

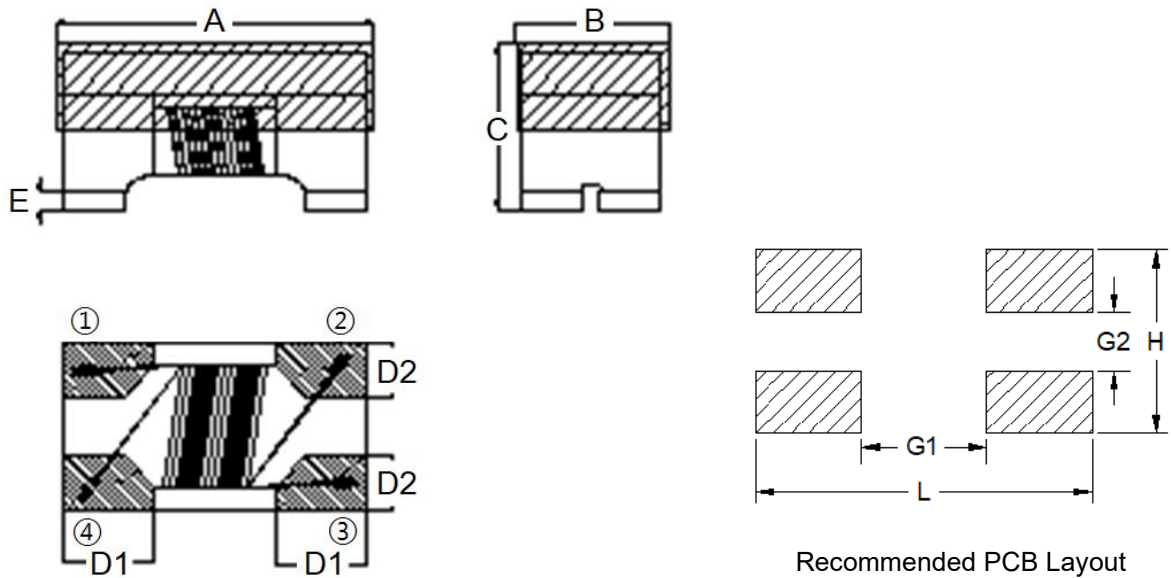
## 1. Part No. Expression

**W 2 F 220 - R E - 10**

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

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

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

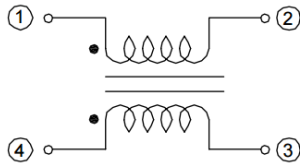


Note: The above PCB layout reference only.

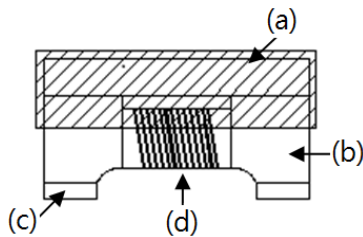
A	B	C	D1	D2
1.60±0.15	0.85±0.15	1.10±0.15	0.30 Typ	0.30 Typ
E	L	G1	G2	H
0.03 Min	2.10 Ref	0.70 Ref	0.30 Ref	1.00 Ref

