Wire Wound Power Common Mode Filter – *WQHFAS Series*

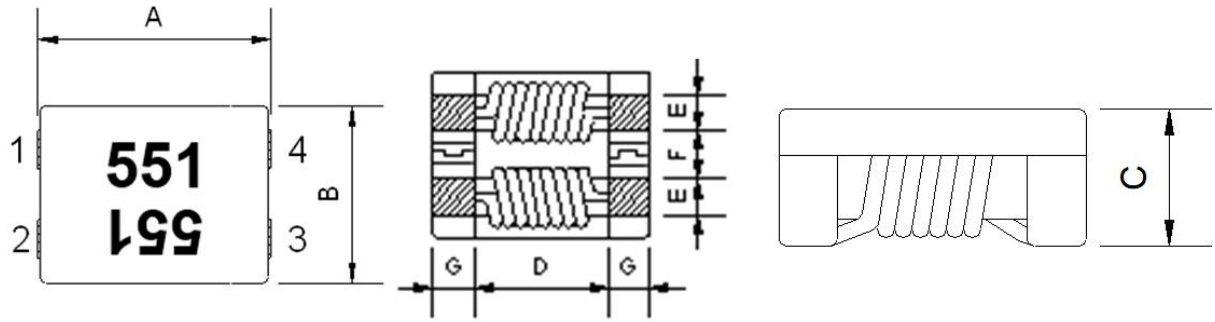
1. Part No. Expression

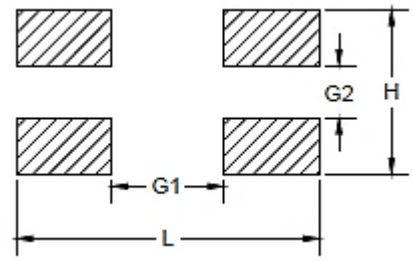
W Q H F A S 3 0 1 - R A B - 1 0

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

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

2. Configuration & Dimensions (Unit: mm)





Recommended PCB Pattern

A	B	C	D	E	F	G	L	H	G1	G2
15.0±0.5	13.0±0.4	6.0 Max	9.3 Typ	2.7±0.5	3.6±0.5	2.8±0.5	17.0 Ref	9.2 Ref	10.4 Ref	3.8 Ref

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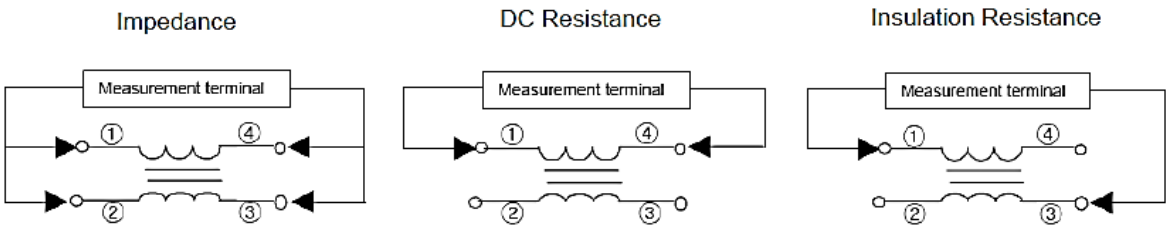
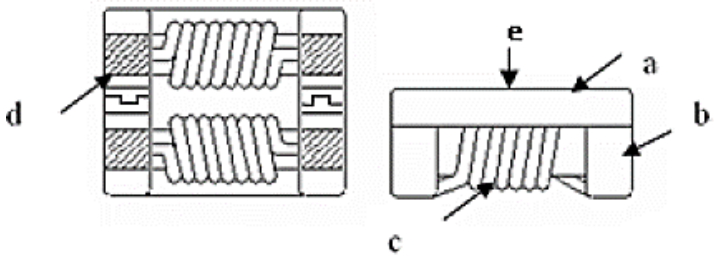
3. Schematic



4. Material List



No.	Description
a	Upper Plate
b	Core
c	Wire
d	Termination
e	Mark

5. General Specifications

(a) High reliability -Reliability tests comply with AEC-Q200

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

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

(d) Heat Rated Current (Irms): Based on temperature rise ΔT of 40°C Max at rated current ≧ 1A

(e) Storage condition (component in its packaging)

i) Temperature: Less than 40°C

ii) Humidity: 60% RH

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6. Electrical Characteristics

Part Number	Impedance (Ω) Min	Impedance (Ω) Typ	Test Frequency (MHz)	DCR (mΩ) Max (1 Line)	Rated Current (A) Max	Rated Voltage (Vdc) Max	Insulation Resistance (MΩ) Min
WQHFAS301-RAB-10	200	300	100	3.5	14	125	10
WQHFAS551-RX-10	450	550	100	4	10	125	10
WQHFAS701-RX-10	500	700	100	5	10	125	10

Note:

Measurement Board Data

Material: FR4

Board dimensions: 100 x 50 x 1.6t mm

Pattern dimensions: 45 x 30 mm (Double side board)

