Shielded Power Inductor – *SSC0403(Z) Series*

1. Part No. Expression

SSC 0403 1R2 Y Z F

(a) (b) (c) (d) (e) (f)

(a) Series Code

(b) Dimension Code

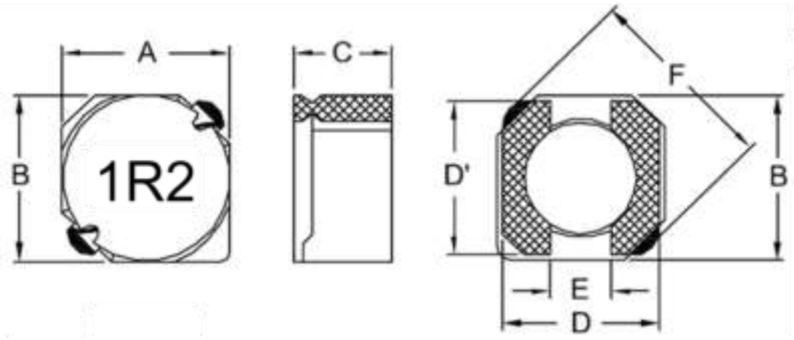
(c) Inductance Code

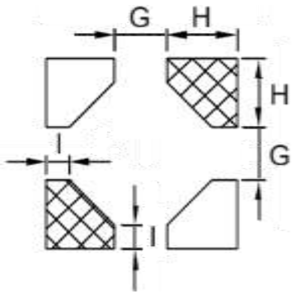
(d) Tolerance Code

(e) Special Code

(f) Packaging Code

2. Configuration & Dimensions (Unit: mm)





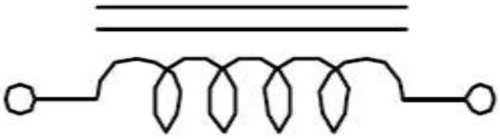
Recommended PCB Layout

Note: 1. The above PCB layout reference only.

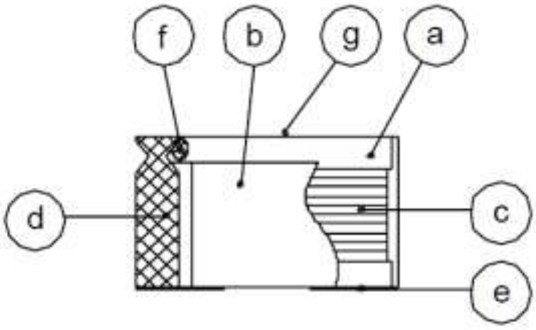
2. Marking: Inductance Code

A	B	C	D	D’
4.7±0.3	4.7±0.3	3.0 Max	4.5 Ref	4.5 Ref
E	F	G	H	I
1.5 Ref	6.9 Max	1.7 Ref	1.8 Ref	0.8 Ref

3. Schematic



4. Material List



(a)	DR Core
(b)	RI Core
(c)	Wire
(d)	Terminal
(e)	Adhesive
(f)	Adhesive
(g)	Ink

5. General Specifications

(a) Operating Temp.: -40°C to +125°C (including self-temperature rise)
(b) All test data referenced to 25°C ambient.
(c) Heat Rated Current (Irms) will cause the coil temperature rise ΔT of 40°C Max.
(d) Saturation Current (Isat) will cause inductance L0 to drop 35% Max.
(e) Rated Current: The lower value of Isat and Irms.
(f) Resistance to solder heat: 260° C,10 secs.
(g) Storage Condition (Component in its packaging)
    i) Temperature: -10°C to 40°C
    ii) Humidity: Less than 60% RH

