

Microwave Temperature Compensation Attenuator DC~18GHz 50Ω 200mW
Part No. Descriptions

| | | | | | | |
|---------------|------------------|---------------------------|-------------------------------------|-----------------------------------|-------------------------------------|------------------------|
| **** | ** | ** | ** | ** | ** | * |
| Series | Frequency | Attenuation | Temperature Coefficient Code | Metallization Options | Termination | Plating Options |
| MTCA | 18 | (01 to 10) 1dB to 10dB | (N3 to N9) | Planar(no code), W1, W3, WB1 or G | (no code)=lead free or (S)=Lead(Pb) | |

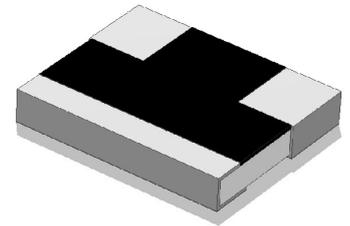
Metallization Options

- Planar(no code): planar terminal.
- Single wrap(W1): metallization wrap ground terminal.
- Triple wrap(W3): metallization wrap input, output and ground terminal.
- Wire bond(WB1): metallization wrap ground terminal, input and output terminal have gold metallization for wire bonding.
- Planar gold(G): planar terminal with gold metallization for wire bonding.

| Part No. | Frequency Range (GHz) | Attenuation (dB) | Temperature Coefficient Code | Temperature Coefficient of Attenuation (dB/dB/°C) | Max. VSWR (:1) @1GHz@25°C | Max. Input Power (mW) | Attenuation Accuracy (dB) |
|--------------|-----------------------|------------------|------------------------------|---|---------------------------|-----------------------|---------------------------|
| MTCA1801N*W3 | DC-12.4 | 1 | N3~N7 | -0.003~-0.007 | 1.20 | 200 | ±0.5 |
| MTCA1802N*W3 | DC-12.4 | 2 | N3~N9 | -0.003~-0.009 | 1.20 | 200 | ±0.5 |
| MTCA1803N*W3 | DC-12.4 | 3 | N3~N9 | -0.003~-0.009 | 1.20 | 200 | ±0.5 |
| MTCA1804N*W3 | DC-12.4 | 4 | N3~N9 | -0.003~-0.009 | 1.20 | 200 | ±0.5 |
| MTCA1805N*W3 | DC-12.4 | 5 | N3~N9 | -0.003~-0.009 | 1.20 | 200 | ±0.5 |
| MTCA1806N*W3 | DC-12.4 | 6 | N3~N9 | -0.003~-0.009 | 1.20 | 200 | ±0.5 |
| MTCA1807N*W3 | DC-12.4 | 7 | N3~N9 | -0.003~-0.009 | 1.20 | 200 | ±0.5 |
| MTCA1808N*W3 | DC-12.4 | 8 | N3~N9 | -0.003~-0.009 | 1.20 | 200 | ±0.5 |
| MTCA1809N*W3 | DC-12.4 | 9 | N3~N9 | -0.003~-0.009 | 1.20 | 200 | ±0.5 |
| MTCA1810N*W3 | DC-12.4 | 10 | N3~N9 | -0.003~-0.009 | 1.20 | 200 | ±0.5 |

General Specifications

- Frequency Range: WB3 series DC-12.4GHz
- Attenuation: 4dB
- Attenuation Accuracy: at 25°C ±0.5dB@1GHz
- VSWR: at 25°C 1.50:1 Max. over DC-12.4GHz
- Nominal Impedance: 50 Ohms
- Power Rating: 200 mW CW
- Power Derating: 100% @ 125°C
Derates to 0% @ 150°C
- Operating Temperature: -55°C to +150°C
- Temperature Coefficient over Operating Temperature Range: See Table Above.
Temperature Coefficient Tolerance: ±0.001dB/dB/°C.
- Substrate: Alumina (Al₂O₃)
- Resistive material: Thick film
- Terminal material: Thick film, Nickel barrier with pure tin plate (lead free) or with tin (Sn90) plate (10% lead contained), Or gold finish
- Protective Coating: Thick film (ethyl acetate)
- Package Outline: See Sheet 4.
- Workmanship: per MIL-PRF-55342.
- RoHS Compliant.
- Electrostatic Discharge Control: per MIL-STD-1686.

