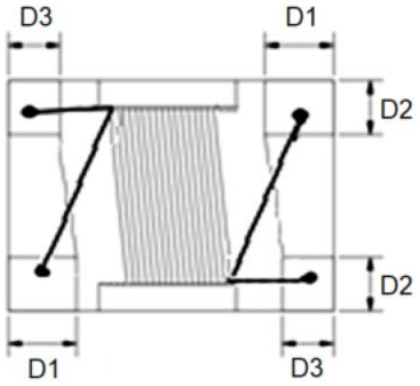
1. Part No. Expression

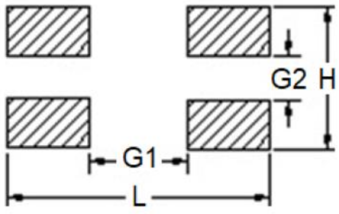
WAQ D F NT101 - R D - 10

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

(a) Series Code
(b) Dimension Code
(c) Material Code
(d) Type Code
(e) Inductance Code
(f) Packaging Code
(g) Current Code
(h) Internal Code

2. Configuration & Dimensions (Unit: mm)



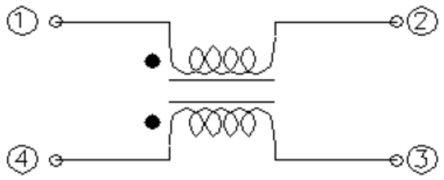


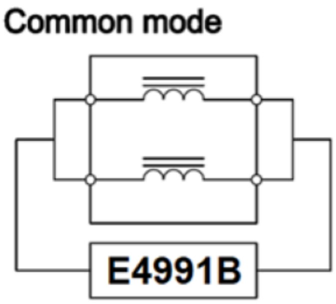
Recommended PCB Layout

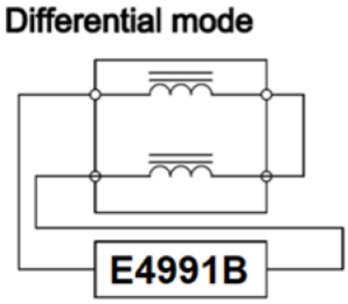
Note: The above PCB layout reference only.

A	B	C	D1	D2
6.50±0.30	4.50±0.20	2.70±0.20	0.88±0.20	1.30±0.20
D3	L	H	G1	G2
0.76±0.15	7.20 Ref	4.60 Ref	5.08 Ref	2.60 Ref

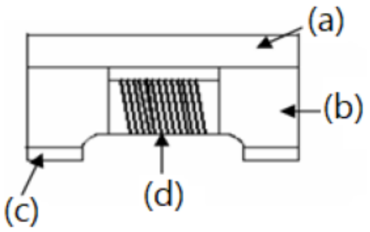
3. Schematic







4. Material List



(a)	Upper Plate
(b)	Core
(c)	Terminal
(d)	Wire

5. General Specifications

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

(b) Operating Temp.: - 40°C to + 125°C (including self-temperature rise)

(c) Storage Temp.: - 40°C to +125°C (on board)

(d) All test data referenced to 25°C ambient.

(e) Rated Current will cause the coil temperature rise approximately ΔT of 40°C Max

(f) Storage Condition (Component in its packaging)
  i) Temperature: Less than 40°C
  ii) Humidity: Less than 60% RH

6. Electrical Characteristics

Inductance (µH) Typ @0.1V/100kHz	DCR (Ω) Max	Current Rating (mA) Max	Insertion loss (dB) Max		Return Loss (dB) Min		
			100 MHz	1-60 MHz	1-10MHz	30MHz	60MHz
100	2.0	350	-3.0	-1.0	-28.0	-23.0	-18.0

Common Mode Rejection (dB) Min				Differential to Common Mode Rejection (dB) Min		
1MHz	10MHz	60-100MHz	200-1000MHz	1-10MHz	100MHz	1000MHz
-18.0	-35.0	-43.0	-30.0	-70.0	-50.0	-25.0

7. Soldering Secification

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.

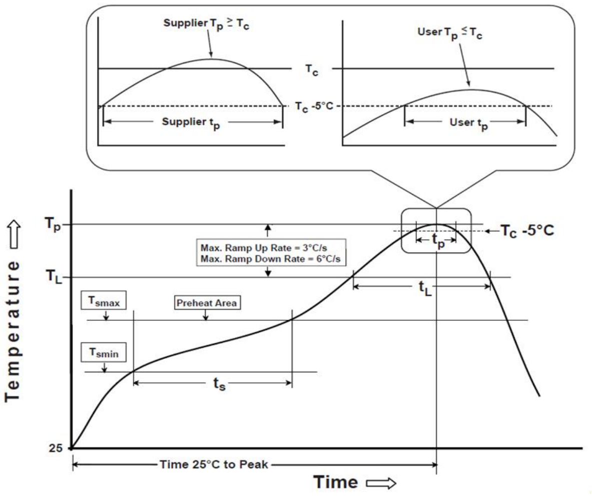
(b) 350°C tip temperature (Max.)

(c) Never contact the ceramic with the iron tip

(d) 1.0mm tip diameter (Max.)

