

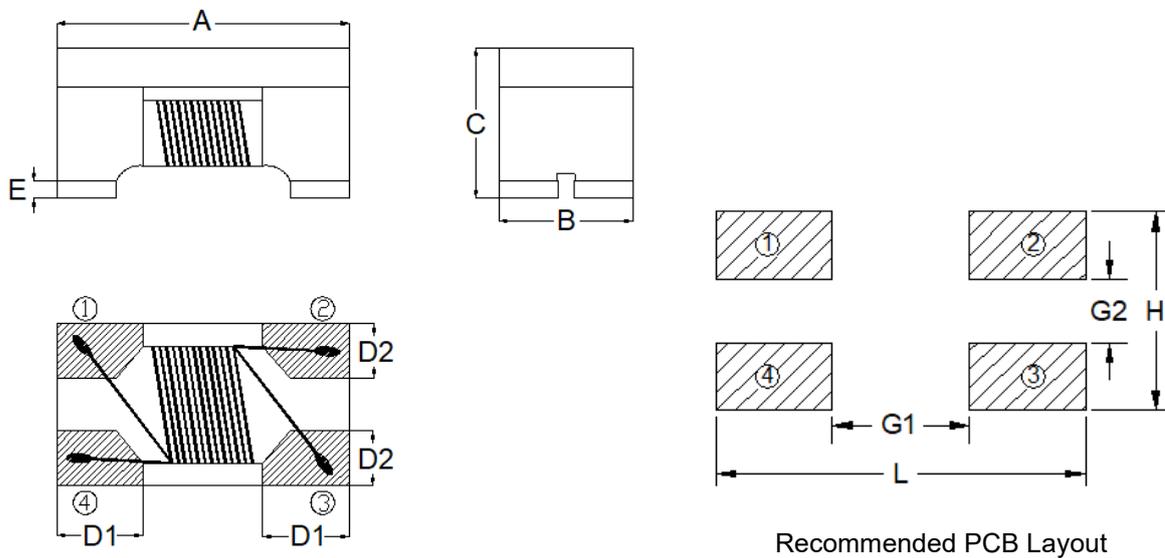
1. Part No. Expression

W 4 F 300 - R D - 10

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

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

2. Configuration & Dimensions (Unit: mm)

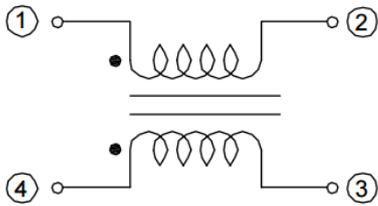


Note: The above PCB layout reference only.

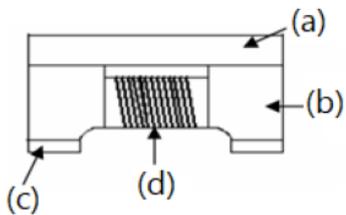
A	B	C	D1	D2
3.20±0.20	1.60±0.20	2.00±0.20	0.50±0.10	0.50±0.10
E	L	G1	G2	H
0.15±0.10	3.70 Ref	1.90 Ref	0.40 Ref	1.60 Ref

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) Operating Temp.: -40°C to +125°C (including self-temperature rise)
- (b) Storage Temp.: -40°C to +125°C (On board)
- (c) Irms: Based on temperature rise ΔT 20°C Max at rated current < 1A and ΔT 40°C Max at rated current $\geq 1A$
- (d) Storage Condition (Component in its packaging)
 - i) Temperature: Less than 40°C
 - ii) Humidity: Less than 60% RH

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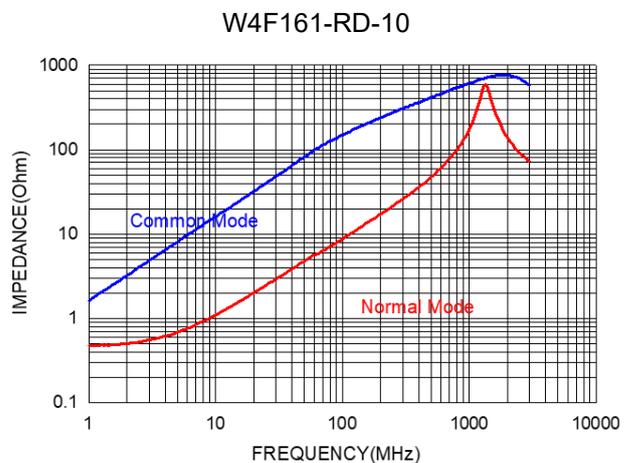
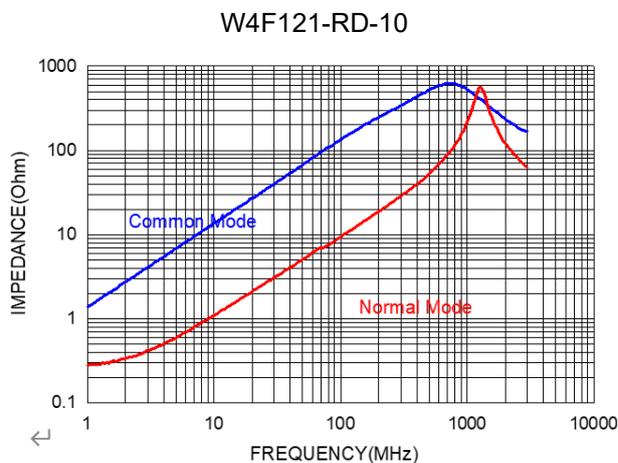
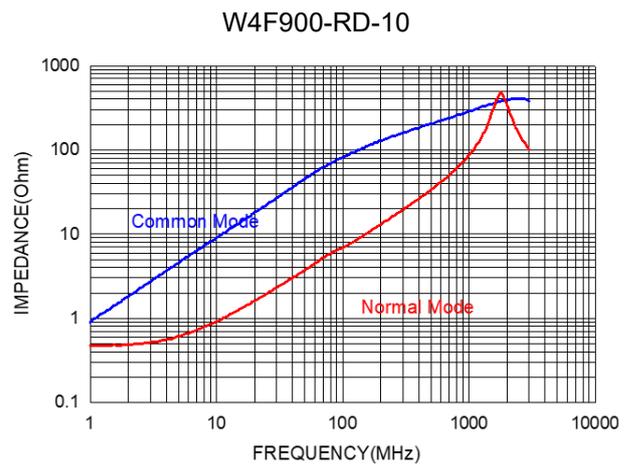
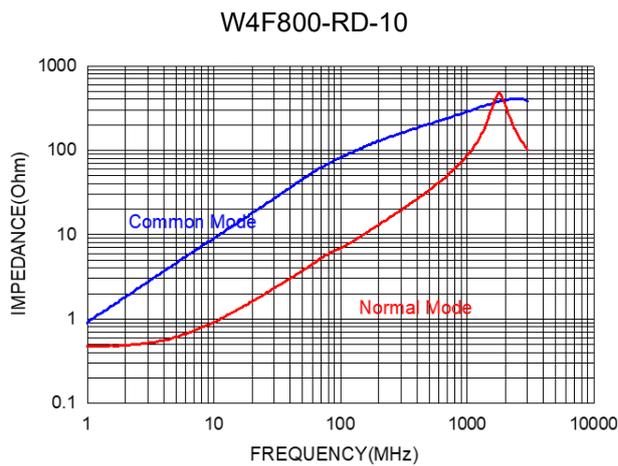
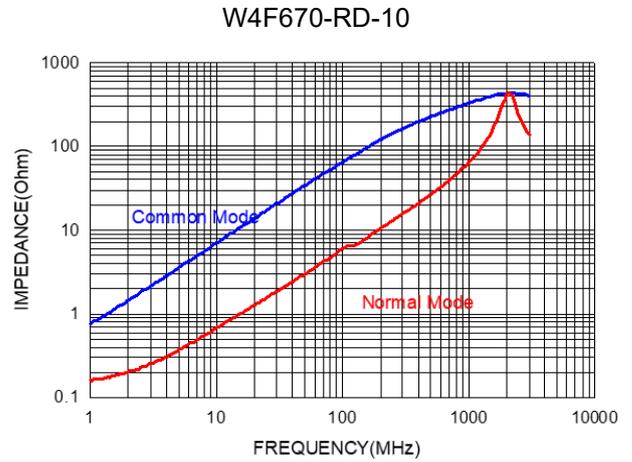
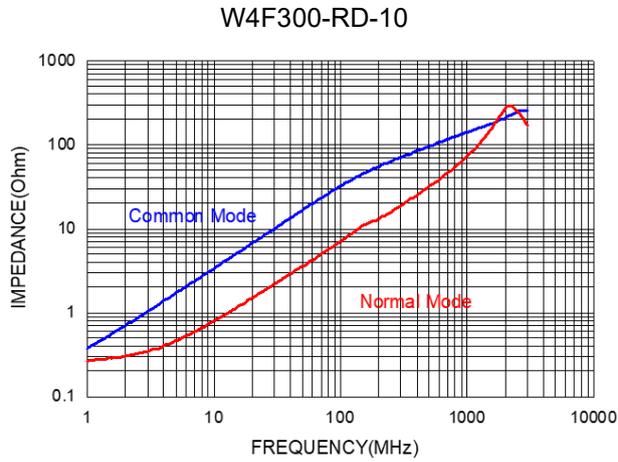
6. Electrical Characteristics