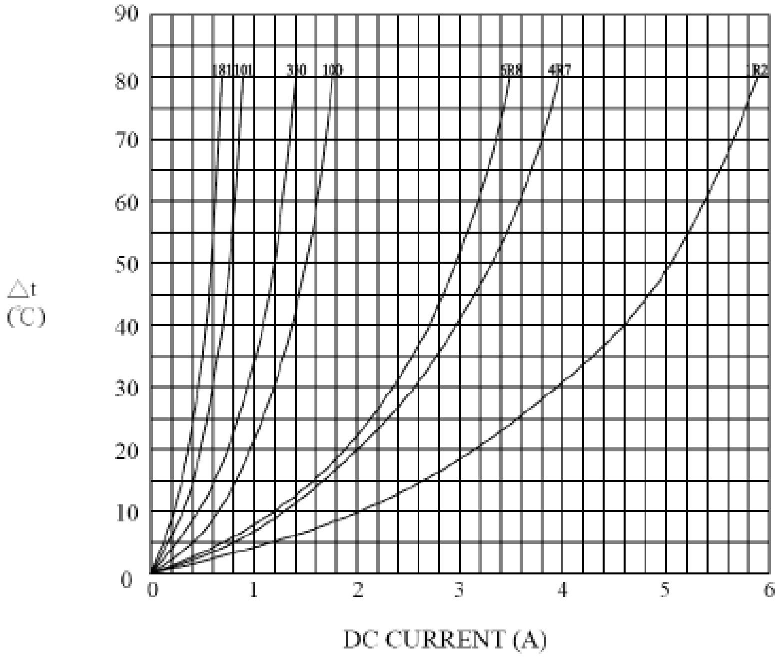
6. Electrical Characteristics

Part Number	Inductance (μH) @0A ±30%	Test Frequency	DCR (mΩ) Max	IDC (A) Max
SSC04031R2YZF	1.2	0.5V/100KHz	23.6	2.56
SSC04031R8YZF	1.8	0.5V/100KHz	27.5	2.20
SSC04032R2YZF	2.2	0.5V/100KHz	31.3	2.04
SSC04032R7YZF	2.7	0.5V/100KHz	43.3	1.60
SSC04033R3YZF	3.3	0.5V/100KHz	49.2	1.57
SSC04033R9YZF	3.9	0.5V/100KHz	64.8	1.44
SSC04034R7YZF	4.7	0.5V/100KHz	72.0	1.32
SSC04035R6YZF	5.6	0.5V/100KHz	100.9	1.17
SSC04036R8YZF	6.8	0.5V/100KHz	108.9	1.12
SSC04038R2YZF	8.2	0.5V/100KHz	117.5	1.04
SSC0403100YZF	10.0	0.5V/100KHz	128.3	1.00
SSC0403120YZF	12.0	0.5V/100KHz	131.6	0.84
SSC0403150YZF	15.0	0.5V/100KHz	149.0	0.76
SSC0403180YZF	18.0	0.5V/100KHz	166.0	0.72
SSC0403220YZF	22.0	0.5V/100KHz	235.0	0.70
SSC0403270YZF	27.0	0.5V/100KHz	261.0	0.58
SSC0403330YZF	33.0	0.5V/100KHz	331.3	0.56
SSC0403390YZF	39.0	0.5V/100KHz	383.7	0.50
SSC0403470YZF	47.0	0.5V/100KHz	587.0	0.48
SSC0403560YZF	56.0	0.5V/100KHz	624.5	0.41
SSC0403680YZF	68.0	0.5V/100KHz	699.0	0.35

