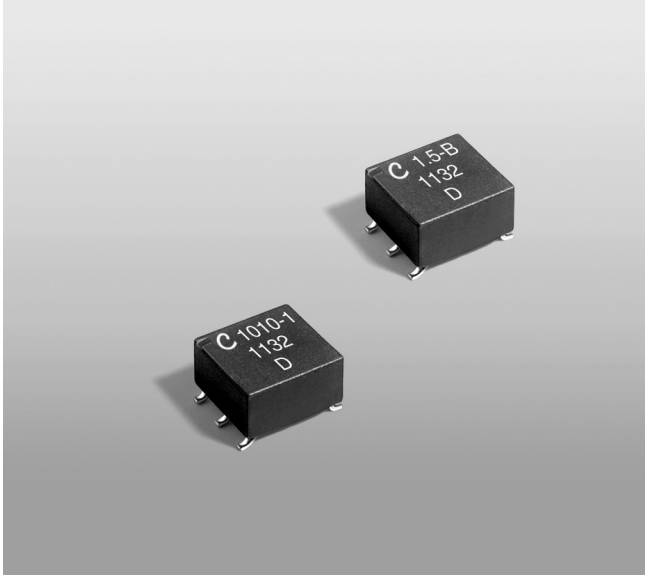




# Surface Mount Wideband RF Transformers



- Cost effective surface mount wideband transformers
- 300 V interwinding isolation, 1/4 Watt RF input power
- 250 mA max current rating.

**Core material** Ferrite

**Terminations** RoHS compliant tin-silver-copper over tin over nickel over phos bronze. Other terminations available at additional cost.

**Weight** 250 – 270 mg

**Ambient temperature** –40°C to +85°C

**Storage temperature** Component: –40°C to +85°C.

Tape and reel packaging: –40°C to +80°C

**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**Failures in Time (FIT) / Mean Time Between Failures (MTBF)**

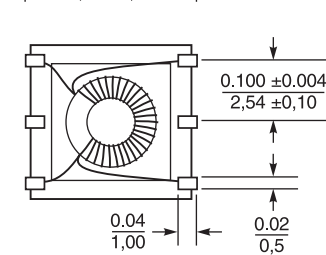
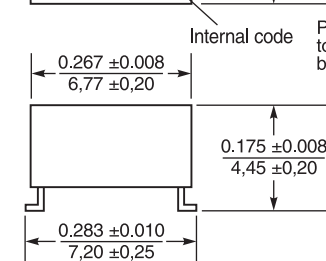
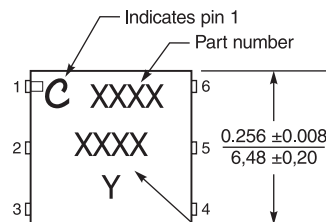
60 per billion hours / 16,666,667 hours, calculated per Telcordia SR-332

**Packaging** 250/7" reel; 1000/13" reel Plastic tape: 16 mm wide, 0.35 mm thick, 12 mm pocket spacing, 5.0 mm pocket depth