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

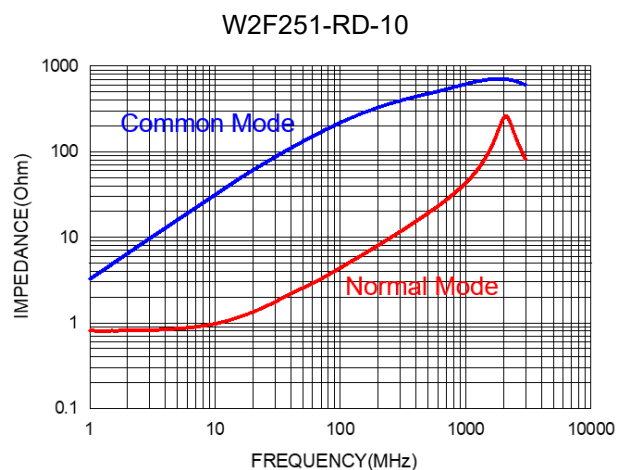
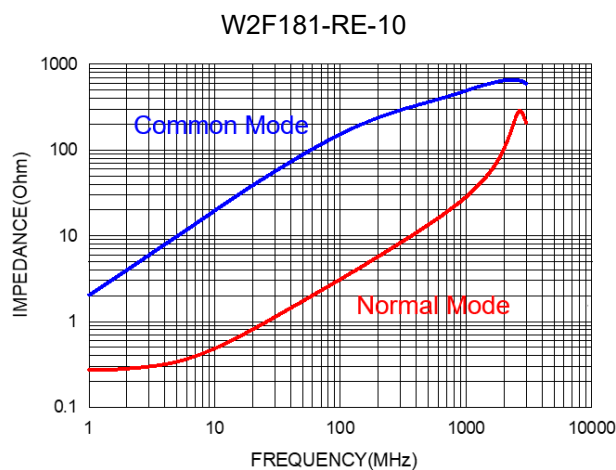
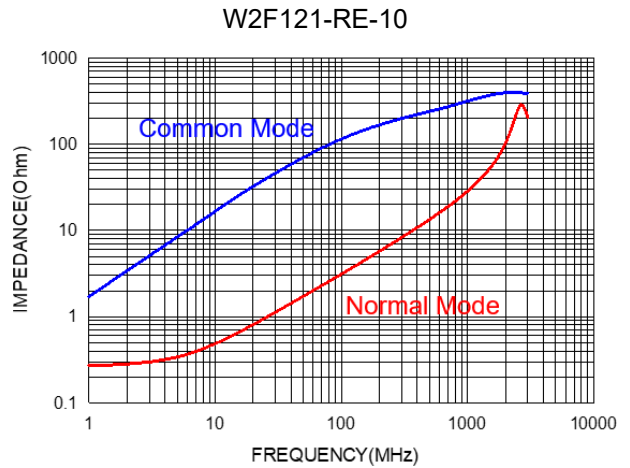
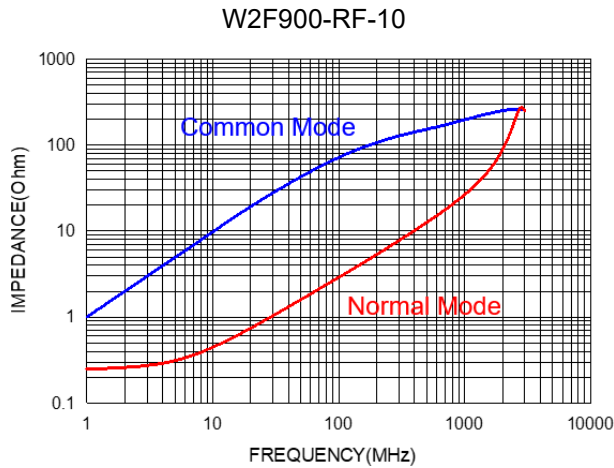
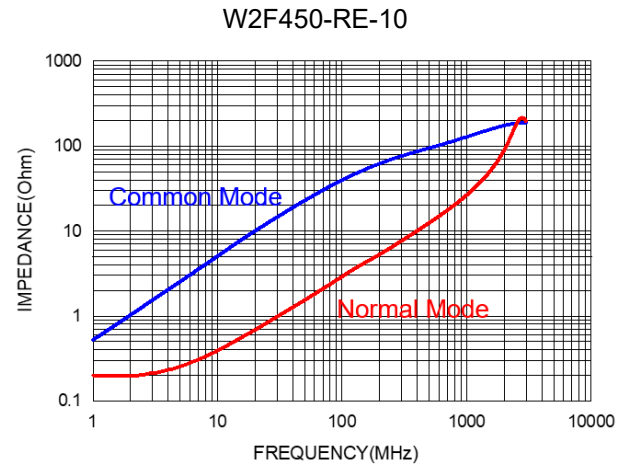
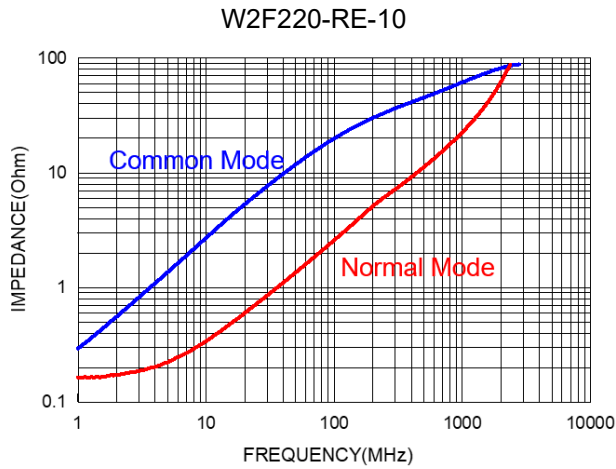
- (a) Operating Temp.: -40°C to +125°C (including self-temperature rise)
- (b) Storage Temp.: -40°C to +125°C (On board)
- (c) Heat Rated Current (Irms) will cause the coil temperature rise  $\Delta T$  of 40°C Max.
- (d) Storage Condition (Component in its packaging)
  - i) Temperature: Less than 40°C
  - ii) Humidity: Less than 60% RH