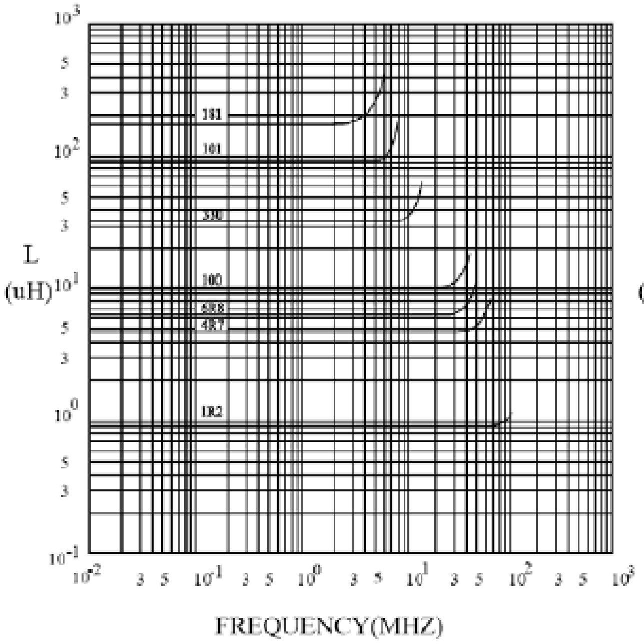
Part Number	Inductance (µH) @0A ±30%	Test Frequency	DCR (mΩ) Max	IDC (A) Max
SSC0403820YZF	82.0	0.5V/100KHz	914.8	0.32
SSC0403101YZF	100.0	0.5V/100KHz	1020.0	0.29
SSC0403121YZF	120.0	0.5V/100KHz	1270.0	0.27
SSC0403151YZF	150.0	0.5V/100KHz	1350.0	0.24
SSC0403181YZF	180.0	0.5V/100KHz	1540.0	0.22

7. Characteristics Curves

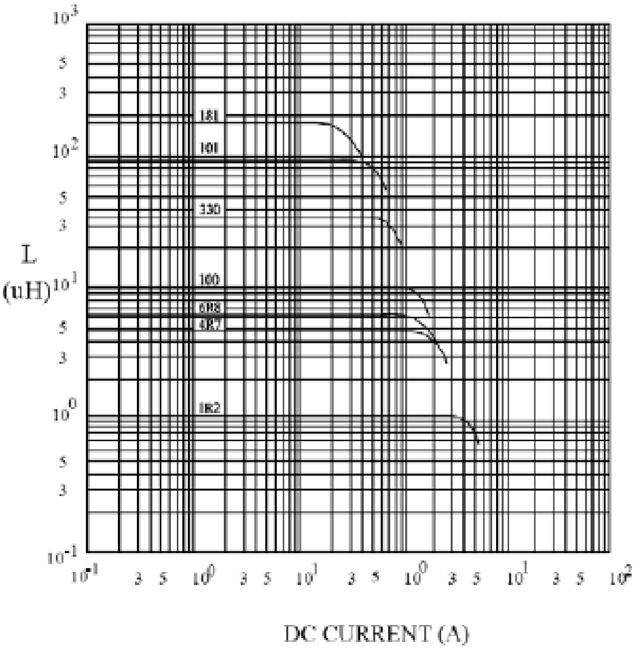
@ TEMP. RISE VS. DC SUPERPOSITION RESPONSE CURVE



@ INDUCTANCE VS. FREQUENCY RESPONSE CURVE



@ INDUCTANCE VS. DC SUPERPOSITION RESPONSE CURVE



8. Soldering Specification

Mildly activated rosin fluxes are preferred. Our terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

8-1. IR Soldering Reflow

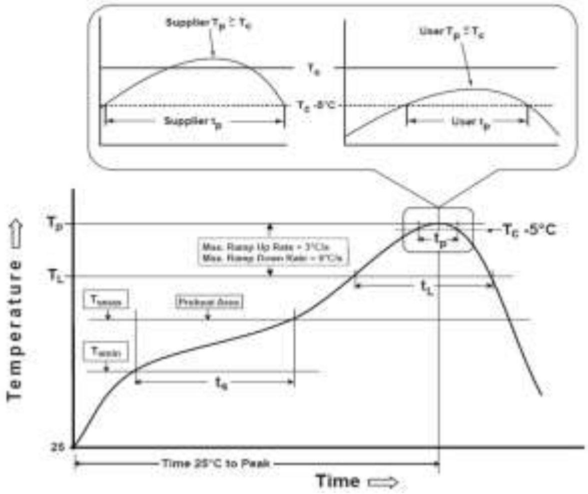
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020F).