**PCB washing** Tested with pure water or alcohol only. For other solvents, see Doc787\_PCB\_Washing.pdf

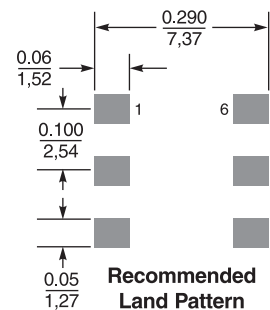
## Typical Frequency Response

| Part number | 3 dB (MHz)   | 2 dB (MHz)   | 1 dB (MHz)  |
|-------------|--------------|--------------|-------------|
| PWB-1-AL_   | 0.08 – 450   | 0.13 – 325   | 0.30 – 190  |
| PWB-1.5-AL_ | 0.03 – 300   | 0.035 – 250  | 0.06 – 150  |
| PWB-2-AL_   | 0.05 – 200   | 0.06 – 160   | 0.10 – 100  |
| PWB-4-AL_   | 0.15 – 500   | 0.24 – 300   | 0.60 – 140  |
| PWB-16-AL_  | 0.05 – 80    | 0.06 – 75    | 0.11 – 30   |
| PWB1010L_   | 0.0035 – 125 | 0.0045 – 100 | 0.007 – 80  |
| PWB1010-1L_ | 0.03 – 250   | 0.04 – 225   | 0.06 – 200  |
| PWB1015L_   | 0.07 – 225   | 0.10 – 200   | 0.20 – 125  |
| PWB1040L_   | 0.15 – 400   | 0.25 – 350   | 0.80 – 250  |
| PWB-1-BL_   | 0.13 – 425   | 0.18 – 325   | 0.32 – 190  |
| PWB-1.5-BL_ | 0.50 – 250   | 0.80 – 175   | 1.50 – 120  |
| PWB-2-BL_   | 0.20 – 400   | 0.225 – 275  | 0.50 – 150  |
| PWB-4-BL_   | 0.14 – 700   | 0.20 – 400   | 0.40 – 150  |
| PWB-16-BL_  | 0.075 – 90   | 0.11 – 75    | 0.20 – 65   |
| PWB2010L_   | 0.0035 – 125 | 0.0045 – 100 | 0.007 – 80  |
| PWB2010-1L_ | 0.03 – 250   | 0.04 – 225   | 0.06 – 200  |
| PWB2040L_   | 0.15 – 400   | 0.25 – 350   | 0.80 – 250  |
| PWB-1-CL_   | 0.10 – 300   | 0.13 – 200   | 0.20 – 150  |
| PWB-1.5-CL_ | 0.15 – 200   | 0.225 – 150  | 0.35 – 100  |
| PWB-2-CL_   | 0.13 – 285   | 0.20 – 175   | 0.325 – 125 |
| PWB-4-CL_   | 0.14 – 500   | 0.20 – 230   | 0.40 – 110  |
| PWB3010L_   | 0.0035 – 125 | 0.0045 – 100 | 0.007 – 80  |
| PWB3010-1L_ | 0.03 – 250   | 0.04 – 225   | 0.06 – 200  |
| PWB3015L_   | 0.07 – 225   | 0.10 – 200   | 0.20 – 125  |
| PWB3040L_   | 0.15 – 400   | 0.25 – 350   | 0.80 – 250  |



Dimensions are in inches  
mm

Parts manufactured prior to September 2011 may be marked differently.



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# Surface Mount Wideband RF Transformers

