

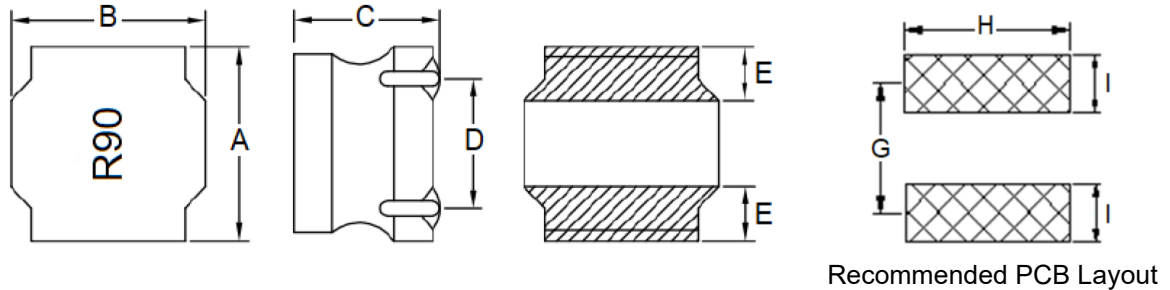
1. Part No. Expression

PNS8040R90YZF

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

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

2. Configuration & Dimensions (Unit: mm)

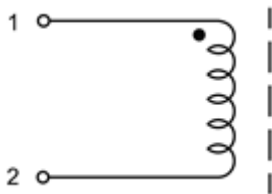


- Note:
1. The above PCB layout reference only.
 2. Recommend solder paste thickness at 0.12 mm and above.
 3. Marking: Inductance Code

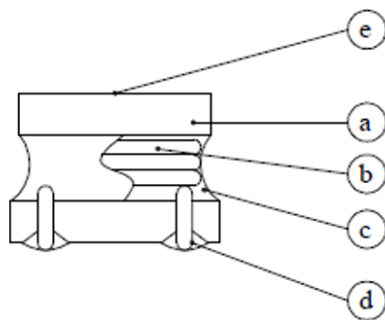
Inductance	A	B	C	D	E	G	H	I
R90~100	8.0±0.2	8.0±0.2	4.2 Max	5.6±0.3	2.0 Typ	5.6 Ref	7.5 Ref	1.8 Ref
150~101			4.0 Max					

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

3. Schematic



4. Material List

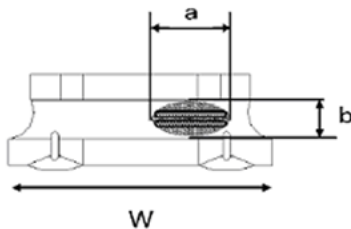


- (a) Core
- (b) Wire (155°C)
- (c) Adhesive
- (d) Terminal
- (e) Ink

Void appearance tolerance limit & size of voids occurring to coating resin is specified below.

Exposed wire tolerance limit of coating resin part on product side.

Size of exposed wire occurring to coating resin is specified below:

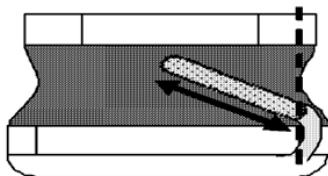


1. Width direction (dimension a) : Acceptable when $a \leq w/2$;

Nonconforming when $a > w/2$

2. Length direction (dimension b): Dimension b is not specified

3. The total area of exposed wire occurring to each side is not greater than 50% of coating resin area and is acceptable



External appearance criterion for exposed wire.

Exposed end of the winding wire at the secondary side should be 2mm and below.

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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 ΔT of 40°C.
- (e) Saturation Current (Isat) will cause inductance L0 to drop 30% 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