Part Number	Impedance (Ω) $\pm 25\%$	Test Frequency (MHz)	DCR (Ω) Max	Rated Current (mA) Max	Rated Voltage (Vdc) Max	Withstand Voltage (Vdc) Max	IR (M Ω) Min
W4F300-RD-10	30	100	0.20	400	50	125	10
W4F670-RD-10	67	100	0.30	400	50	125	10
W4F800-RD-10	80	100	0.30	400	50	125	10
W4F900-RD-10	90	100	0.30	400	50	125	10
W4F121-RD-10	120	100	0.30	350	50	125	10
W4F161-RD-10	160	100	0.40	350	50	125	10
W4F181-RD-10	180	100	0.40	340	50	125	10
W4F221-RC-10	220	100	0.45	300	50	125	10
W4F261-RC-10	260	100	0.50	300	50	125	10
W4F281-RC-10	280	100	0.50	300	50	125	10
W4F301-RC-10	300	100	0.60	300	50	125	10
W4F361-RC-10	360	100	0.60	300	50	125	10
W4F431-RC-10	430	100	0.80	300	50	125	10
W4F471-RC-10	470	100	0.80	300	50	125	10
W4F551-RC-10	550	100	0.80	300	50	125	10
W4F601-RC-10	600	100	0.80	300	50	125	10
W4F102-RB-10	1000	100	1.00	200	50	125	10
W4F222-RB-10	2200	100	1.20	200	50	125	10

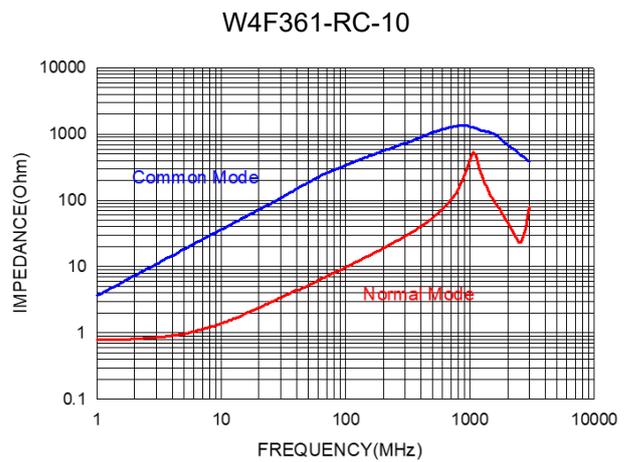
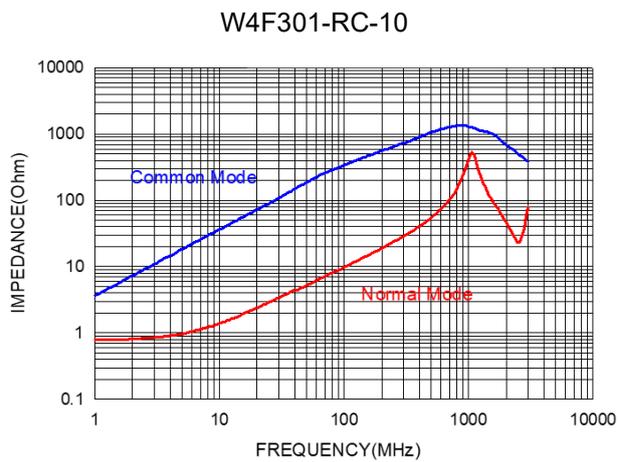
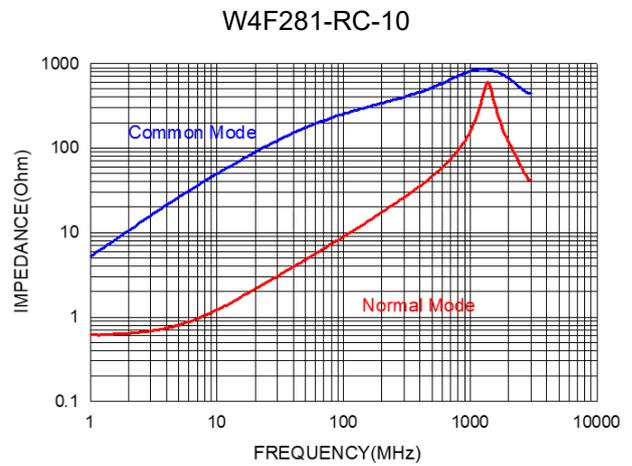
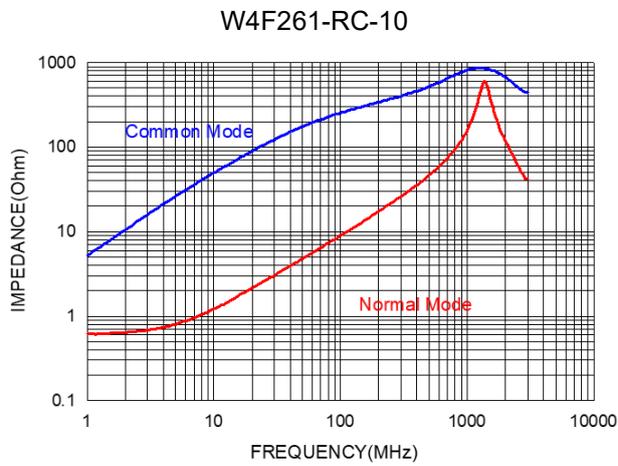
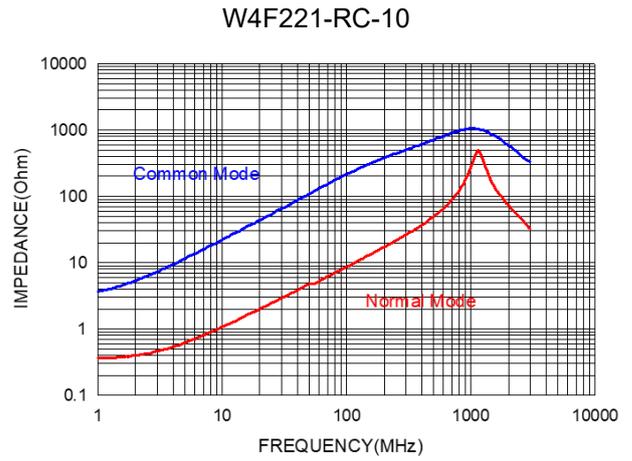
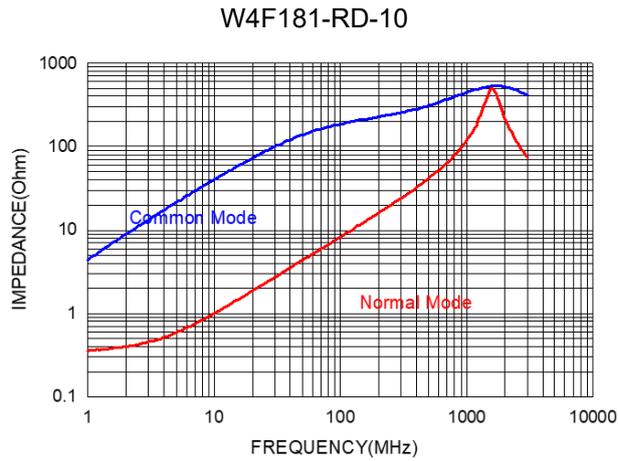
NOTE: Specifications subject to change without notice. Please check our website for latest information.