| Type              | Part number <sup>1</sup> | Impedance<br>ratio <sup>2</sup><br>pri:sec | Bandwidth<br>(MHz) | Idc<br>(mA) | Insertion<br>loss max<br>(dB) | Primary (pins 1-3)         |                   | Secondary (pins 6-4)       |                   |
|-------------------|--------------------------|--------------------------------------------|--------------------|-------------|-------------------------------|----------------------------|-------------------|----------------------------|-------------------|
|                   |                          |                                            |                    |             |                               | L min <sup>3</sup><br>(μH) | DCR max<br>(Ohms) | L min <sup>3</sup><br>(μH) | DCR max<br>(Ohms) |
| <br><b>Type A</b> | PWB-1-AL_                | 1:1                                        | 0.08 - 450         | 250         | 0.60                          | 40                         | 0.070             | 40                         | 0.070             |
|                   | PWB-1.5-AL_              | 1:1.5                                      | 0.03 - 300         | 250         | 0.35                          | 110                        | 0.080             | 160                        | 0.110             |
|                   | PWB-2-AL_                | 1:2                                        | 0.05 - 200         | 250         | 0.25                          | 75                         | 0.088             | 150                        | 0.120             |
|                   | PWB-4-AL_                | 1:4                                        | 0.15 - 500         | 250         | 0.50                          | 25                         | 0.075             | 98                         | 0.135             |
|                   | PWB-16-AL_               | 1:16                                       | 0.05 - 80          | 250         | 0.35                          | 75                         | 0.260             | 1250                       | 0.910             |
|                   | PWB1010L_                | 1:1                                        | 0.0035 - 125       | 250         | 0.20                          | 780                        | 0.320             | 780                        | 0.320             |
|                   | PWB1010-1L_              | 1:1                                        | 0.03 - 250         | 250         | 0.20                          | 95                         | 0.200             | 95                         | 0.200             |
|                   | PWB1015L_                | 1:1.5                                      | 0.07 - 225         | 250         | 0.40                          | 51                         | 0.130             | 80                         | 0.145             |
| <br><b>Type B</b> | PWB1040L_                | 1:4                                        | 0.15 - 400         | 250         | 0.40                          | 25                         | 0.115             | 95                         | 0.160             |
|                   | PWB-1-BL_                | 1:1                                        | 0.13 - 425         | 250         | 0.40                          | 22                         | 0.070             | 22                         | 0.070             |
|                   | PWB-1.5-BL_              | 1:1.5                                      | 0.50 - 250         | 250         | 0.40                          | 140                        | 0.100             | 200                        | 0.120             |
|                   | PWB-2-BL_                | 1:2                                        | 0.20 - 400         | 250         | 0.35                          | 75                         | 0.088             | 150                        | 0.130             |
|                   | PWB-4-BL_                | 1:4                                        | 0.14 - 700         | 250         | 0.50                          | 25                         | 0.075             | 98                         | 0.135             |
|                   | PWB-16-BL_               | 1:16                                       | 0.075 - 90         | 250         | 0.30                          | 75                         | 0.260             | 1250                       | 0.910             |
|                   | PWB2010L_                | 1:1                                        | 0.0035 - 125       | 250         | 0.20                          | 780                        | 0.320             | 780                        | 0.320             |
|                   | PWB2010-1L_              | 1:1                                        | 0.03 - 250         | 250         | 0.20                          | 95                         | 0.200             | 95                         | 0.200             |
| <br><b>Type C</b> | PWB2040L_                | 1:4                                        | 0.15 - 400         | 250         | 0.40                          | 25                         | 0.115             | 95                         | 0.160             |
|                   | PWB-1-CL_                | 1:1                                        | 0.10 - 300         | 250         | 0.60                          | 22                         | 0.070             | 22                         | 0.070             |
|                   | PWB-1.5-CL_              | 1:1.5                                      | 0.15 - 200         | 250         | 0.30                          | 140                        | 0.110             | 200                        | 0.120             |
|                   | PWB-2-CL_                | 1:2                                        | 0.13 - 285         | 250         | 0.30                          | 75                         | 0.105             | 150                        | 0.130             |
|                   | PWB-4-CL_                | 1:4                                        | 0.14 - 500         | 250         | 0.50                          | 25                         | 0.075             | 98                         | 0.135             |
|                   | PWB3010L_                | 1:1                                        | 0.0035 - 125       | 250         | 0.20                          | 780                        | 0.320             | 780                        | 0.320             |
|                   | PWB3010-1L_              | 1:1                                        | 0.03 - 250         | 250         | 0.20                          | 95                         | 0.200             | 95                         | 0.200             |
|                   | PWB3015L_                | 1:1.5                                      | 0.07 - 225         | 250         | 0.40                          | 51                         | 0.130             | 80                         | 0.145             |
| <br><b>Type D</b> | PWB3040L_                | 1:4                                        | 0.15 - 400         | 250         | 0.40                          | 25                         | 0.115             | 95                         | 0.160             |

1. When ordering, please specify **termination** and **packaging** codes:

**PWB-3010-1LD**

**Termination:** L = RoHS compliant tin-silver-copper over tin over nickel over phos bronze.

Special order: S = non-RoHS tin-lead (63/37).

**Packaging:** C = 7" machine ready reel. EIA-481 embossed plastic tape, 250 parts per full reel.

B = Less than full reel. In tape, but not machine ready. To have a leader and trailer added (\$25 charge), use code letter C instead.

D = 13" machine ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (1000 parts per full reel).

