Transponder Coil – *WQ8027 Series*

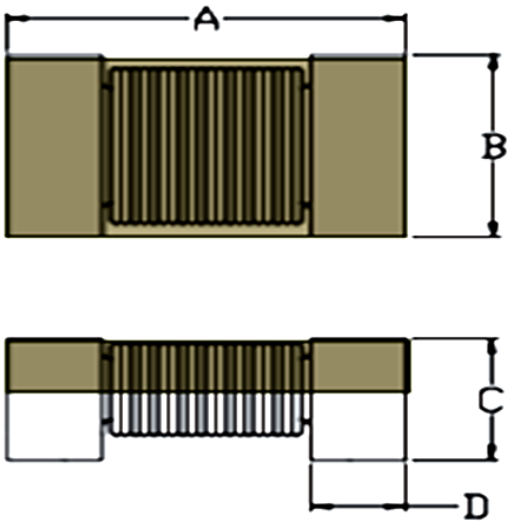
1. Part No. Expression

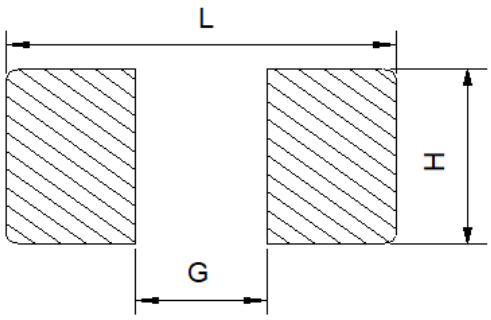
W Q 8 0 2 7 4 5 2 J

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

(a) Series Code
(b) Dimension Code
(c) Inductance Code
(d) Tolerance Code

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

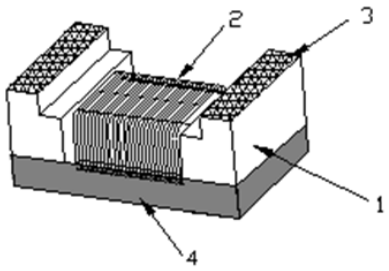




Recommended PCB Layout

A	B	C	D	L	G	H
7.85 Max	2.70 Max	2.70 Max	1.15 Ref	9.50 Ref	5.20 Ref	2.90 Ref

3. Material List



(1) Core
(2) Wire
(3) Terminal
(4) Adhesive

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

4. General Specifications

(a) Reliability test for this part meets AEC-Q200 standard.

(b) Storage Temp.：-55℃ to +125℃ (on board).

(c) Operating Temp.：-55℃ to +125℃ (including self-temp rise)

(d) Rated current：Based on inductance change (ΔL/L0：20% approx.)

(e) Storage condition (component in its packaging)

i) Temperature: Less than 40°C

ii) Humidity: 60% RH

5. Electrical Characteristics

Part Number	Inductance (mH) ±5%	Test Frequency (Hz)	Q Typ	DCR (Ω) Max	Rated Current (mA) Max
WQ8027452J	4.5	125K	30	80	20
WQ8027492J	4.9	125K	30	85	20
WQ8027722J	7.2	125K	35	105	20
WQ8027193J	18.52	125K	35	240	20

6. Soldering and Mounting

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.

6-1 Soldering Reflow

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

6-2 Soldering Iron (Figure 2)

Products attachment with 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.

Note:

a) Preheat circuit and products to 150°C.

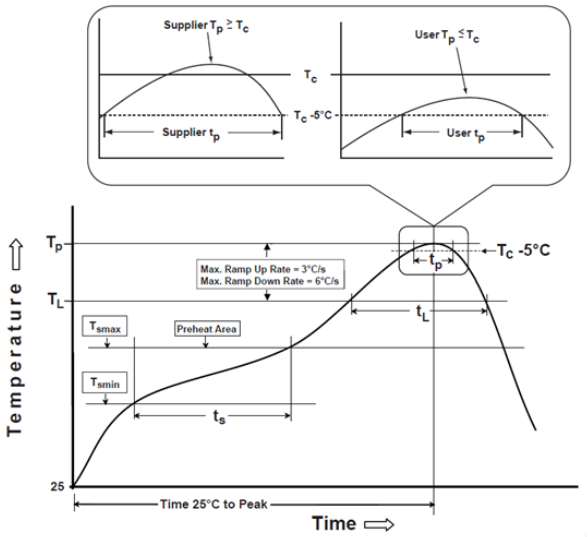
b) 350°C tip temperature (Max.)

c) Never contact the ceramic with the iron tip.

d) 1.0mm tip diameter (Max.)

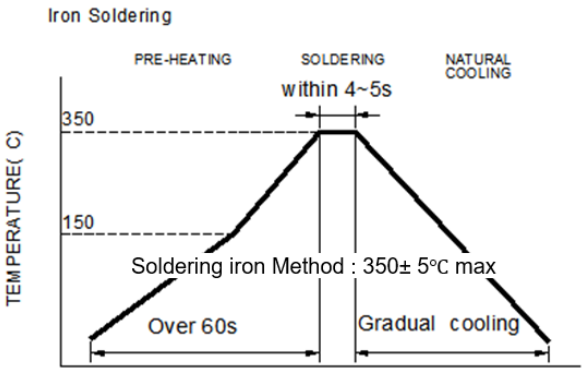
e) Use a 20 watt soldering iron with tip diameter of 1.0mm.

f) Limit soldering time to 4~5 secs.



