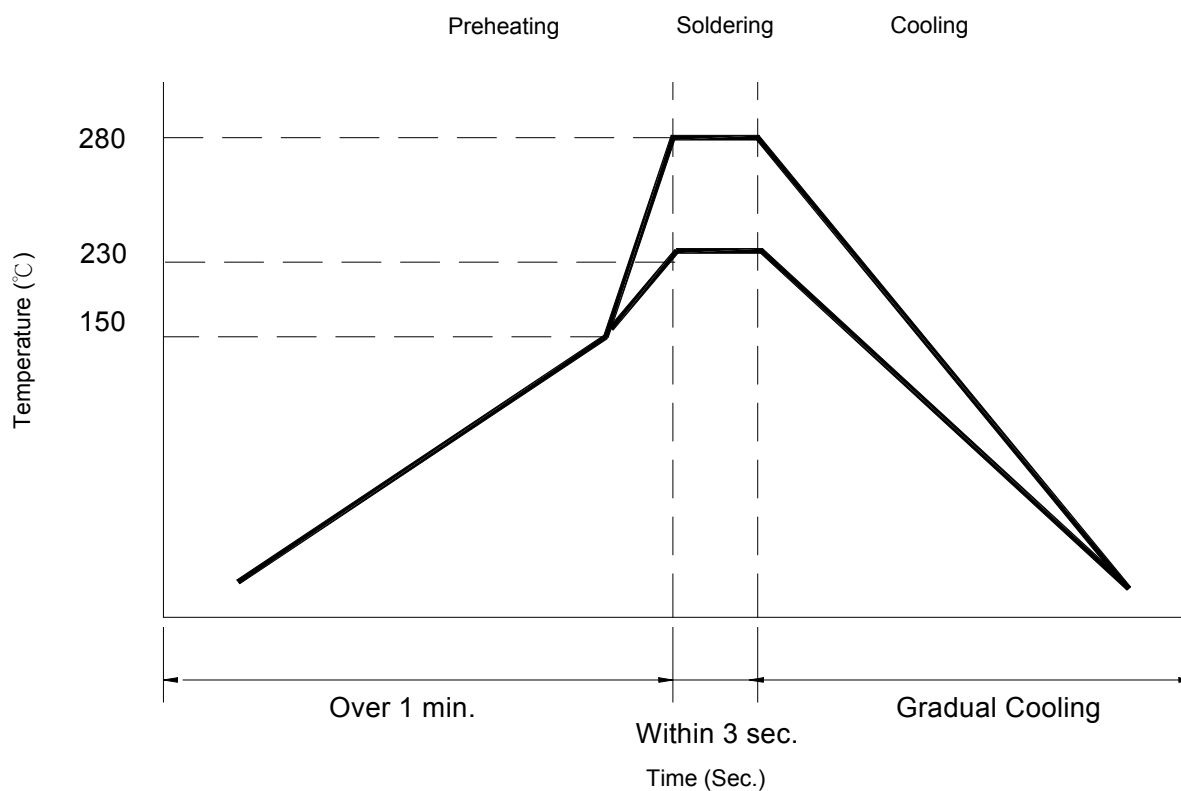
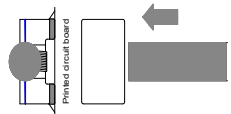


Figure 2. Hand Soldering



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.	- 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.	- 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±5°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±5°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.	After 100 cycles of following condition. <table border="1"> <thead> <tr> <th>Step</th><th>Temperature (°C)</th><th>Times (min.)</th></tr> </thead> <tbody> <tr> <td>1</td><td>-40±5°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±5°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±5°C	30	2	Room Temperature	Within 3	3	125±5°C	30	4	Room Temperature	Within 3
Step	Temperature (°C)	Times (min.)															
1	-40±5°C	30															
2	Room Temperature	Within 3															
3	125±5°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	Solder a chip to test substrate, and then laterally apply a load 10N in the arrow direction, Duration :5s 															
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															