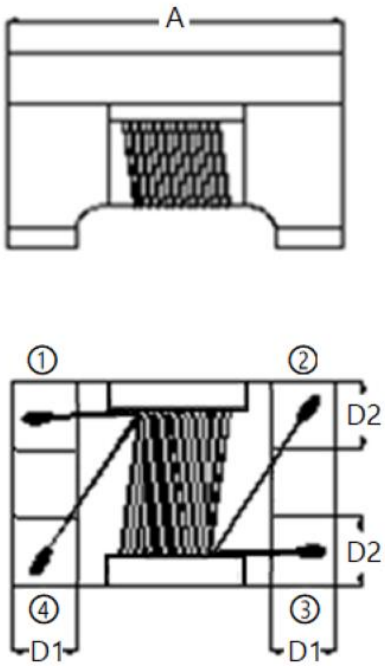
1. Part No. Expression

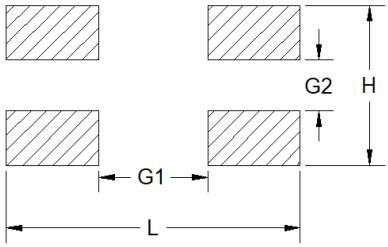
W A Q 5 F D 1 1 0 - R C - 1 0

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

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

2. Configuration & Dimensions (Unit: mm)





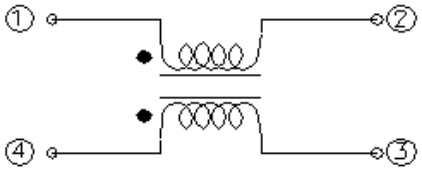
Recommended PCB Layout

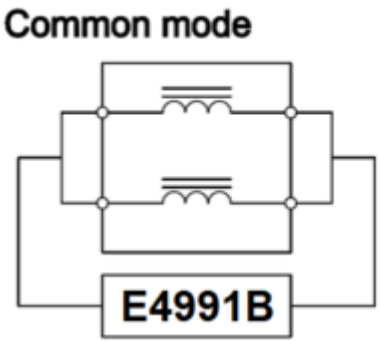
Note: 1. The above PCB layout reference only.

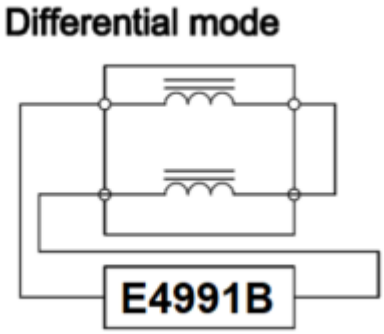
A	B	C	D1	D2
3.30±0.20	2.50±0.20	2.50 Max	0.55±0.15	0.75±0.20
L	H	G1	G2	-
3.70 Ref	2.80 Ref	2.40 Ref	0.60 Ref	-

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

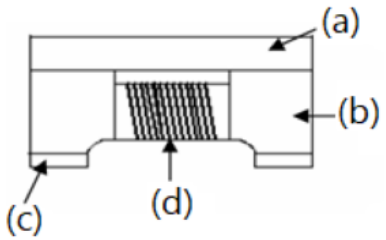
3. Schematic







4. Material List



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

5. General Specifications

(a) Reliability test for this part meets AEC-Q200 standard.
(b) Operating Temp.: -55°C to +150°C (including self-temperature rise)
(c) Storage Temp.: -55°C to +150°C (on board)
(d) All test data referenced to 25°C ambient.
(e) Heat Rated Current (Irms) will cause the coil temperature rise ΔT of 40°C Max.
(f) Storage Condition (Component in its packaging)
    i) Temperature: Less than 40°C
    ii) Humidity: Less than 60% RH

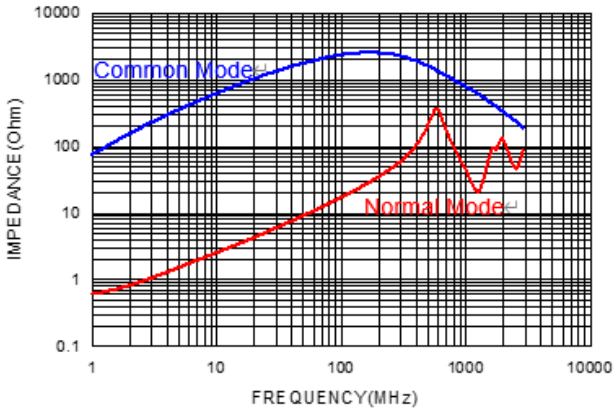
NOTE: Specifications subject to change without notice. Please check our website for latest information.