7. Characteristics Curve

7-1. Impedance versus Frequency

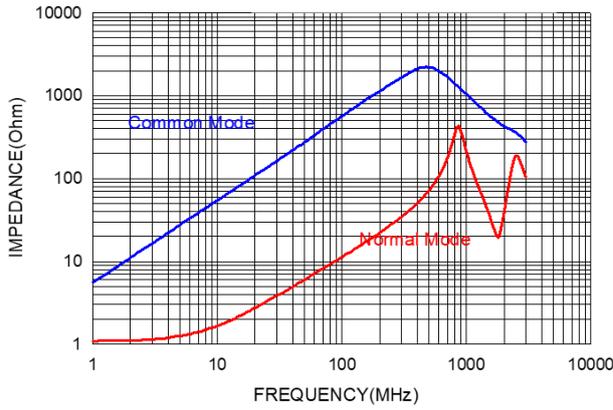


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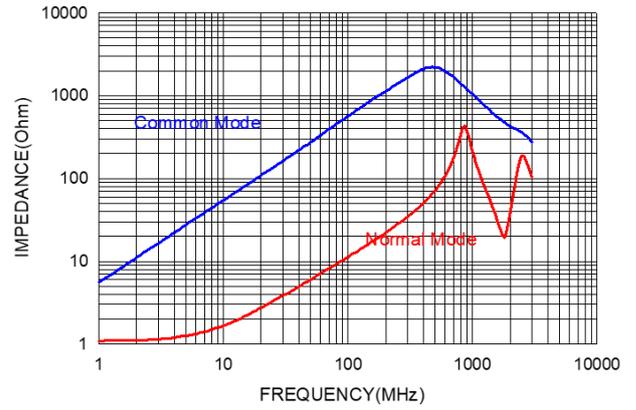


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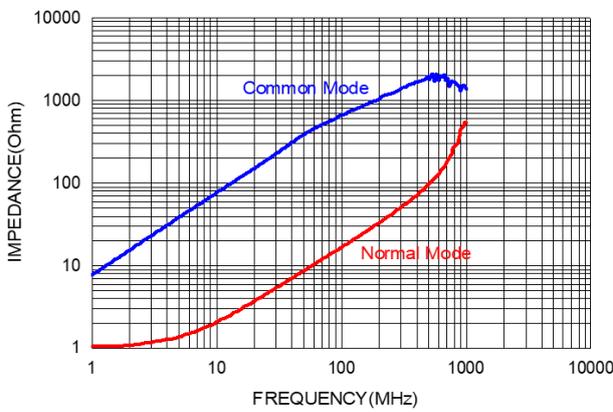
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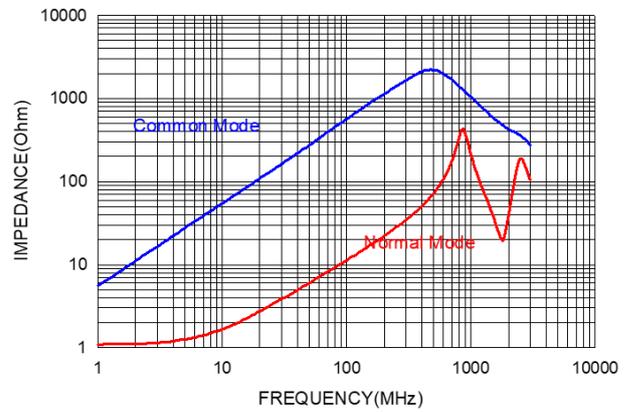
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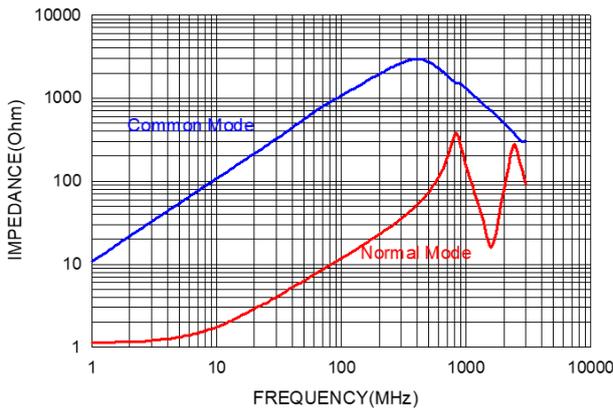
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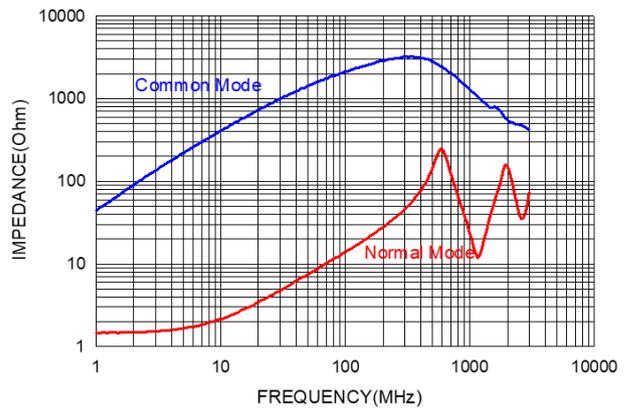
W4F601-RC-10