8-2. Iron Reflow

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended (Figure 2).

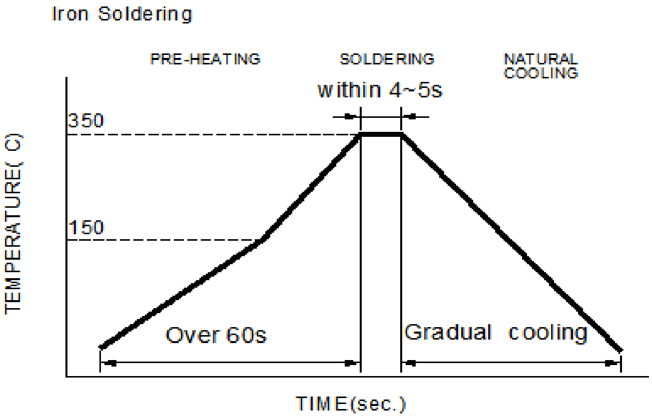
Note:

(a) Preheat circuit and products to 150°C.
(b) 350°C tip temperature (Max.)
(c) Never contact the ceramic with the iron tip
(d) 1.0mm tip diameter (Max.)
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm
(f) Limit soldering time to 4~5 sec.



Reflow times: 3 times Max

Figure 1: IR Soldering Reflow



Iron Soldering times：1 times max

Figure 2: Iron soldering temperature profiles

Table (1.1) Reflow Profiles

Profile Type:	Pb-Free Assembly
Preheat -Temperature Min (T_{smin}) -Temperature Max (T_{smax}) -Time (t_s) from (T_{smin} to T_{smax})	 150°C 200°C 60-120seconds
Ramp-up rate ($T_L$to T_p)	3°C /second max.
Liquids temperature (T_L) Time (t_L) maintained above T_L	217°C 60-150 seconds
Classification temperature (T_c)	See Table (1.2)
Time (t_p) at Tc- 5°C (Tp should be equal to or less than Tc.)	< 30 seconds
Ramp-down rate (T_p to T_L)	6°C /second max.
Time 25°C to peak temperature	8 minutes max.

Tp: maximum peak package body temperature, **Tc**: the classification temperature.

For user (customer) **Tp** should be equal to or less than **Tc.**

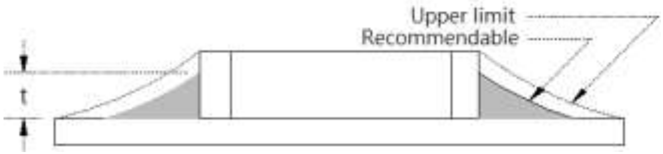
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	Package Thickness	Volume mm^3 <350	Volume mm^3 350-2000	Volume mm^3 >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

Reflow is referred to standard IPC/JEDEC J-STD-020F.

