

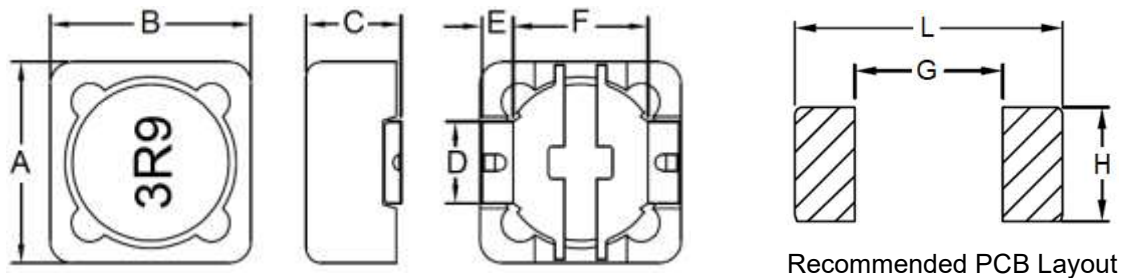
## 1. Part No. Expression

**S D C 1 2 0 4 3 R 9 Y F**

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

- (a) Series Code
- (b) Dimension Code
- (c) Inductance Code
- (d) Tolerance Code
- (e) Packaging Code

## 2. Configuration & Dimensions (Unit: mm)

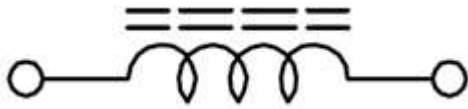


- Note:
1. The above PCB layout reference only.
  2. Marking: Inductance Code

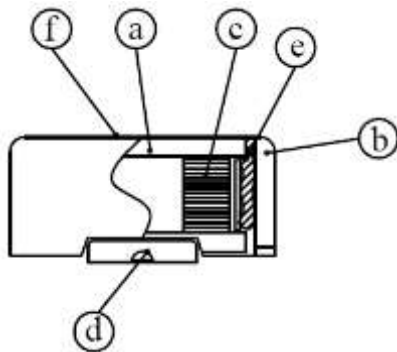
A	B	C	D	E
12.8 Max	12.8 Max	5.0 Max	5.0 Ref	2.2 Ref
F	G	H	L	-
7.6±0.2	7.0 Ref	5.4 Ref	12.6 Ref	-

NOTE: Specifications subject to change without notice. Please check our website for latest information.

## 3. Schematic



## 4. Material List



- (a) Core
- (b) Core
- (c) Wire
- (d) Clip
- (e) Adhesive
- (f) Ink

## 5. General Specifications

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

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## 6. Electrical Characteristics

Part Number	Inductance (uH) @0A	Test Frequency	DCR (mΩ) Max	IDC (A) Max
SDC12043R9YF	3.9	1V/100KHz	15	6.50
SDC12044R7YF	4.7	1V/100KHz	18	5.70
SDC12046R8YF	6.8	1V/100KHz	23	4.90
SDC12048R2YF	8.2	1V/100KHz	26	4.60
SDC1204100MF	10	1V/100KHz	28	4.50
SDC1204120MF	12	1V/100KHz	38	4.00
SDC1204150MF	15	1V/100KHz	52	3.20
SDC1204180MF	18	1V/100KHz	60	3.10
SDC1204220MF	22	1V/100KHz	70	2.90
SDC1204270MF	27	1V/100KHz	80	2.80
SDC1204330MF	33	1V/100KHz	97	2.70
SDC1204390MF	39	1V/100KHz	132	2.10
SDC1204470MF	47	1V/100KHz	160	1.90
SDC1204560MF	56	1V/100KHz	190	1.80
SDC1204680MF	68	1V/100KHz	220	1.50
SDC1204820MF	82	1V/100KHz	260	1.30
SDC1204101MF	100	1V/100KHz	308	1.20
SDC1204121MF	120	1V/100KHz	380	1.10
SDC1204151MF	150	1V/100KHz	530	0.95
SDC1204181MF	180	1V/100KHz	620	0.85
SDC1204221MF	220	1V/100KHz	700	0.80
SDC1204271MF	270	1V/100KHz	870	0.60
SDC1204331MF	330	1V/100KHz	990	0.50

Note:

Tolerance Code: M=±20%, Y=±30%

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## 7. 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.

### 7-1. IR Soldering Reflow

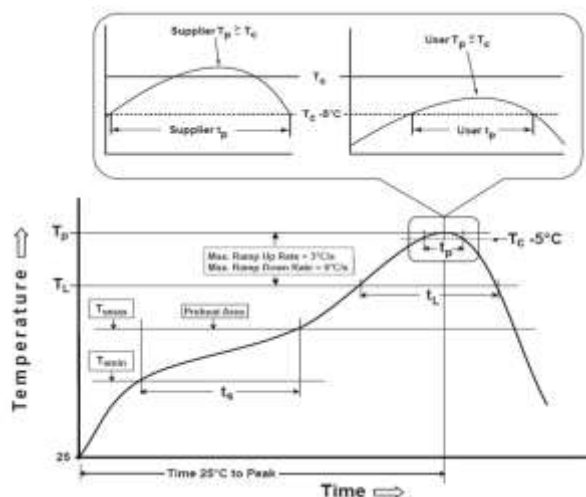
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020F).