W4F102-RB-10

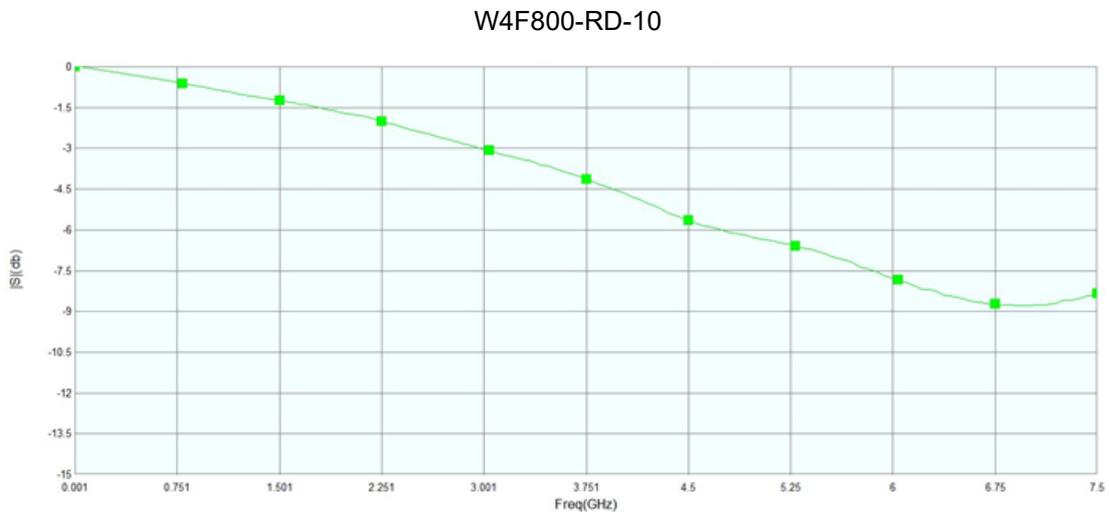
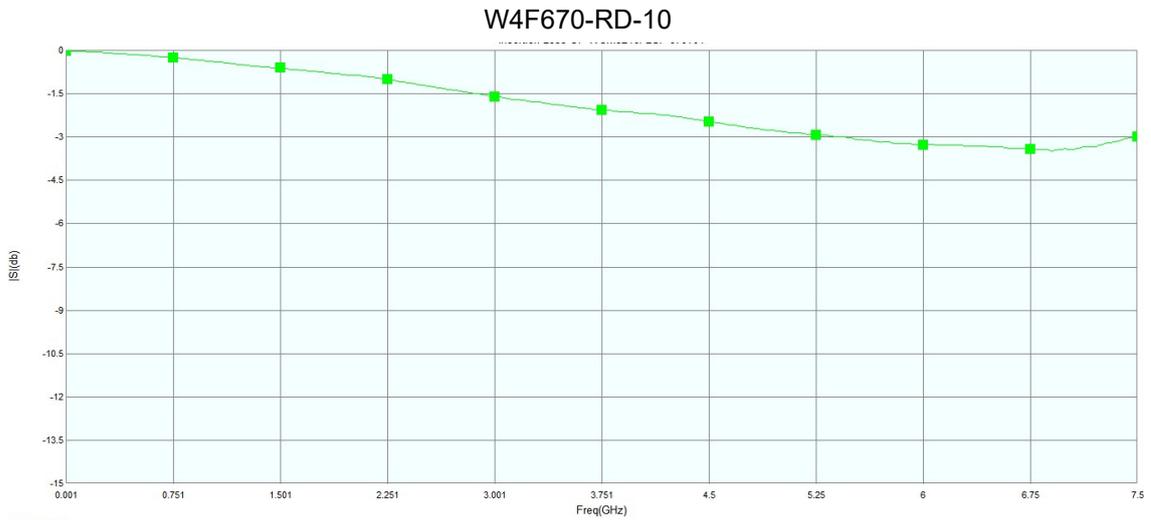
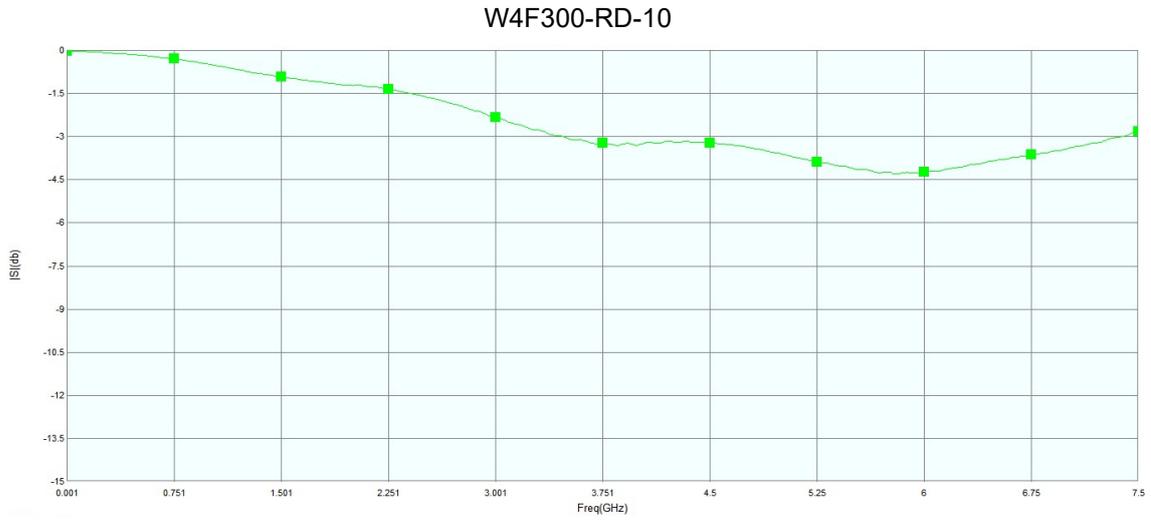