2. Impedance ratio is for the full primary winding to the full secondary winding.

3. Inductance tested at 130 kHz, 0.1 Vrms, 0 Adc.

4. Electrical specifications at 25°C. Measurements are referenced to 50 Ohms.

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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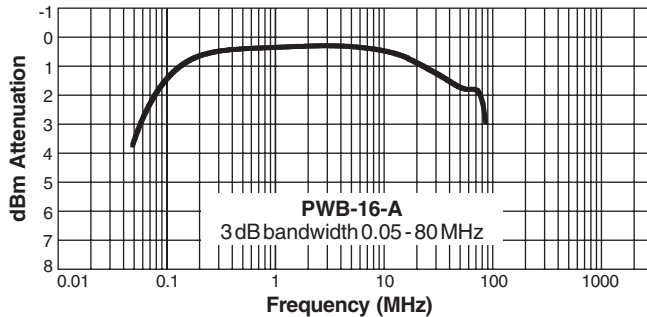
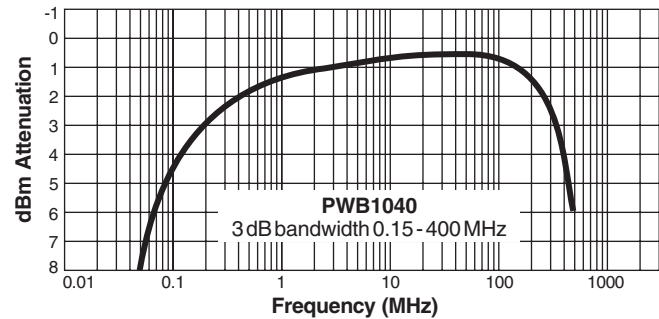