6. Electrical Characteristics

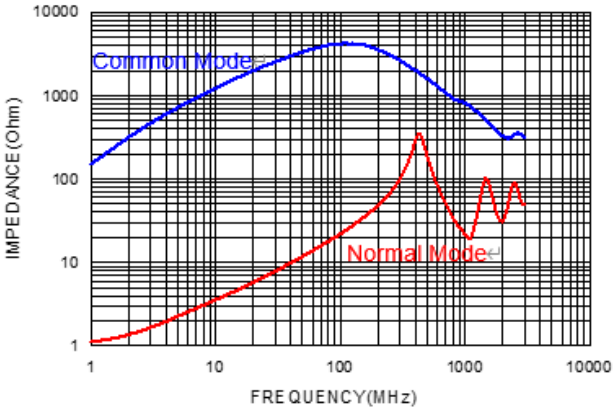
Part Number	Impedance(Ω) @10MHz		Inductance(μH) +50%/-30% @0.1V/100KHz	DCR (Ω) Max	Rated Current (mA) Max	Rated Voltage (V_{DC}) Max	IR (MΩ) Min
	Min	Typ					
WAQ5FD110-RC-10	300	550	11	0.4	300	80	10
WAQ5FD220-RC-10	500	1100	22	0.5	250	80	10
WAQ5FD510-RB-10	1000	2600	51	0.7	200	80	10
WAQ5FD101-RB-10	2200	5100	100	1.5	150	80	10

7. Characteristics Curve

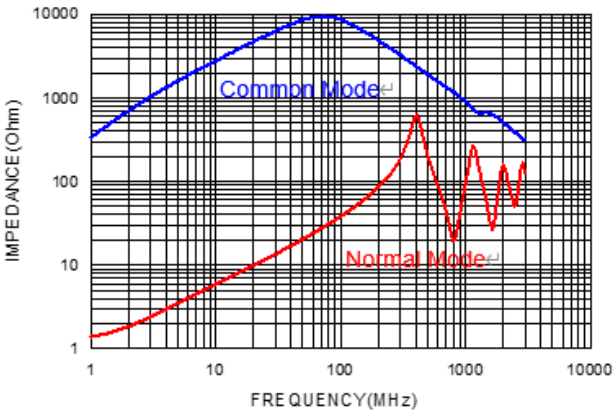
WAQ5FD110-RC-10



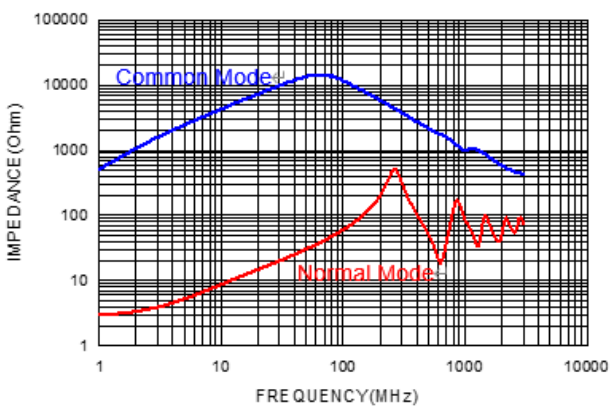
WAQ5FD220-RC-10



WAQ5FD510-RB-10



WAQ5FD101-RB-10



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

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-020E).

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.

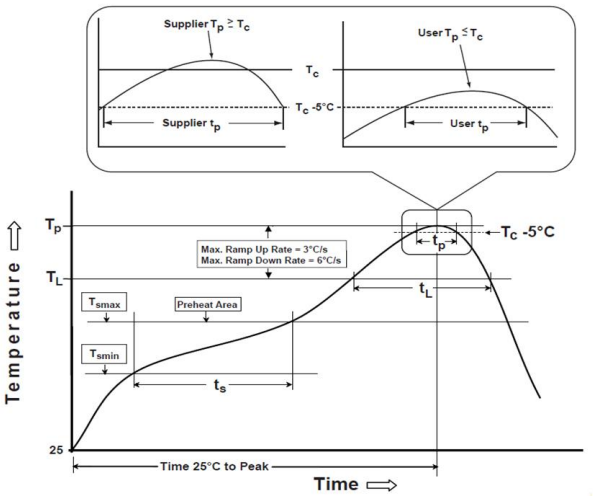
(b) 355°C tip temperature (Max.)

(c) Never contact the ceramic with the iron tip

(d) 1.0mm tip diameter (Max.)