### 7-2. 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).

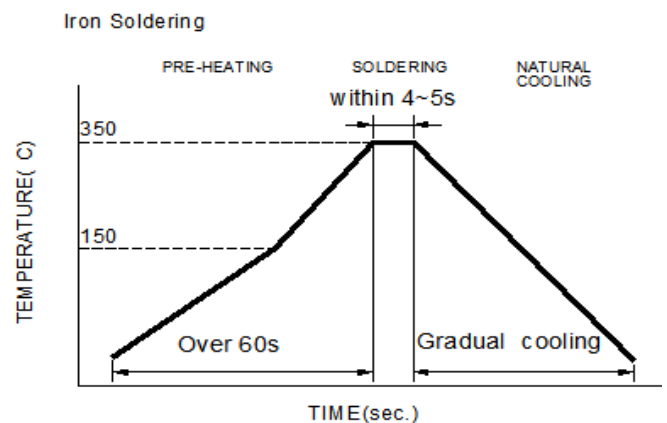
Note:

- (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

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**Table (1.1) Reflow Profiles**

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

**T<sub>p</sub>**: maximum peak package body temperature, **T<sub>c</sub>**: the classification temperature.

For user (customer) **T<sub>p</sub>** should be equal to or less than **T<sub>c</sub>**.

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

	Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350-2000	Volume mm <sup>3</sup> >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.

### 7-3. 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.

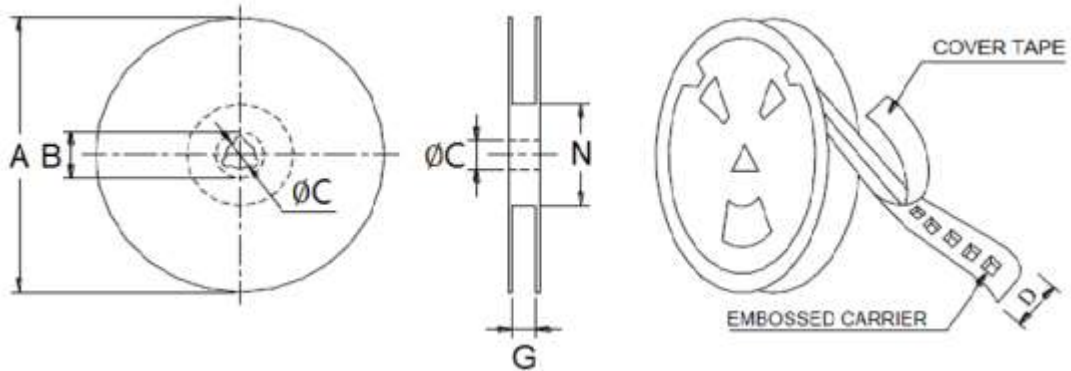
Minimum fillet height = soldering thickness + 25% product height.



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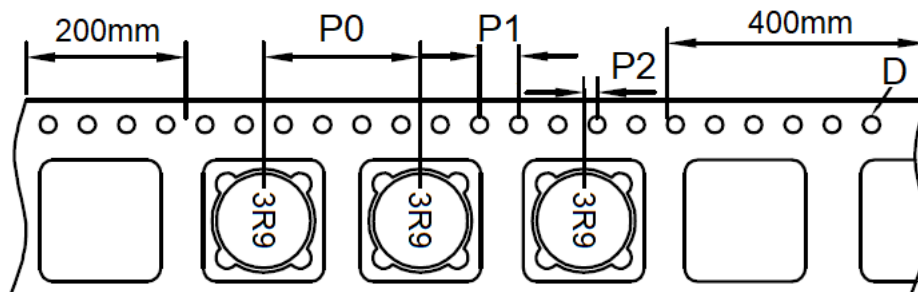
8. Packaging Information

8-1. Reel Dimension (Unit: mm)



Type	A	B	C	D	G	N
13"x24mm	330.0 Ref	21.0 Ref	13.0 Ref	24.0 Ref	24.5 Ref	100.0 Ref

8-2. Tape Dimension (Unit: mm)



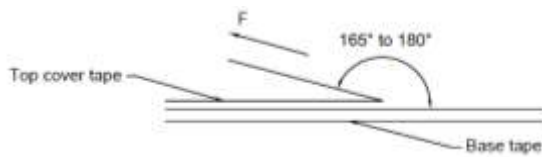
P0	P1	P2	D
16.00 Ref	4.00 Ref	2.00±0.10	1.50+0.25/-0.00

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### 8-3. Packaging Quantity (Unit: Pcs)

INNER : REEL	OUTER : CARTON	
QTY(PCS)	QTY(PCS)	SIZE(cm)
600	2,400	36x35.5x14.3

### 8-4. 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.

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