### 6. Electrical Characteristics

Part Number	Impedance ( $\Omega$ ) $\pm 25\%$	Test Frequency (MHz)	DCR ( $\Omega$ ) Max	Rated Current (mA) Max	Rated Voltage (Vdc) Max	Withstand Voltage (Vdc) Max	IR (M $\Omega$ ) Min
W2F220-RE-10	22	100	0.080	500	50	125	10
W2F450-RE-10	45	100	0.110	500	50	125	10
W2F900-RF-10	90	100	0.145	550	50	125	10
W2F121-RE-10	120	100	0.175	500	50	125	10
W2F181-RE-10	180	100	0.210	500	50	125	10
W2F251-RD-10	250	100	0.280	400	50	125	10

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## 7. Characteristics Curve



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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.

### 1-1. IR Soldering Reflow

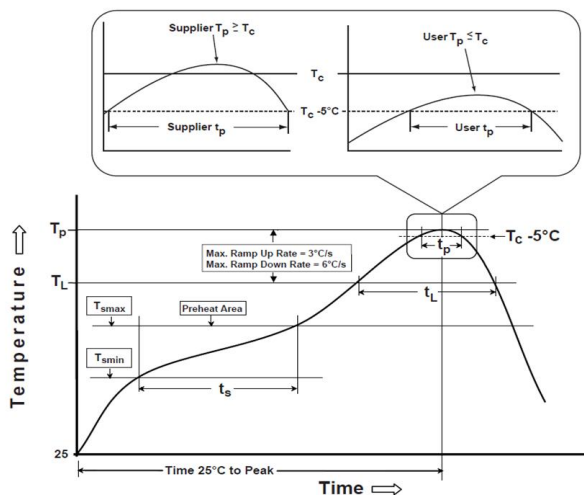
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020E).

### 1-2. 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).

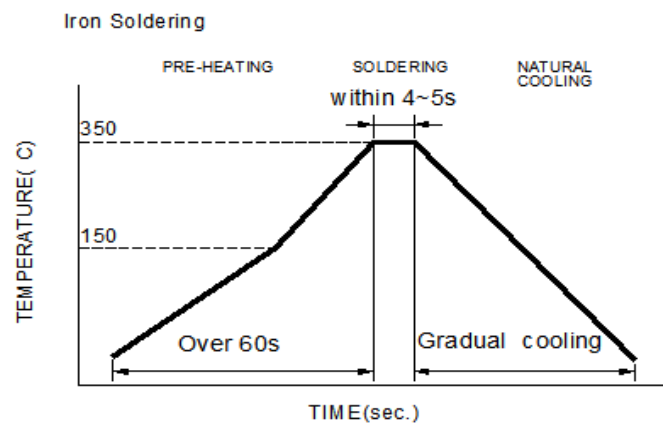
Note:

- Preheat circuit and products to 150°C.
- 355°C tip temperature (Max.)
- Never contact the ceramic with the iron tip
- 1.0mm tip diameter (Max.)
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- 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°C 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  **$T_c$** .