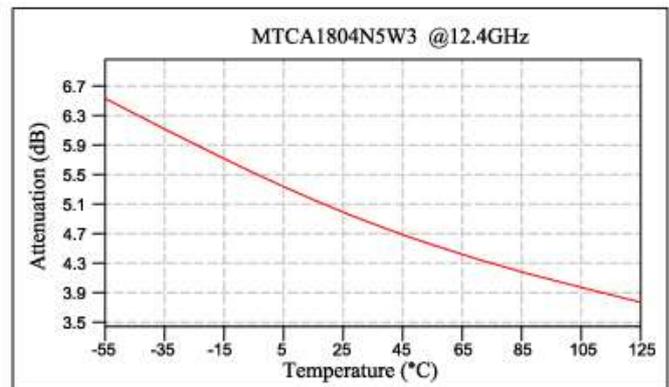
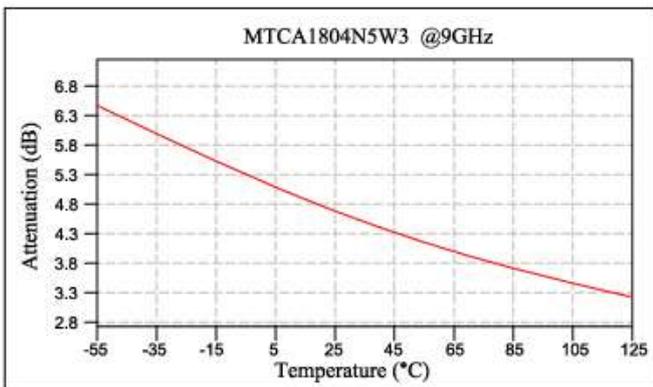
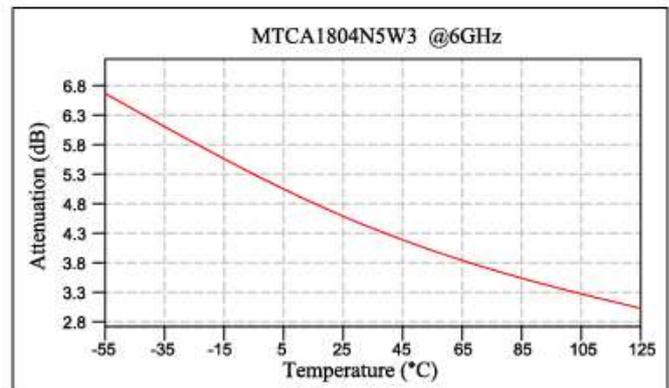
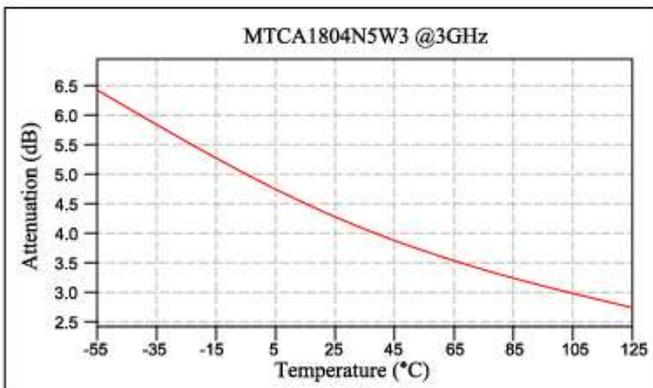
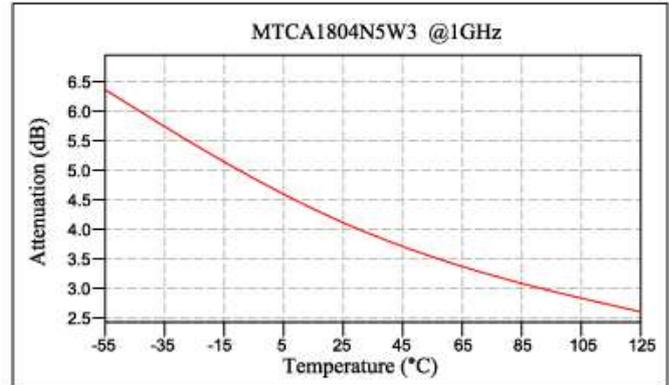
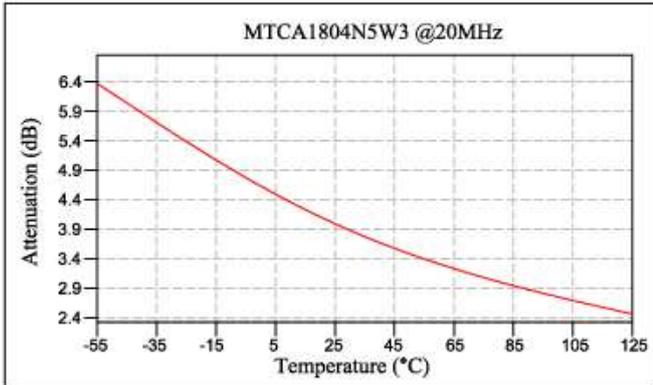