Reflow times: 3 times max

Figure 1: IR Soldering Reflow



Iron Soldering times: 1 times max.

Figure 2: Iron soldering temperature profiles

Table1.1: 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℃ 200℃ 60-120seconds
Ramp-up rate ($T_L$to T_p)	3℃/second max.
Liquidus temperature (T_L) Time(t_L)maintained above T_L	217℃ 60-150 seconds
Classification temperature (T_c)	See Table (1.2)
Time(t_p) at Tc- 5℃ (Tp should be equal to or less than Tc.)	< 30 seconds
Ramp-down rate (T_p to T_L)	6℃ /second max.
Time 25℃ 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.**

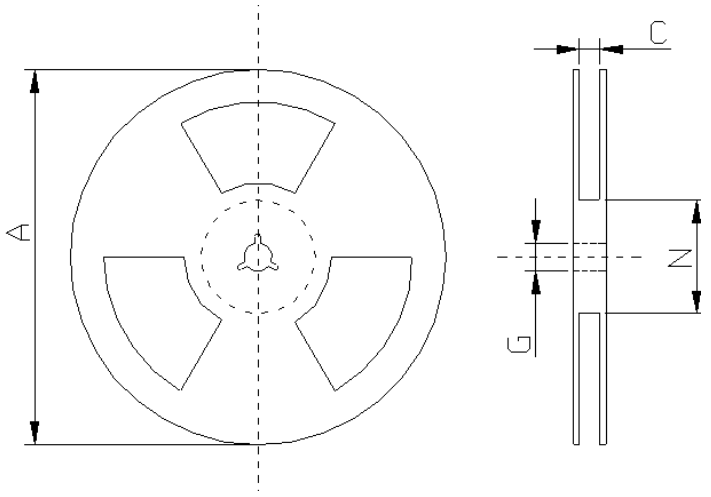
Table 1.2: Package Thickness/Volume and Classification Temperature (Tc)

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

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

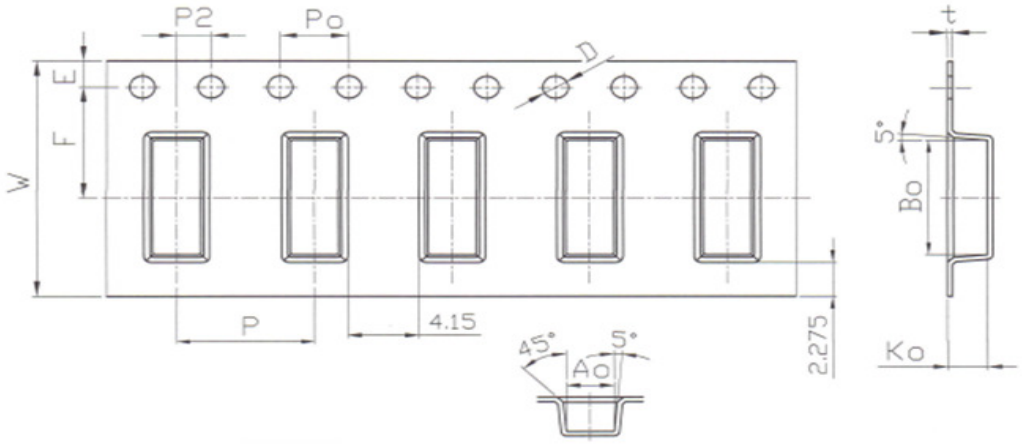
7. Packaging Information

7-1 Reel Dimension



Type	A(mm)	C(mm)	G(mm)	N(mm)
7"x16mm	180±2	16.5±1	13.5±0.5	100±2

7-2 Tape Dimension / 16mm



Series	Size	P(mm)	Po(mm)	P2(mm)	Bo(mm)	Ao(mm)	Ko(mm)
		8.0±0.1	4.0±0.1	2.0±0.1	7.9±0.1	2.8±0.1	2.35±0.10
WQ	**8027**	t(mm)	D(mm)	E(mm)	F(mm)	W(mm)	
		0.3±0.05	1.5+0.1/-0	1.75±0.1	7.5±0.1	16.0±0.3	

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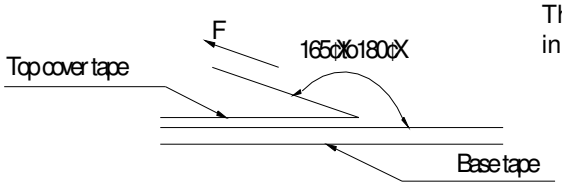
7-3 Packaging Quantity

Chip Size	WQ8027
Chip/Reel	1000

7-4 Tearing Off Force



The force for tearing off cover tape is 10 to 80 grams in the arrow direction under the following conditions

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

Application Notice:

1. Storage Conditions:

To maintain the solderability of terminal electrodes:

a) Recommended products should be used within 12 months from the time of delivery.

b) 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.