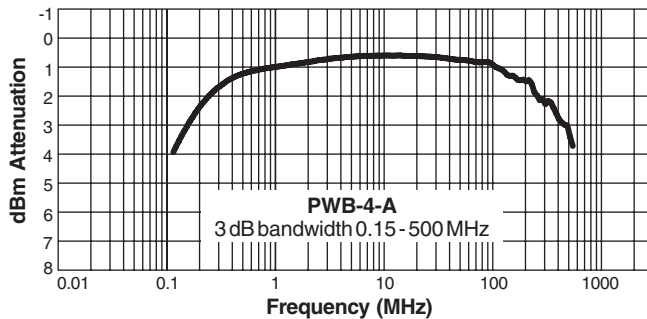
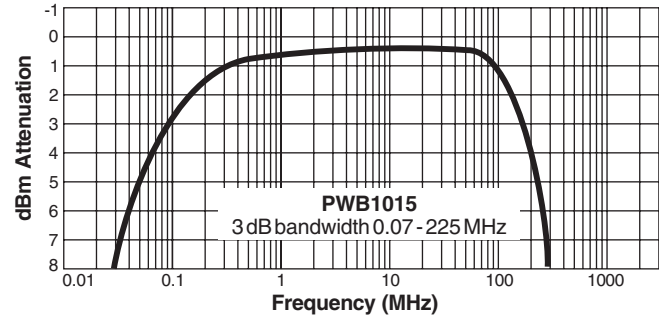
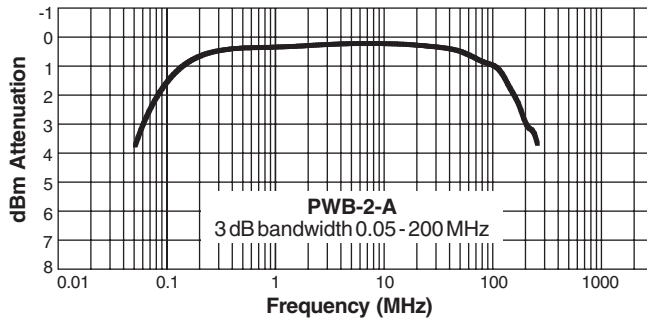
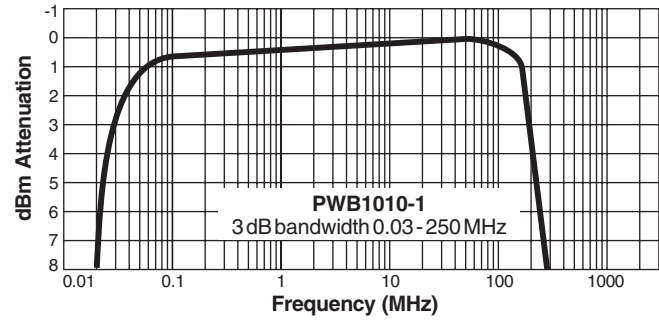
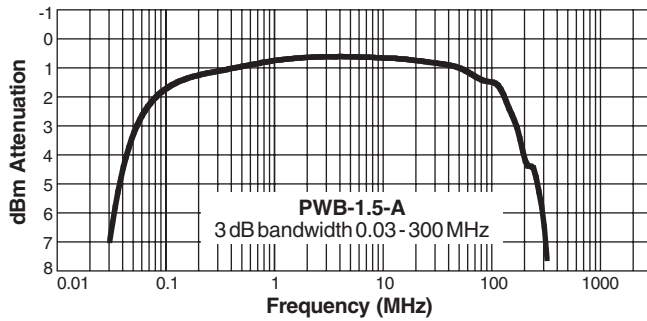
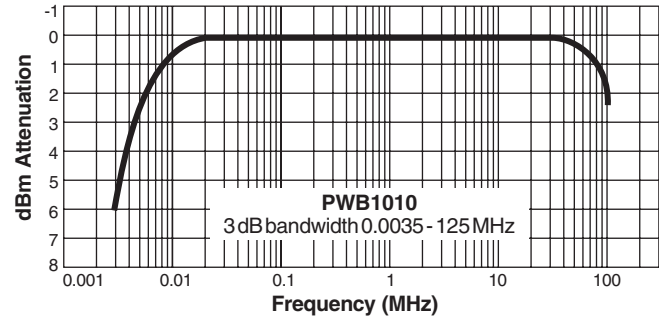
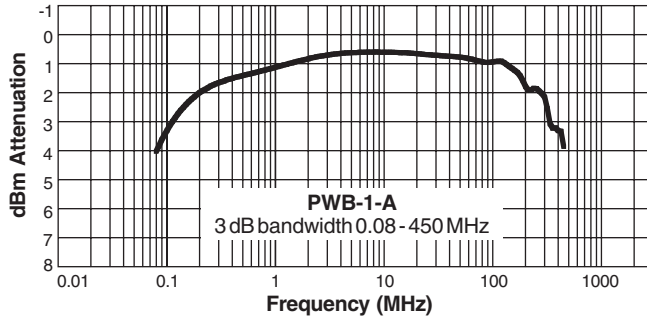
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## Type A Transformers