Pattern thickness: 50 μm

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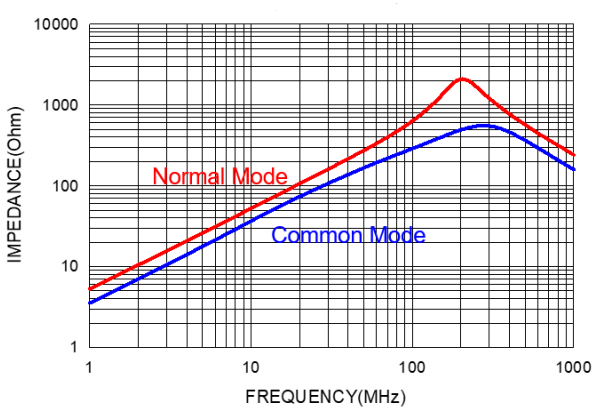
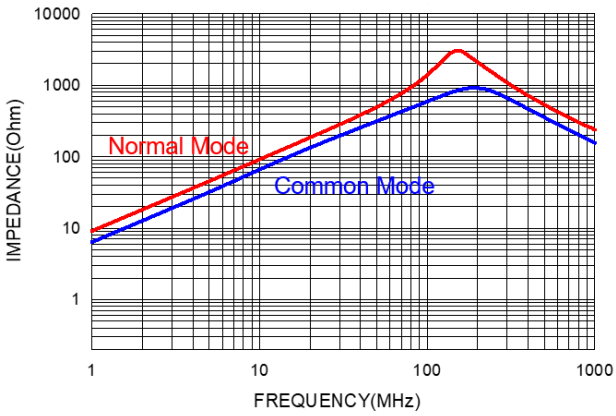
7. Characteristic Curves

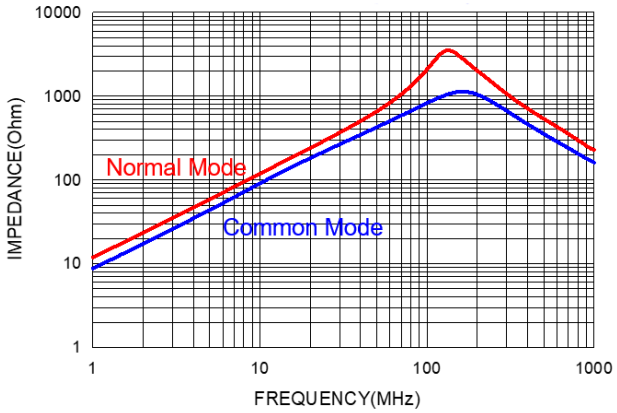
WQHFAS301-RAB-10



WQHFAS551-RX-10



WQHFAS701-RX-10



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

8. 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.

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.

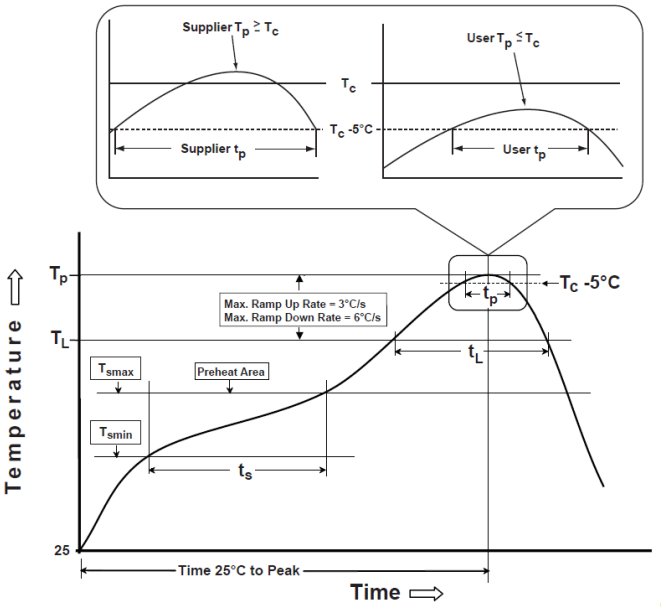
b) 350°C tip temperature (Max.)

c) Never contact the ceramic with the iron tip.

d) 1.0mm tip diameter (Max.)

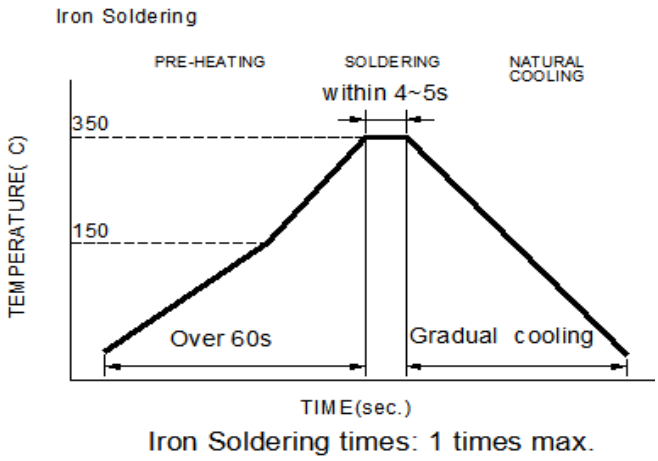
e) Use a 20 watt soldering iron with tip diameter of 1.0mm.

f) Limit soldering time to 4~5 sec.