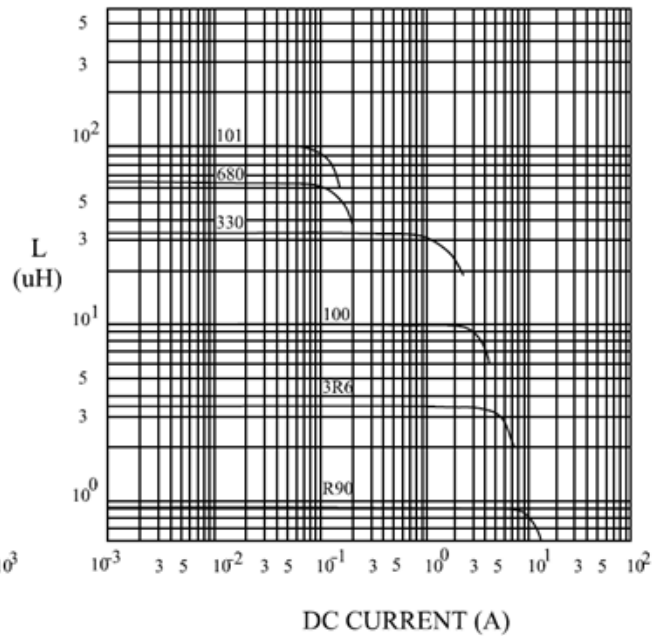
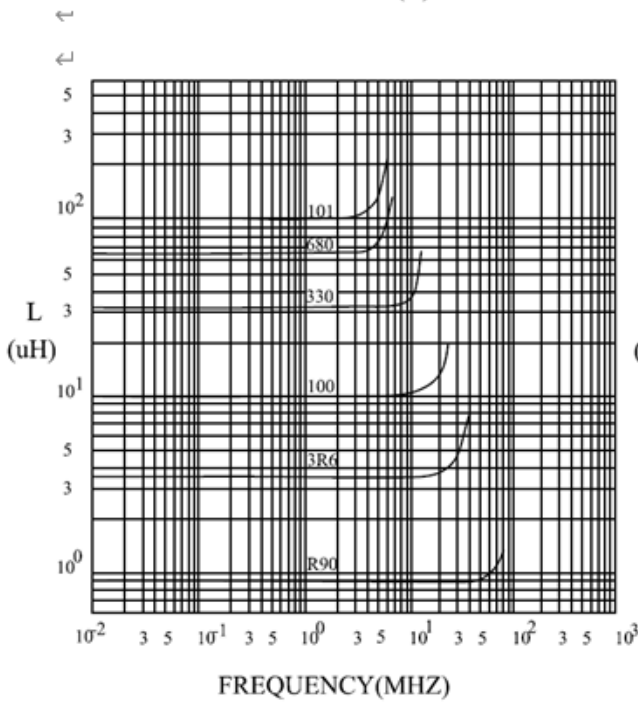
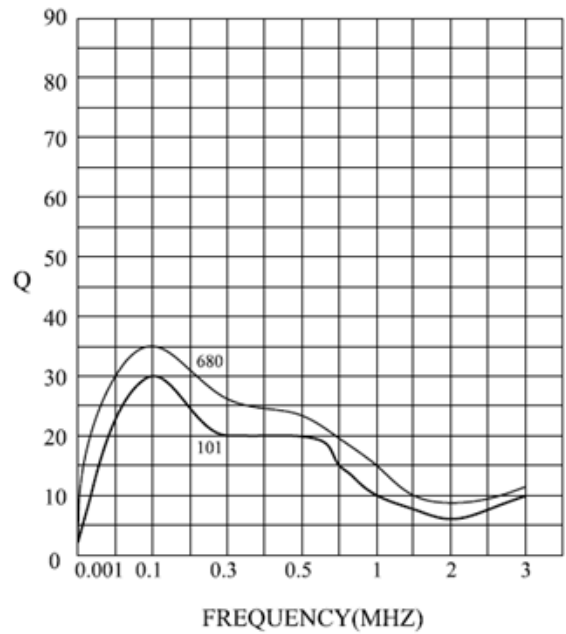
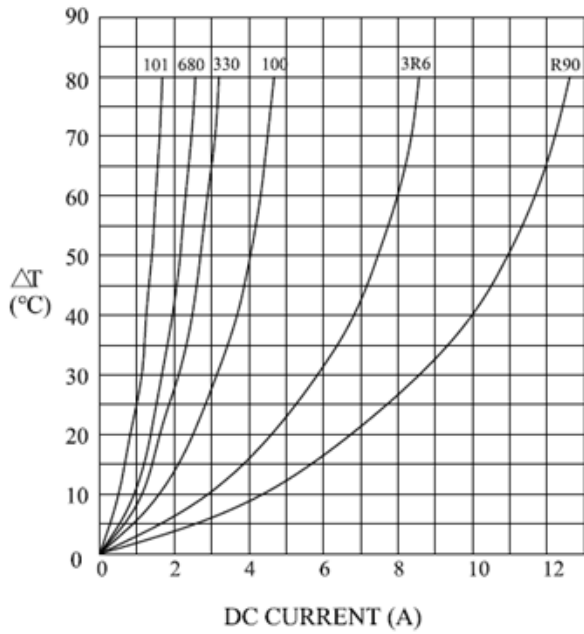
6. Electrical Characteristics

Part Number	Inductance (μH) @0A	Test Frequency	SRF (MHz) Typ	DCR (Ω) $\pm 30\%$	Isat (mA) Max	Irms (mA) Max	Marking
PNS8040R90YZF	0.9	1V/100KHz	85	0.006	11000	7800	R90
PNS80401R4YZF	1.4	1V/100KHz	63	0.007	9000	7000	1R4
PNS80402R0YZF	2.0	1V/100KHz	50	0.009	7400	6300	2R0
PNS80403R6YZF	3.6	1V/100KHz	34	0.015	5300	4900	3R6
PNS80404R7YZF	4.7	1V/100KHz	30	0.018	4700	4100	4R7
PNS80406R8MZF	6.8	1V/100KHz	24	0.025	4000	3700	6R8
PNS8040100MZF	10	1V/100KHz	22	0.034	3400	3100	100
PNS8040150MZF	15	1V/100KHz	16	0.050	2700	2400	150
PNS8040220MZF	22	1V/100KHz	13	0.066	2200	2200	220
PNS8040330MZF	33	1V/100KHz	12	0.100	1900	1700	330
PNS8040470MZF	47	1V/100KHz	8	0.150	1500	1400	470
PNS8040680MZF	68	1V/100KHz	7	0.230	1200	1100	680
PNS8040101MZF	100	1V/100KHz	6	0.290	1000	1000	101