Attenuation measured on a network analyzer (re: 50 Ohms)



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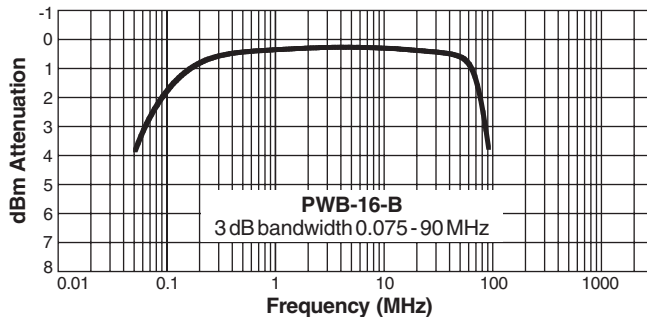
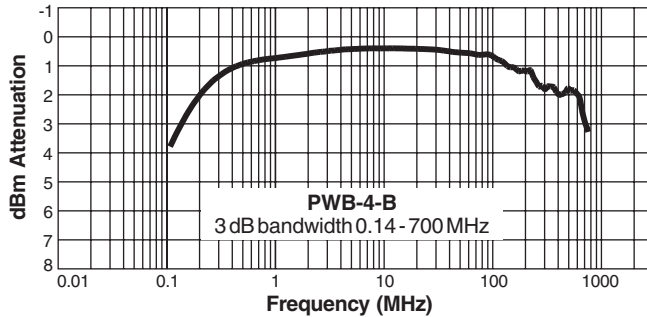
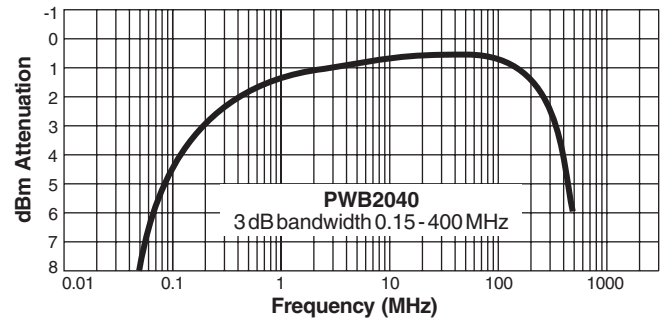
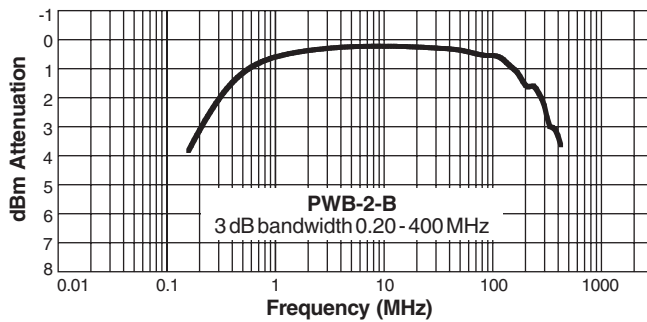
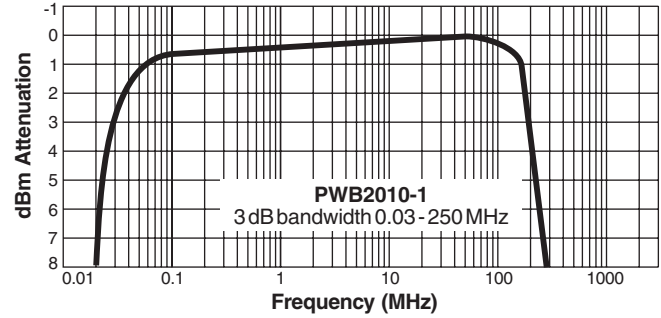
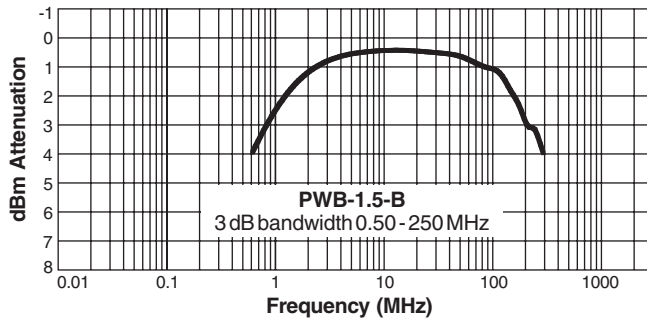
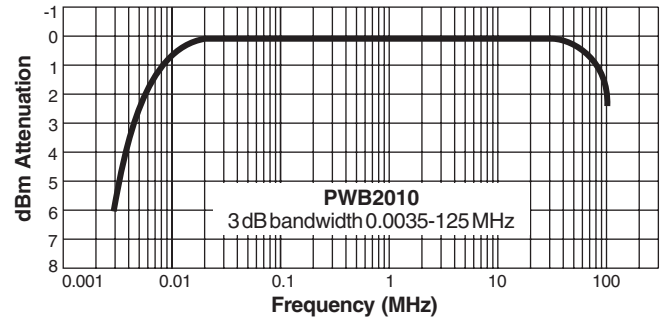
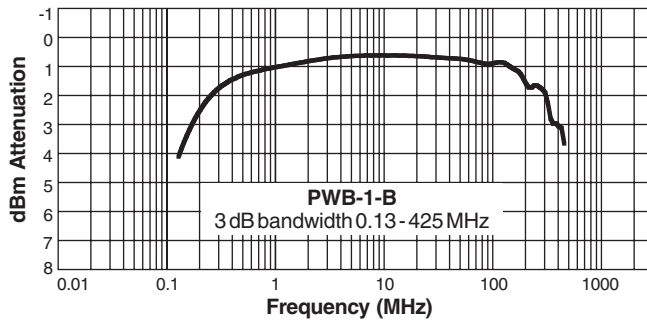
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## Type B Transformers