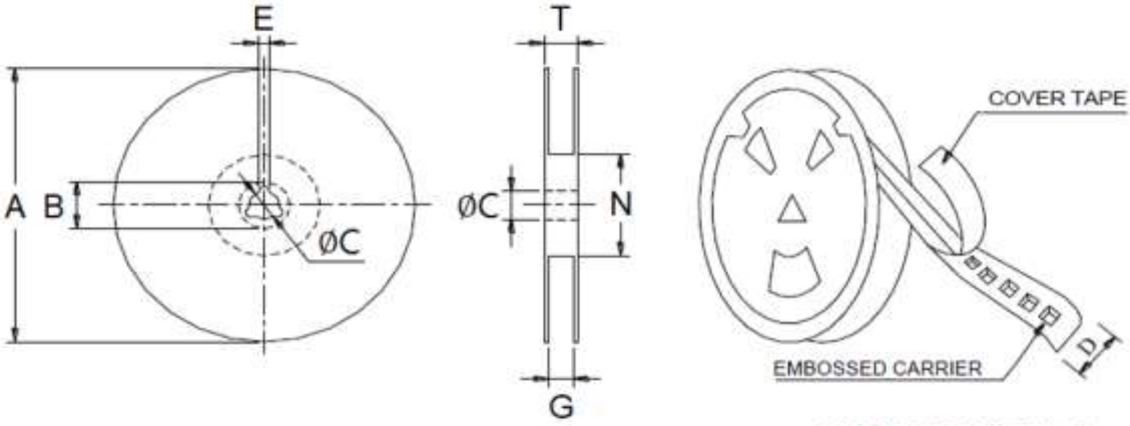
8-3. Soldering Volume

Accordingly increasing the solder volume, the mechanical stress to product is also increased. Exceeding solder volume may cause the failure of mechanical or electrical performance. Solder shall be used not to be exceeded as shown in the Figure below. Minimum fillet height = soldering thickness + 25% product height.



9. Packaging Information

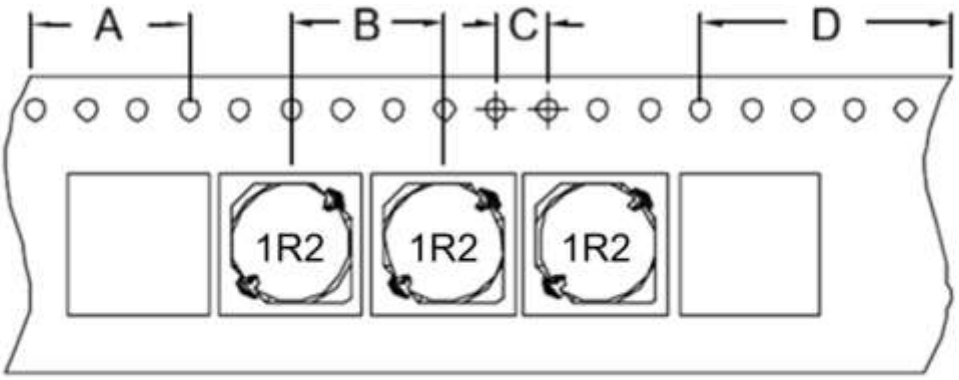
9-1. Reel Dimension (Unit: mm)



*CARRIER TAPE WIDTH：D

Type	A	B	C	D
	330.0 Ref	21.0 Ref	13.0 Ref	16.0 Ref
13”x16mm	E	G	N	T
	2.0 Ref	18.0 Max	50.0 Min	22.4 Ref

9-2. Tape Dimension (Unit: mm)

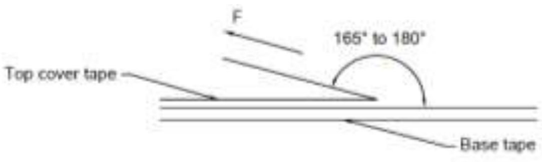


A	B	C	D
200	8	4	400

9-3. Packaging Quantity (Unit: Pcs)

INNER : REEL			OUTER : CARTON		
QTY(PCS)	G.W(gw)	STYLE	QTY(PCS)	G.W.(Kg)	SIZE(cm)
2,000	2,400	13-16	12,000	17.9	38 x 36.5 x 21

9-4. Tearing Off Force



The force for tearing off cover tape is according to the follow table, in the arrow direction under the following conditions.
(Referenced ANSI/EIA-481-D-2008 of 4.11 standard)

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed (mm/min)
5~35	45~85	860~1060	300±10

Tape Size	8 mm	12 to 56 mm	72 mm or Wider
Tearing Off Force (grams)	10~100	10~130	10~150

Application Notice

1. Storage Conditions
   To maintain the solderability of terminal electrodes:
   (a) Products meet IPC/JEDEC J-STD-020F standard-MSL, level 1.
   (b) Recommended products should be used within 12 months from the time of delivery.
   (c) The packaging material should be kept where no chlorine or sulfur exists in the air.

2. Transportation
   (a) Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
   (b) Vacuum pick up is strongly recommended for individual components.
   (c) Bulk handling should ensure that abrasion and mechanical shock are minimized.