Reflow times: 3 times Max

Figure 1: IR Soldering Reflow



Iron Soldering times: 1 times max.

Soldering iron method: 350± 5℃ 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℃ 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 (T_c)

	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.

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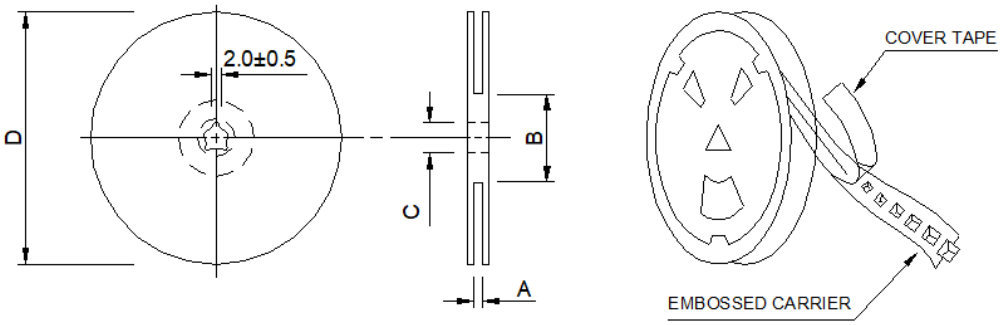
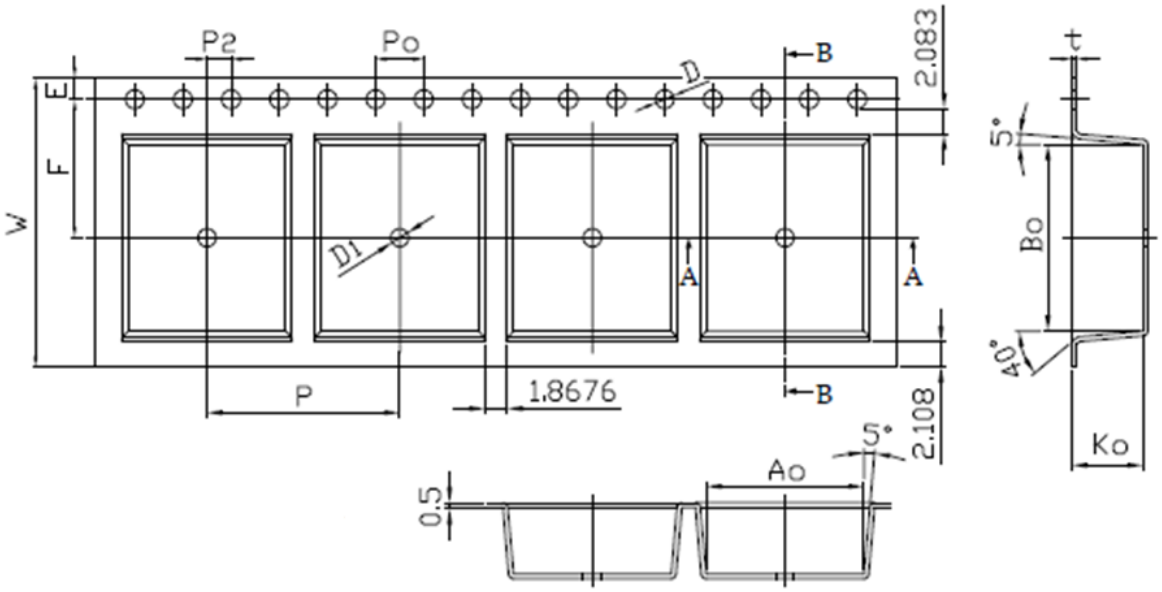
9. Packaging Information

9-1 Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
13”x24mm	24.0±0.5	100.0±2.0	13.5±0.5	330

9-2 Tape Dimension



W(mm)	P(mm)	E(mm)	F(mm)	P0(mm)	P2(mm)
24.00±0.30	16.00±0.10	1.75±0.10	11.50±0.10	4.00±0.10	2.00±0.10
Bo(mm)	Ao(mm)	Ko(mm)	D(mm)	D1(mm)	t(mm)
15.50±0.10	13.10±0.10	5.90±0.10	1.50+0.10-0.00	1.50±0.10	0.40±0.05

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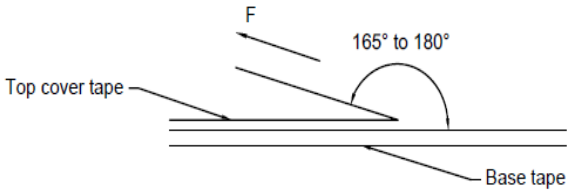
9-3 Packaging Quantity

Chip / Reel	500
Inner Box	1,000
Carton	4,000

9-4 Tearing Off Force



The force for tearing off cover tape is 15 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.