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

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

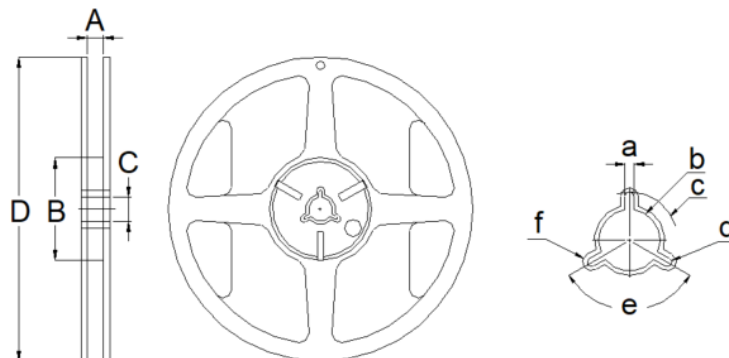
	Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350-2000	Volume mm <sup>3</sup> >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

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

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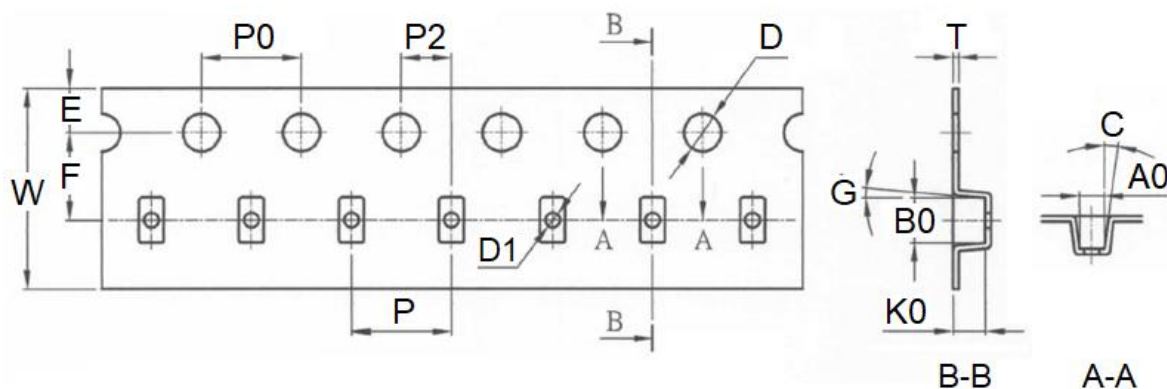
## 9. Packaging Information

## 9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D	a
	9.0±0.5	60.0±2.0	13.5 Ref	178.0±2.0	2.0 Ref
7"x8mm	b	c	d	e	f
	13.5 Ref	R10.5	R0.5	120°	R1.9

## 9-2. Tape Dimension (Unit: mm)

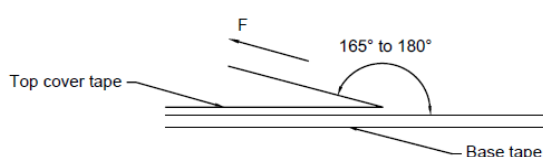


W	P	E	F	P2	D	D1
8.00±0.10	4.00±0.10	1.75±0.10	3.50±0.05	2.00±0.05	1.50+0.10/-0.00	0.60±0.05
P0	A0	B0	K0	T	C	G
4.00±0.10	1.00±0.10	1.80±0.10	1.30±0.10	0.22±0.05	7.5°	5°

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**9-3. Packaging Quantity (Unit: Pcs)**

Chip/ Reel	3,000
Inner Box	15,000
Middle Box	75,000
Carton	150,000

**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.

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