Unit Marking dB Value (XX), Direction of Shift (N) and TCA Shift (X).
Legibility and Permanency: per MIL-STD-130.

Quality Assurance

- Sample inspect per ANSI/ASQC Z1.4 general inspection, LEVEL II, AQL = 1.0.
 - 1.1 Visual and mechanical examination for conformance to outline package requirements.
- Select five (5) Units from lot measure attenuation from DC to 12.4GHz every 20°C over the temperature range -55°C to +125°C.
 - 2.1 Calculate, using linear regression, the slope of the curve.
 - 2.2 Calculate TCA using the following formula: TCA = Slope / Attenuation @ 25°C.
- Test data required for customer.

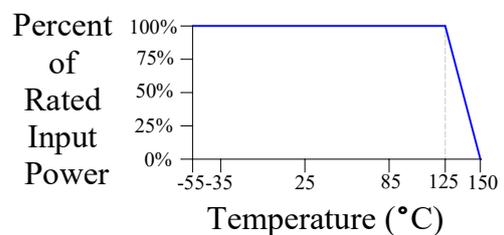
MTCA Response



Typical VSWR @25°C



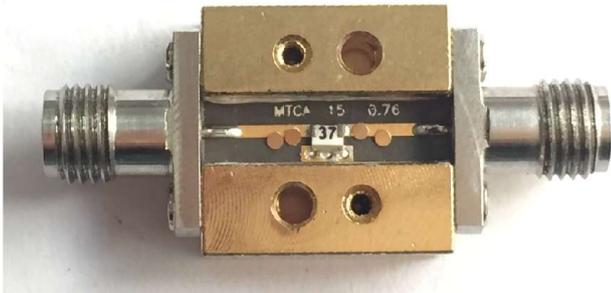
Power Rating & Derating Curve



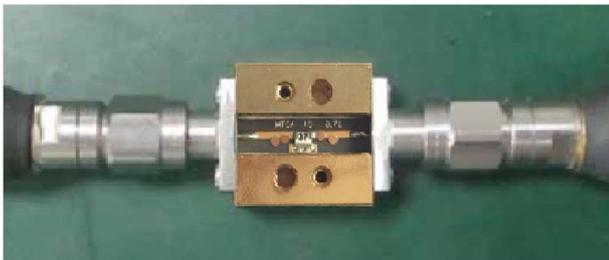
Notes on RF Testing and Circuit Layout

DC-12.4GHz W3 series(for SMT type) Test Fixture

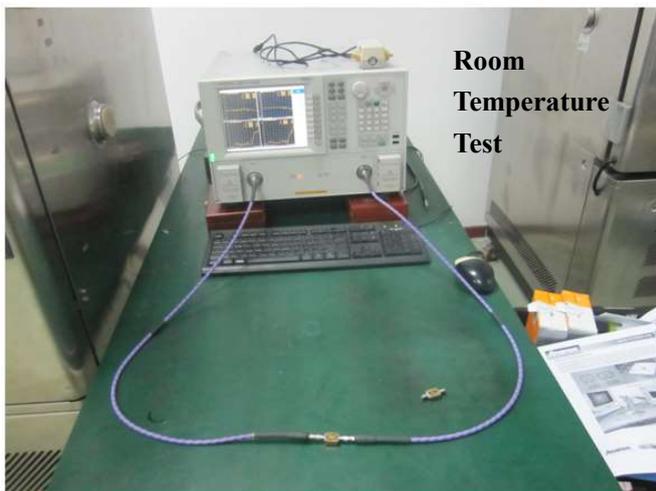
SMT PCB Test Board



Connect test part to Test Fixture



Equipment Calibration



Room
Temperature
Test



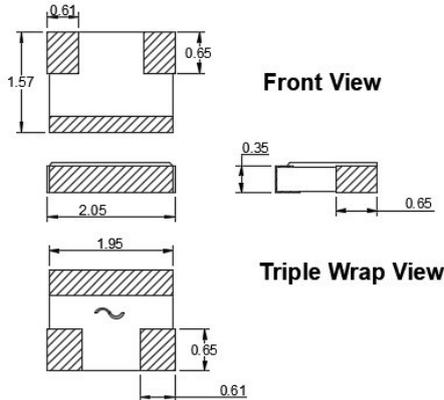
High-Low
Temperature
Test

- 1、 S2P documents are available for download
- 2、 DC-18GHz or 16-36GHz test fixture is rentable (only for Chinese customers) , otherwise please purchase them.