W4F222-RB-10

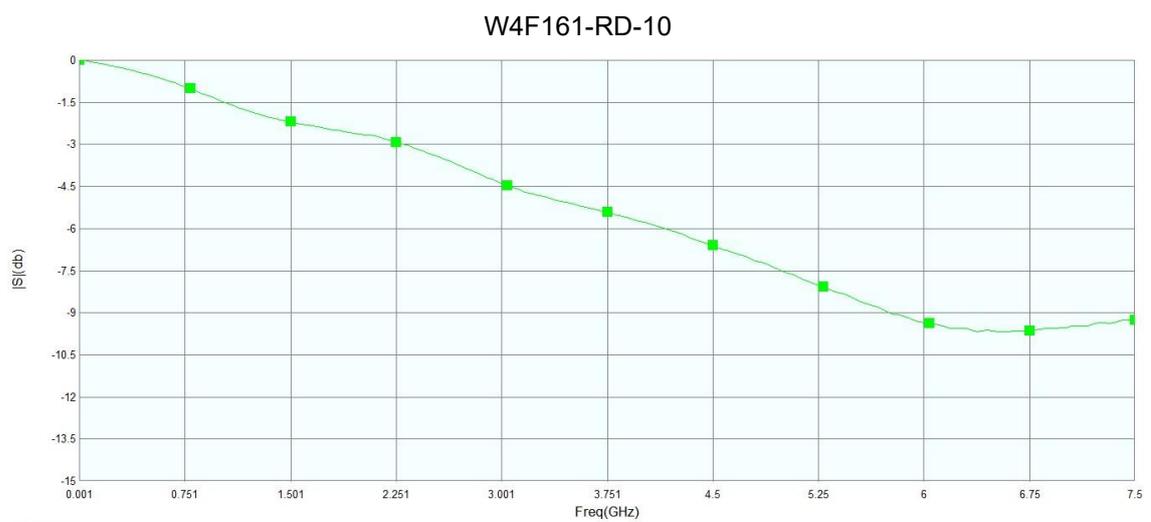
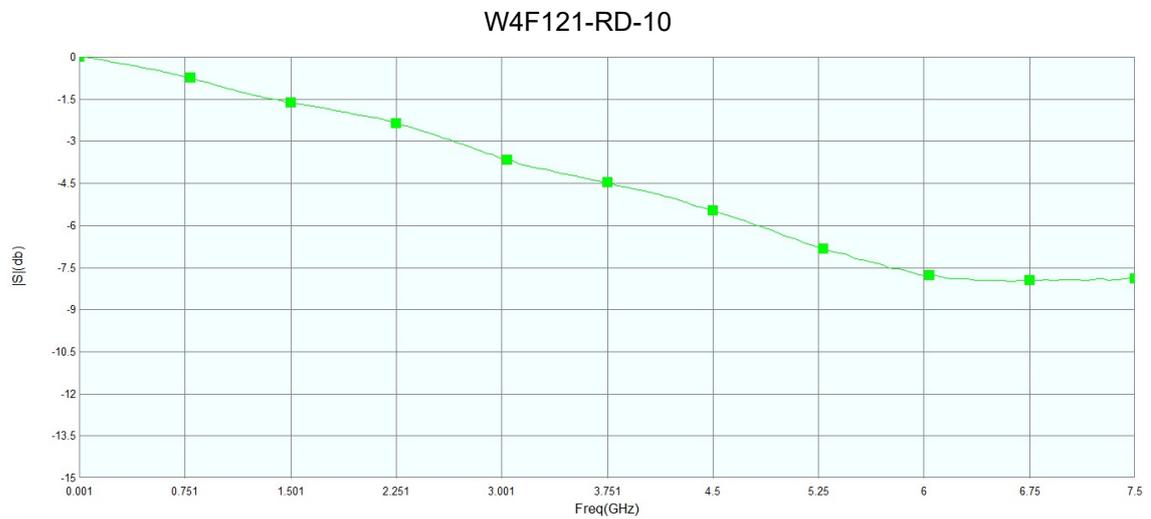
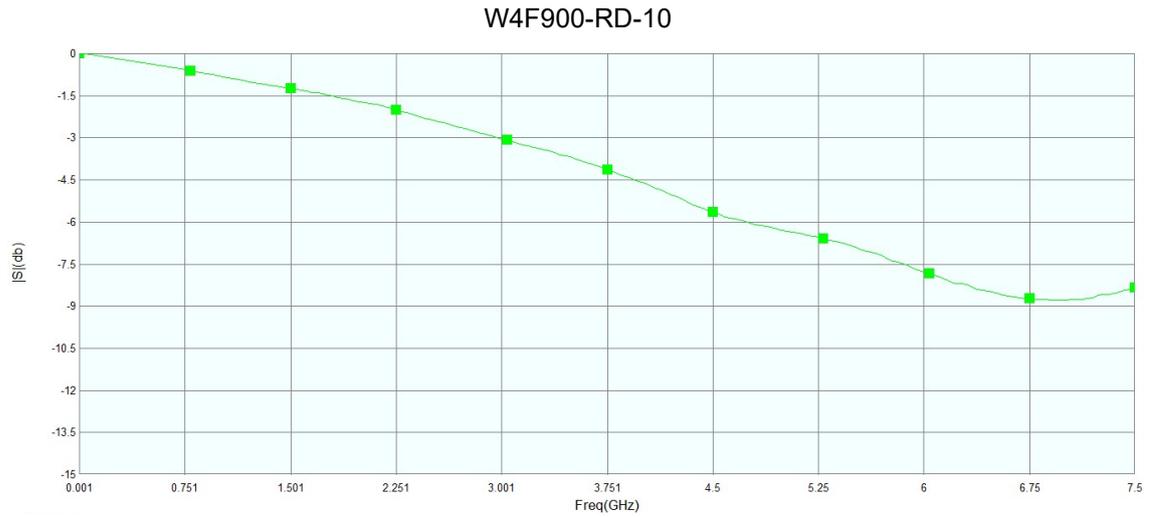


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7-2. Insertion Loss Test

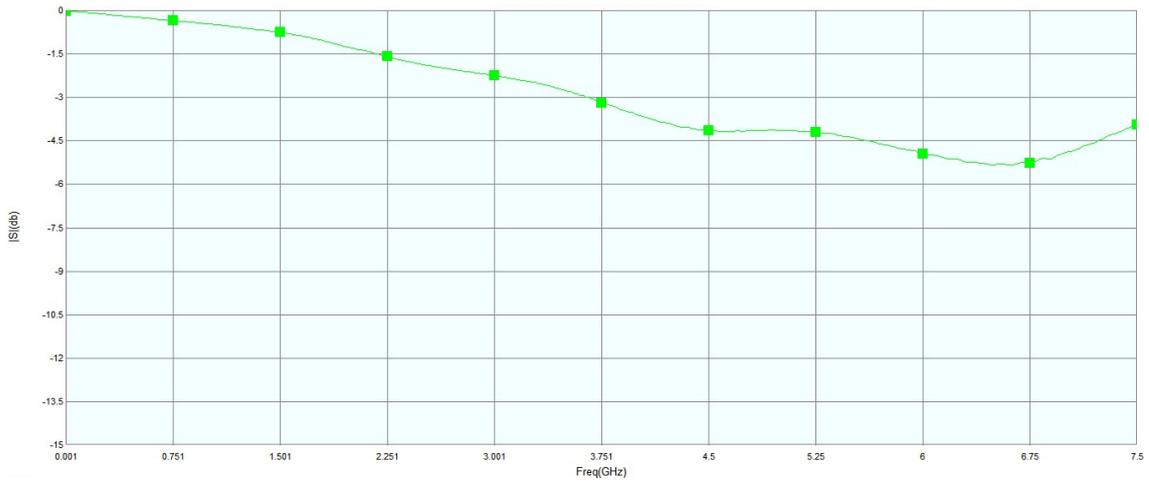


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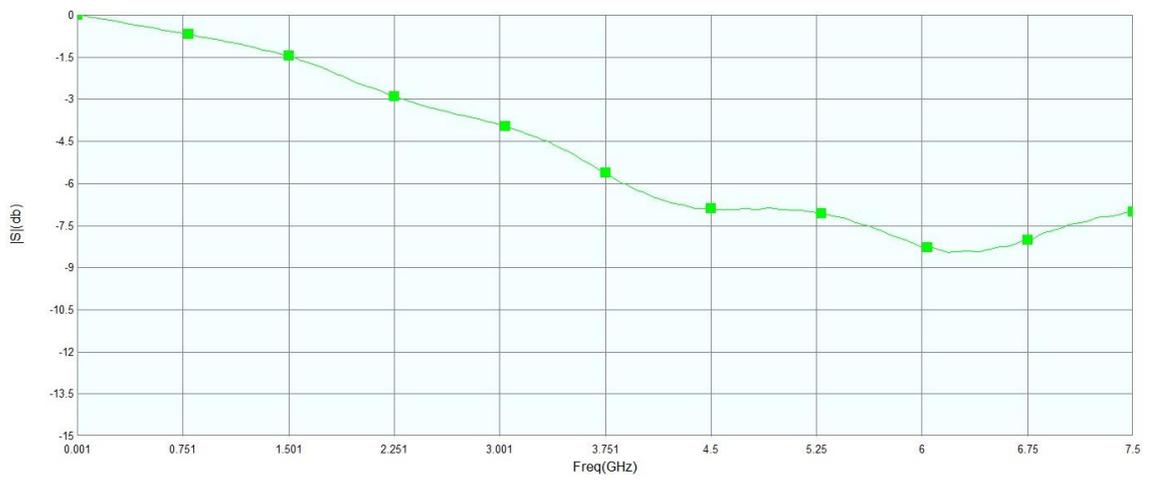