Tolerance Code: M= $\pm 20\%$, Y= $\pm 30\%$

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7. Characteristic Curves



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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

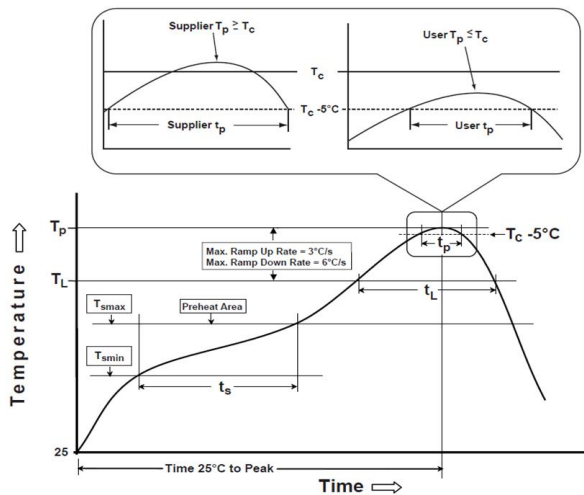
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020F).

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).

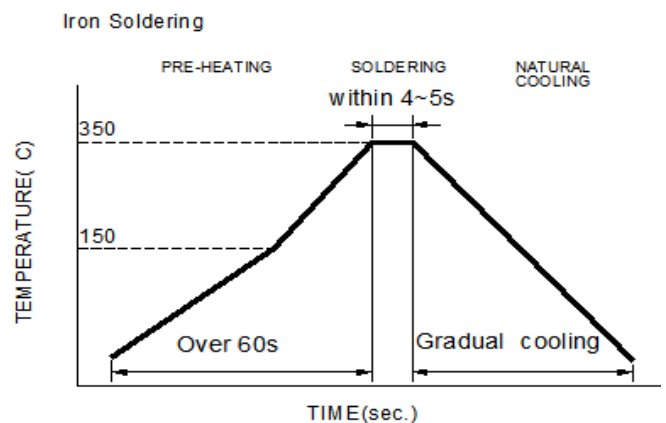
Note:

- (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

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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_p: maximum peak package body temperature, **T_c**: the classification temperature.

For user (customer) **T_p** should be equal to or less than **T_c**.

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

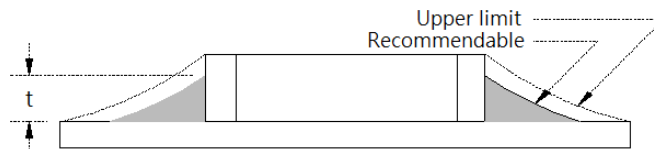
	Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

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.

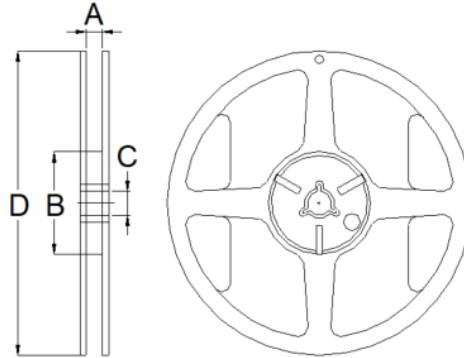
Minimum fillet height = soldering thickness + 25% product height.



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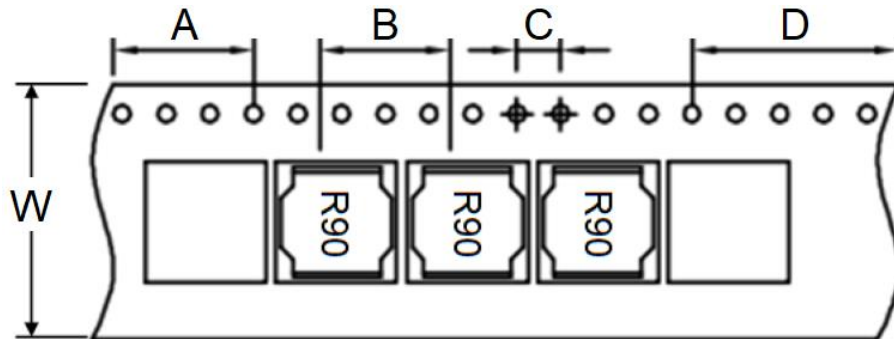
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D
13"x16mm	18.0 Ref	100.0 Ref	13.0 Ref	330.0 Ref

9-2. Tape Dimension (Unit: mm)



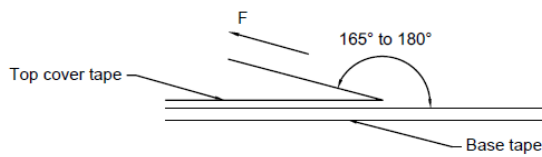
A	B	C	D	W
200	12	4	400	16

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9-3. Packaging Quantity (Unit: Pcs)

Chip/ Reel	1,200
Carton	7,200

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.

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