For any questions or needs, please feel free to contact inform@yantel-corp.com

Package Outlines

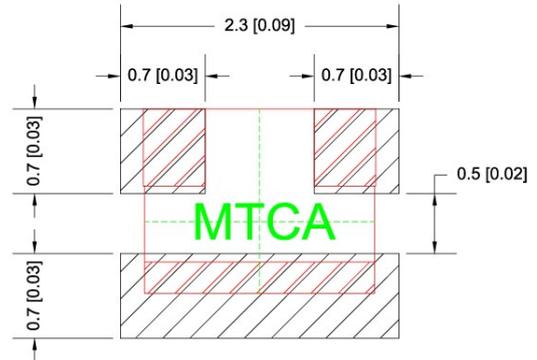
All dimensions shown in mm unless stated otherwise

 Dimension tolerance: $\pm 0.1\text{mm}$ Unit: mm[inch]


Recommended Layout

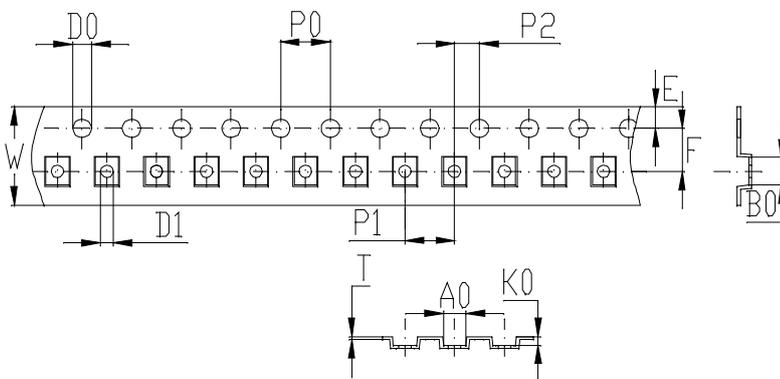
All dimensions shown in mm unless stated otherwise

Unit: mm[inch]



Tape & Reel Drawing

All dimensions shown in mm unless stated otherwise



Notice:

- A.10 Sprocket hole pitch cumulative tolerance is 0.2mm.
- B. Carrier camber shall be not more than 1mm per 100mm through a length of 250mm.
- C. All dimensions meet EIA-418-B requirements.
- D. A0 & B0 measured as indicated.
- E. K0 measured from a place on the inside bottom of the pocket to top surface of carrier.
- F. Material: PS
- G. Thickness: $0.25 \pm 0.05\text{mm}$
- H. 5000 units (maximum) / T&R

| | | | | | | |
|--------|----------------|-----------------|----------------|---------------|--------------------------|--------------------------|
| symbol | A0 | B0 | K0 | P0 | P1 | P2 |
| spec | 1.85 ± 0.1 | 2.25 ± 0.1 | 0.7 ± 0.1 | 4.0 ± 0.1 | 4.0 ± 0.1 | 2.0 ± 0.1 |
| symbol | W | T | E | F | D0 | D1 |
| spec | 8.0 ± 0.3 | 0.25 ± 0.05 | 1.75 ± 0.1 | 3.5 ± 0.1 | $\Phi 1.5^{+0.1}_{-0.0}$ | $\Phi 1.0^{+0.1}_{-0.0}$ |