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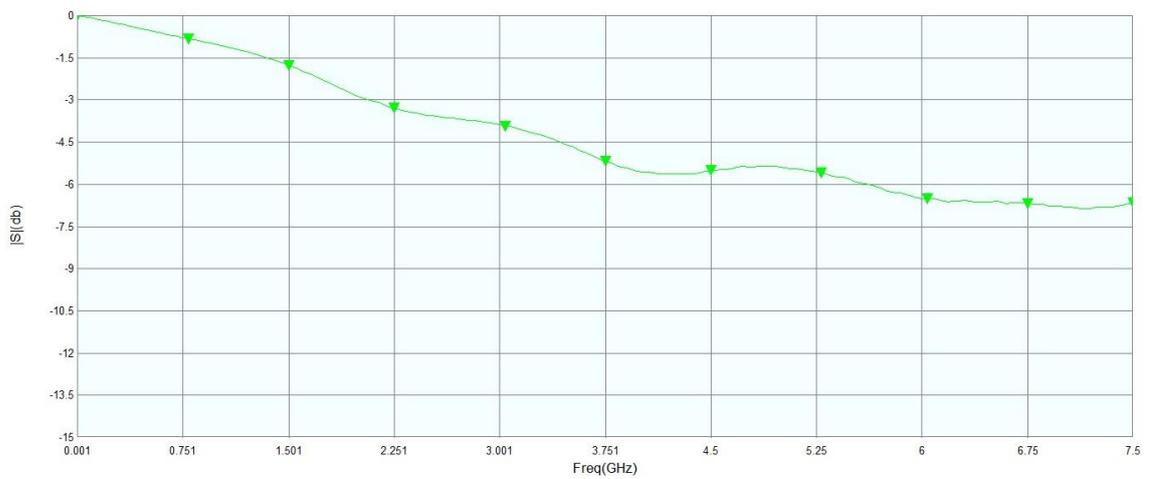
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W4F221-RC-10

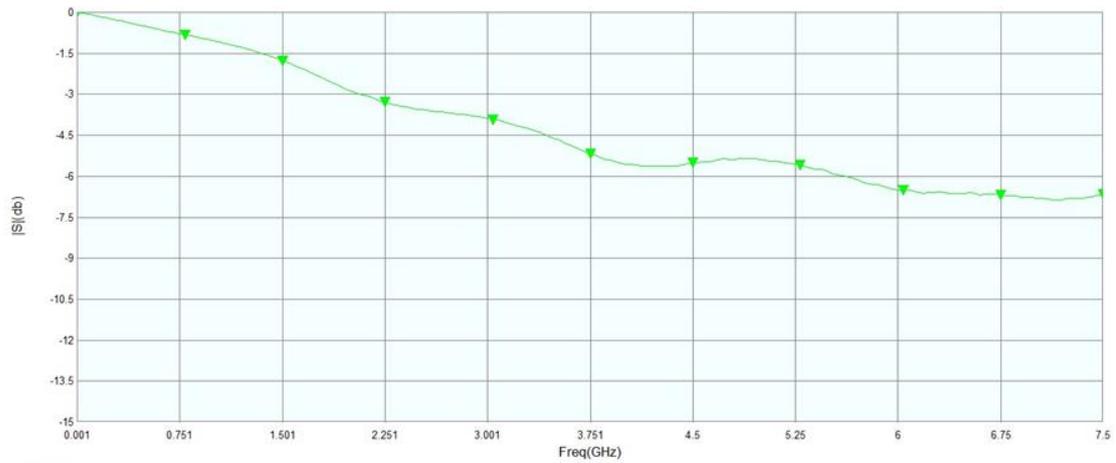


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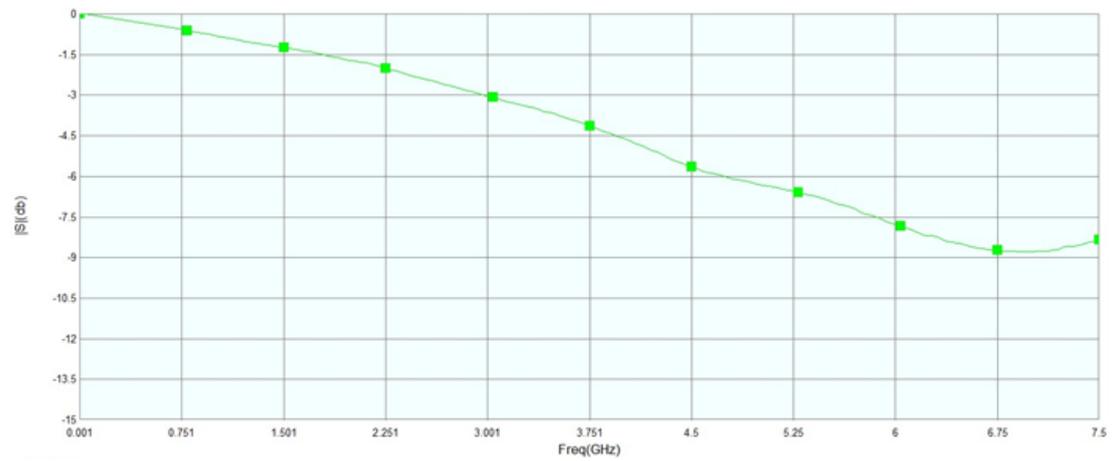


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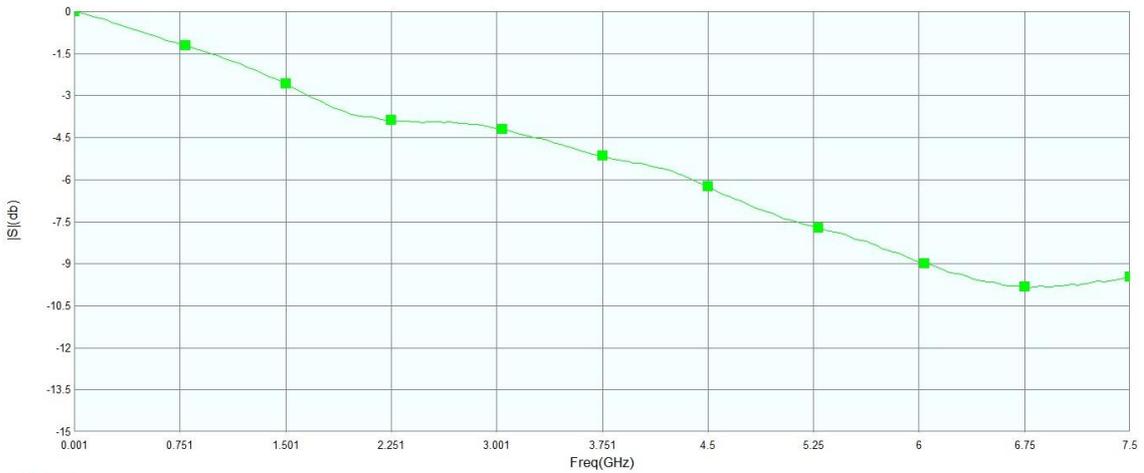
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W4F301-RC-10