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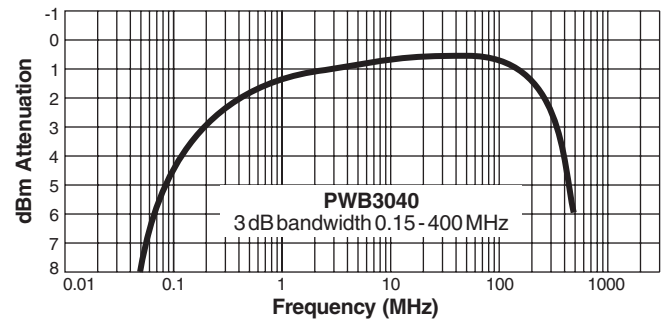
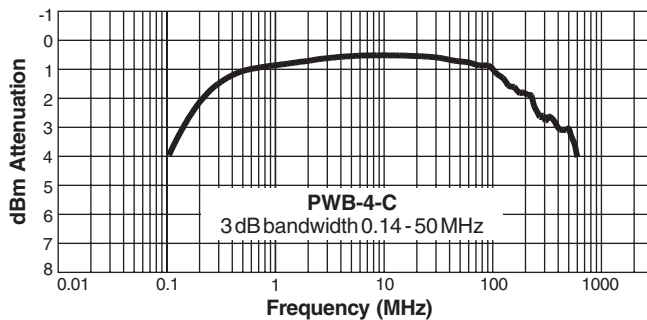
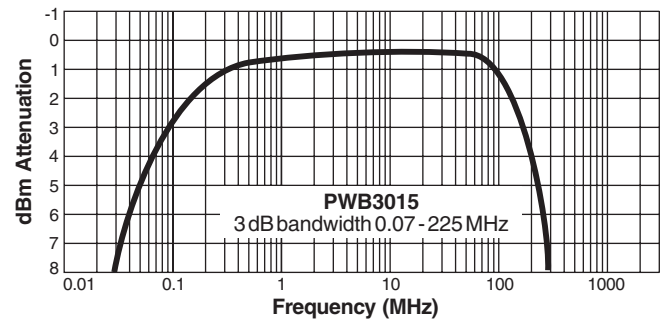
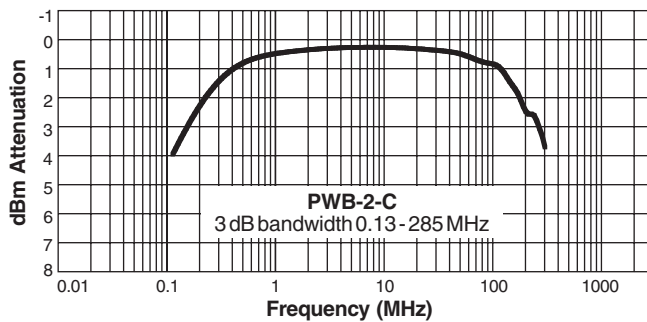
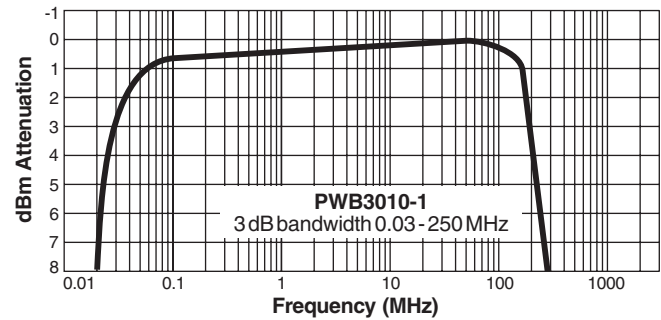
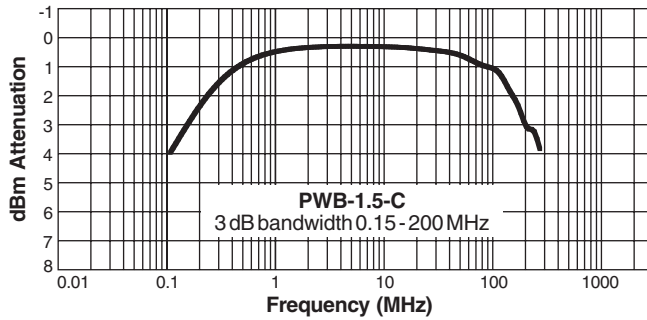
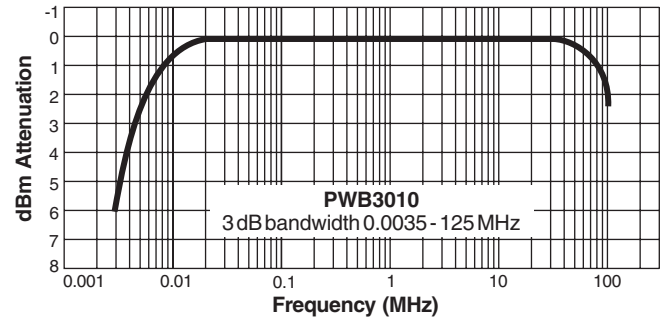
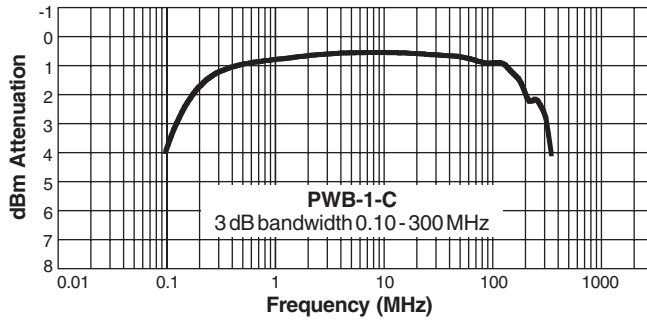
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## Type C Transformers



Attenuation measured on a network analyzer (re: 50 Ohms)



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