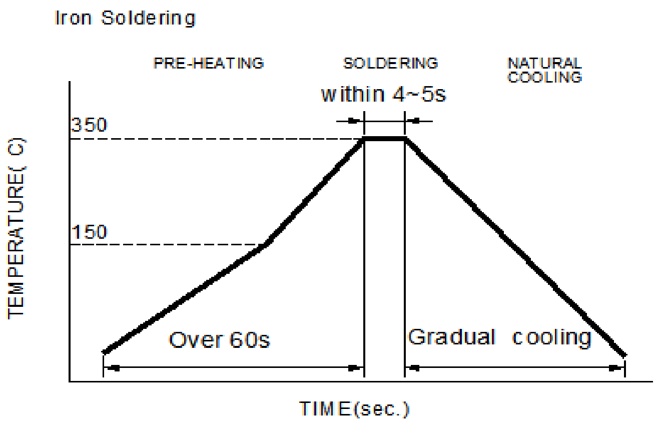
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm

(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

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.**

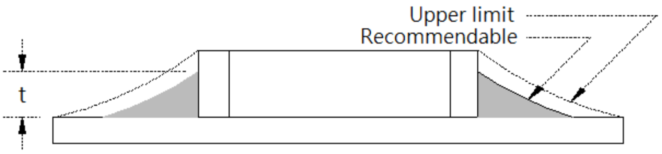
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	Package Thickness	Volume mm³ <350	Volume mm³ 350-2000	Volume mm³ >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.

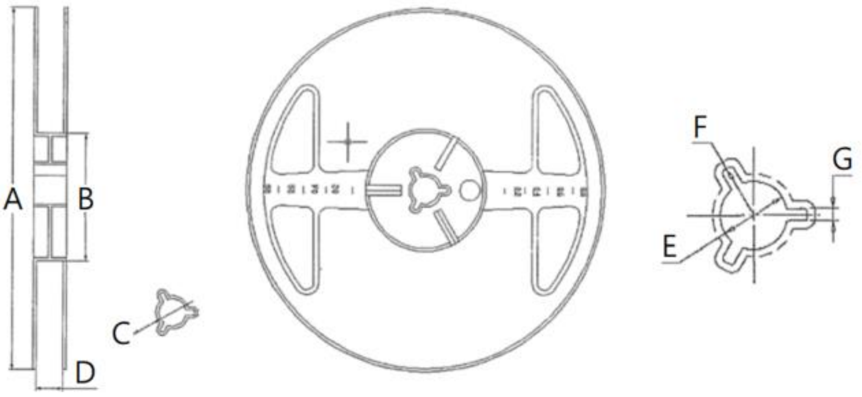
7-3. Soldering Volume

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.



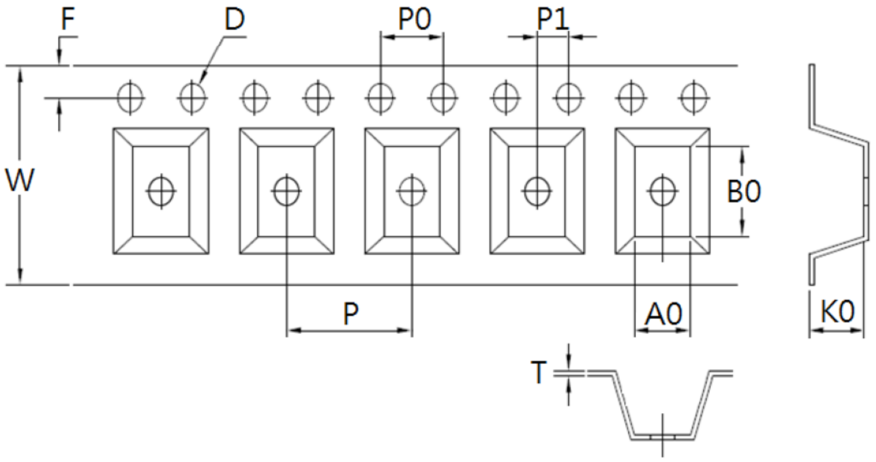
8. Packaging Information

8-1. Reel Dimension (Unit: mm)



Type	A	B	C	D	E	F	G
7”x16mm	178.0 Ref	60.0 Ref	13.5 Ref	16.7 Ref	13.5 Ref	R10.8	2.3 Ref

8-2. Tape Dimension (Unit: mm)

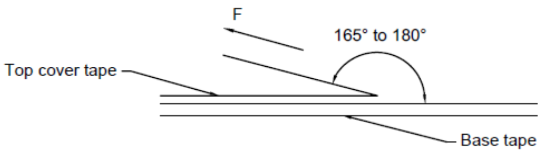


W	F	D	P0	P1
16.00±0.30	1.75±0.10	1.50±0.10	4.00±0.10	2.00±0.10
P	T	B0	A0	K0
8.00±0.10	0.30±0.05	6.90±0.10	4.90±0.10	2.90±0.10

8-3. Packaging Quantity (Unit: Pcs)

Chip/ Reel	500
Inner Box	2,000
Middle Box	10,000
Carton	20,000

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.