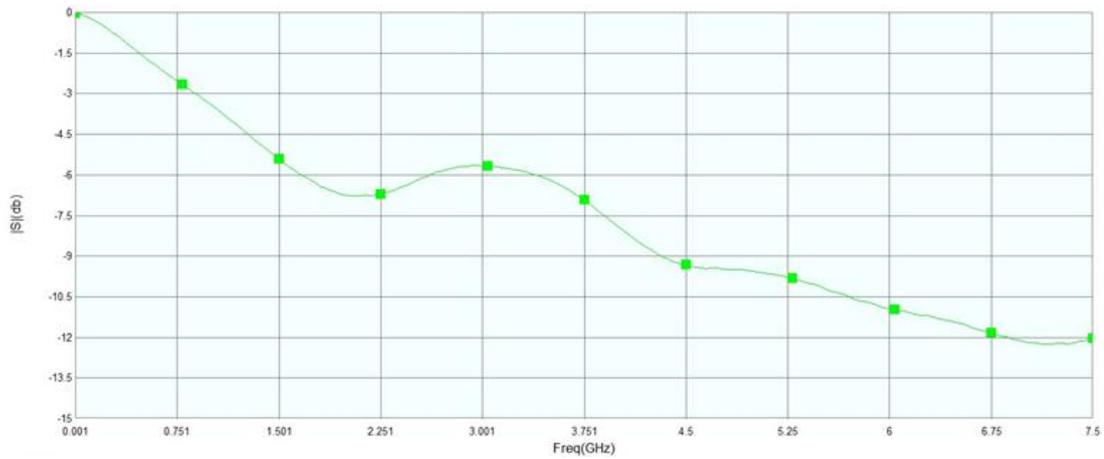


W4F361-RC-10

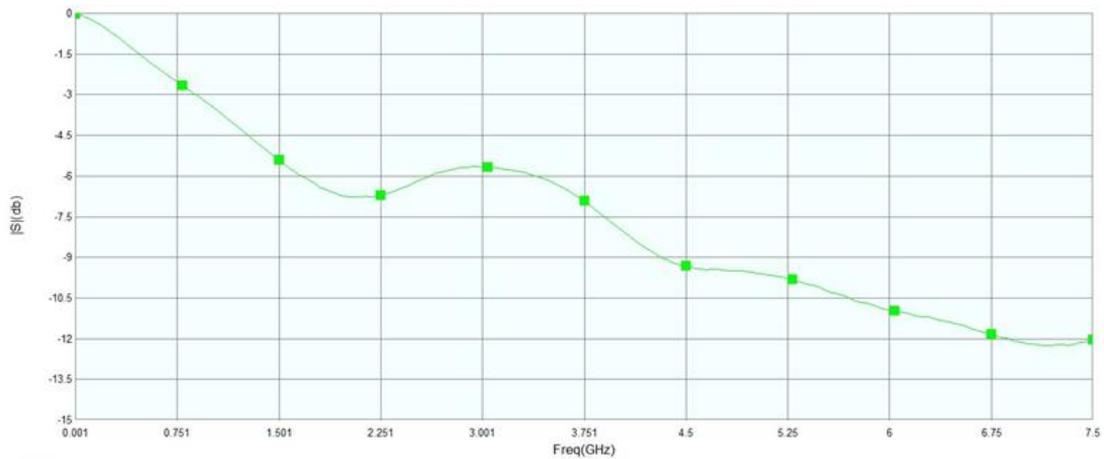


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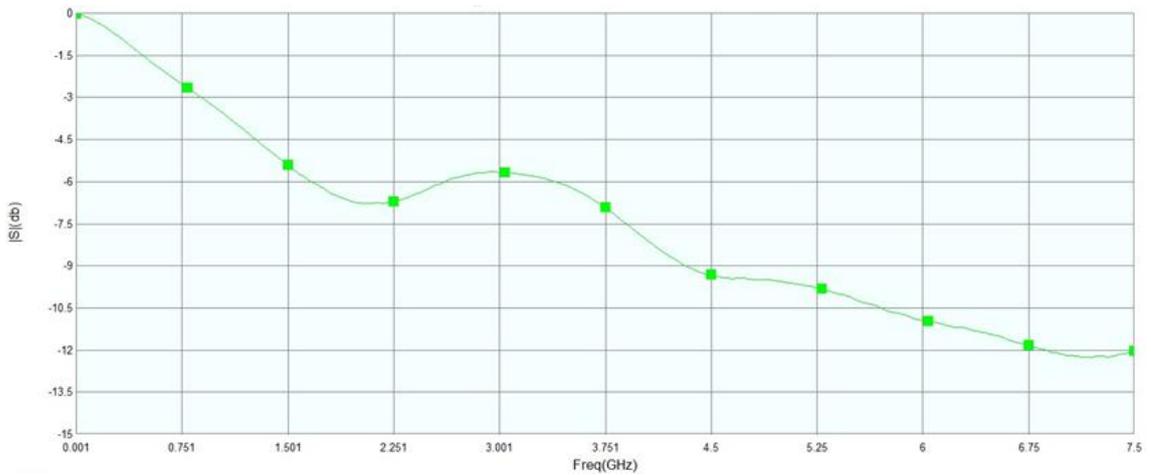
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W4F471-RC-10

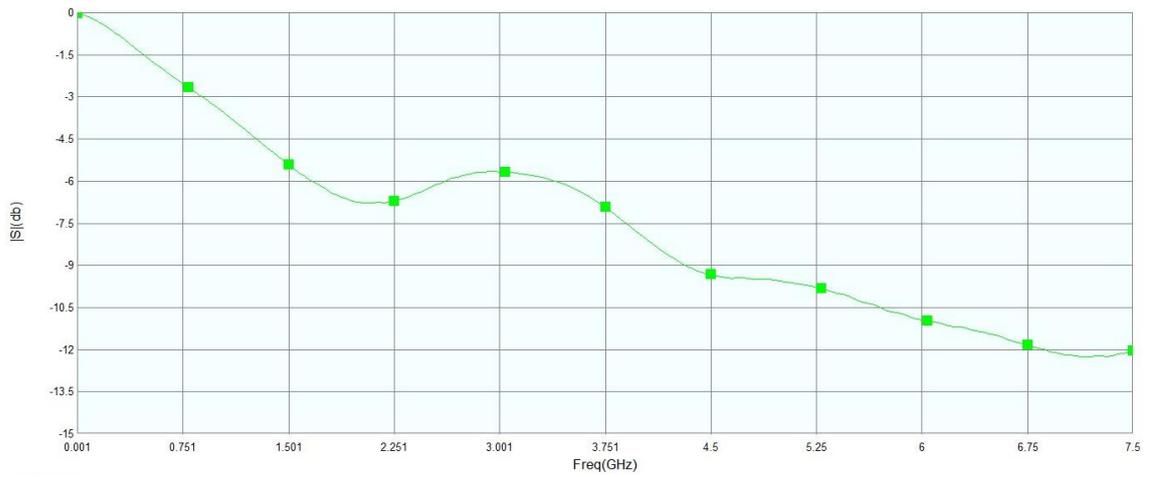


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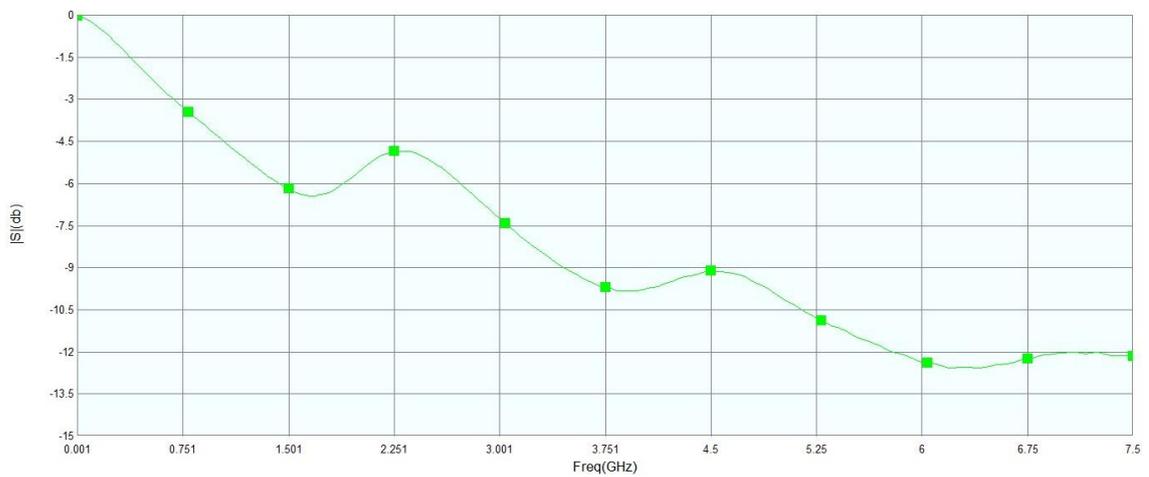