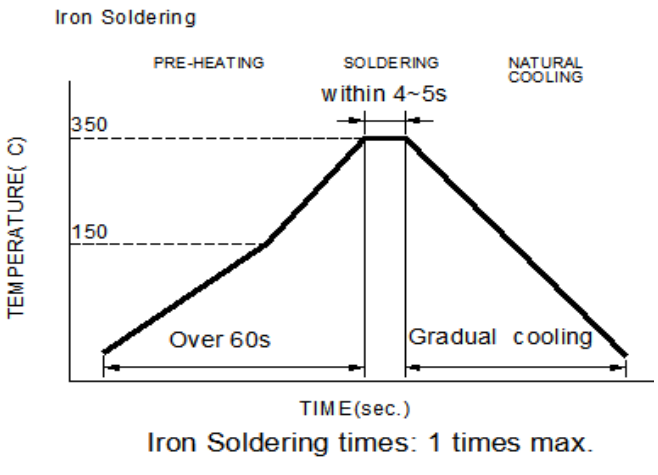
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm

(f) Limit soldering time to 4~5 sec.



Reflow times: 3 times Max

Figure 1: IR Soldering Reflow



Soldering iron method: 350±5°C Max

Figure 2: Iron soldering temperature profiles

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

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.**

*Tolerance for peak profile temperature (Tp) is defined as a supplier minimum and a user maximum.

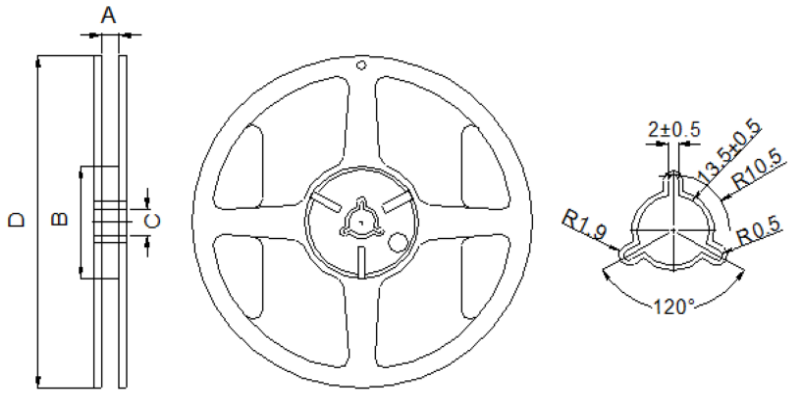
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	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-020E.

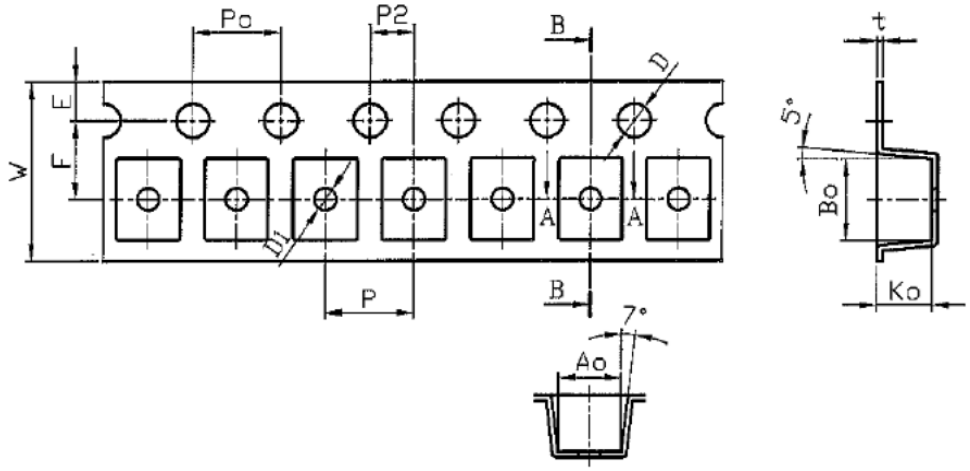
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D
7”x8mm	9.0±0.5	60.0±2.0	13.5±0.5	178.0±2.0

9-2. Tape Dimension (Unit: mm)



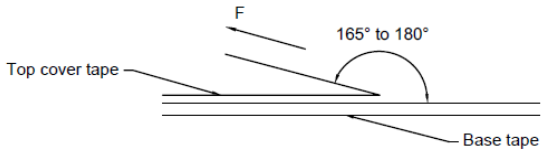
W	P	E	F	P2	D
8.00±0.10	4.00±0.10	1.75±0.10	3.50±0.05	2.00±0.05	1.50+0.10/-0.00
D1	Po	Ao	Bo	Ko	t
1.00±0.10	4.00±0.10	2.88±0.10	3.65±0.10	2.50±0.10	0.26±0.05

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

9-3. Packaging Quantity (Unit: Pcs)

Chip/ Reel	2,000
Inner Box	10,000
Middle Box	50,000
Carton	100,000

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) 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.