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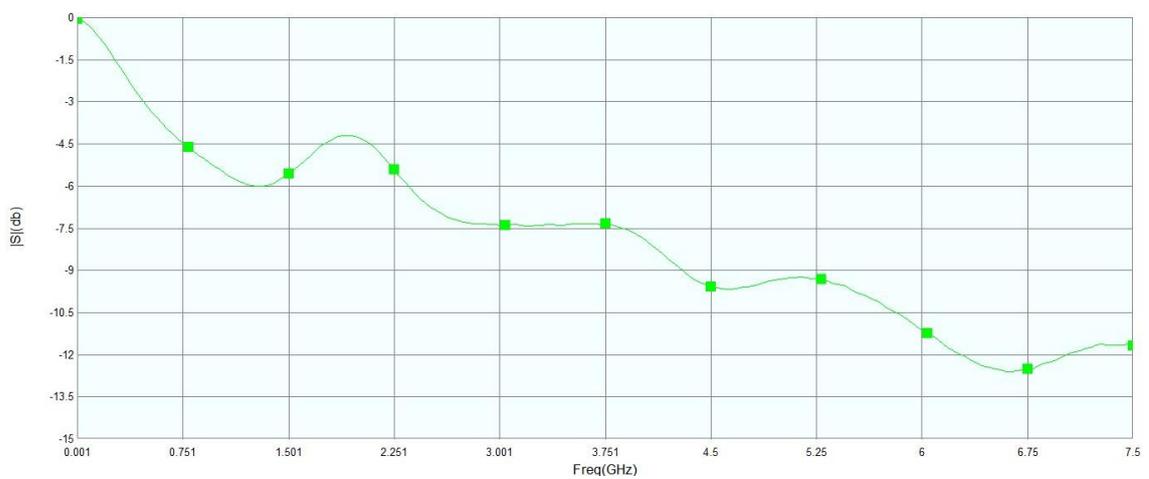
W4F601-RC-10



W4F102-RB-10



W4F222-RB-10



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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.

8-1. IR Soldering Reflow

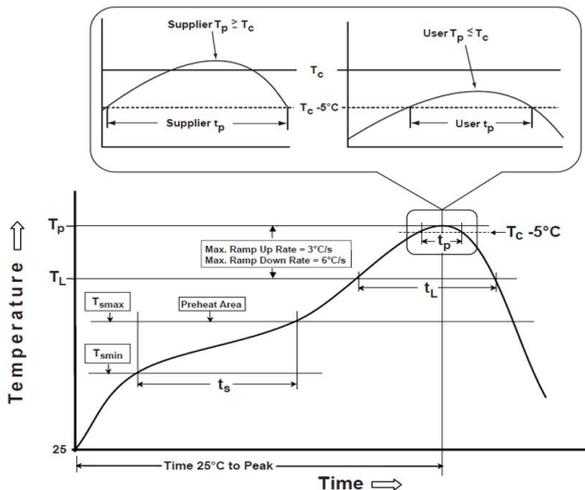
Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020F).

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).

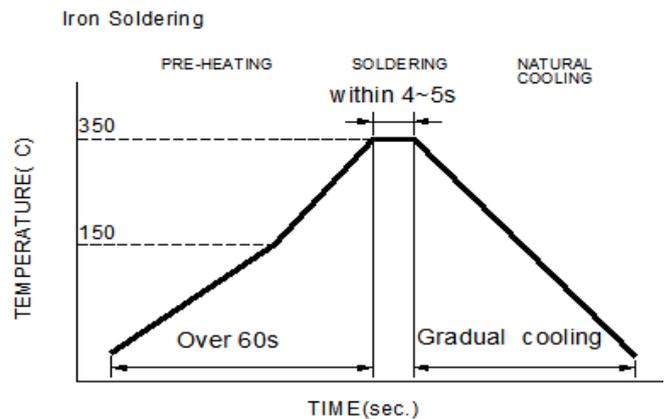
Note:

- (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

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})	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**.

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

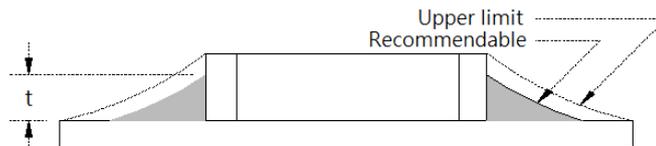
	Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

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

8-3. 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.

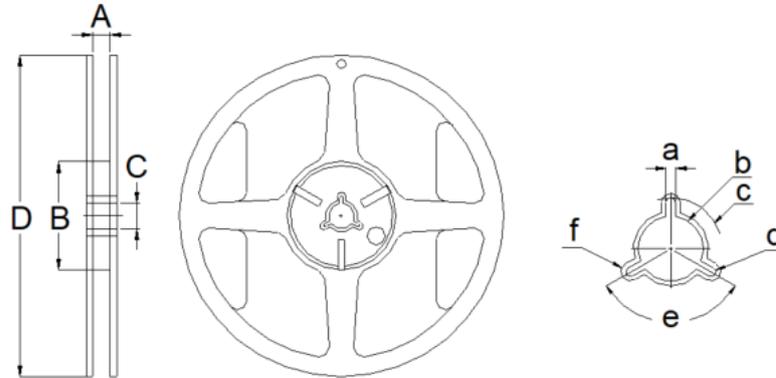
Minimum fillet height = soldering thickness + 25% product height.



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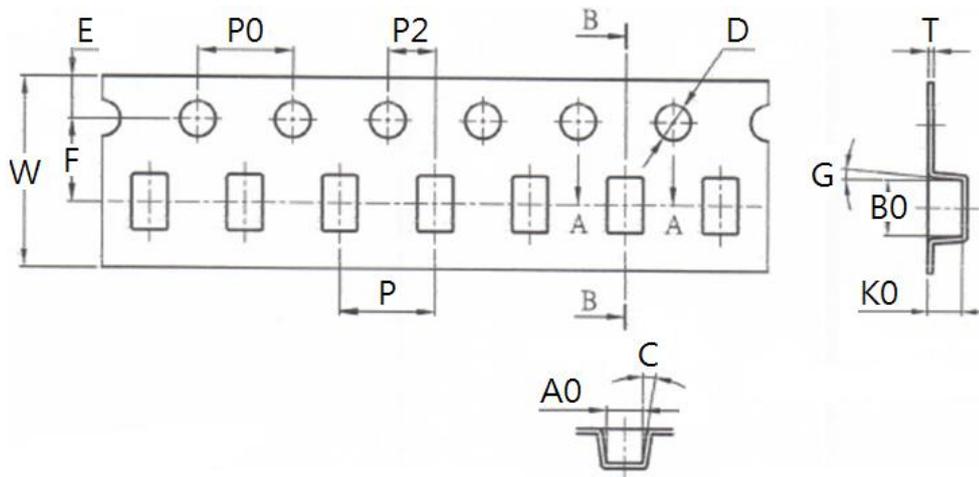
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D	a
	9.0 Ref	60.0 Ref	13.5 Ref	178.0 Ref	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)



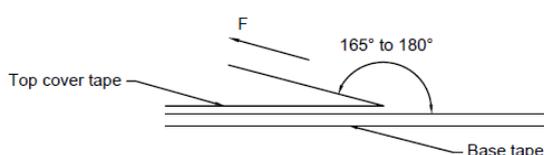
W	P	E	F	P2	D	D1
8.00±0.10	4.00±0.10	1.75±0.10	3.50±0.05	2.00±0.05	1.50+0.10/-0.00	1.00±0.10
P0	A0	B0	K0	T	C	G
4.00±0.10	1.88±0.10	3.50±0.10	2.20±0.10	0.26±0.05	8°	5°

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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) 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.

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