

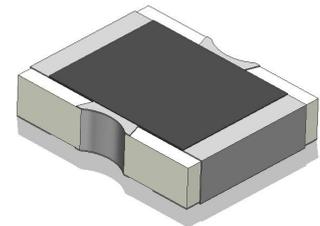
**Part No. Descriptions**

*** Series	** Frequency	** Attenuation	** Temperature Coefficient Code	** Metallization Options	* Termination Plating Options
WTCA,	20	(02 to 10) 2dB to 10 dB	N3 to N9	SMT	(no code)=lead free or (S)=Lead(Pb)

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)
WTCA2002N*SMT	DC-20	2	N3~N9	-0.003~ -0.09	1.2	200	±0.5
WTCA2003N*SMT	DC-20	3	N3~N9	-0.003~ -0.09	1.2	200	±0.5
WTCA2004N*SMT	DC-20	4	N3~N9	-0.003~ -0.09	1.2	200	±0.5
WTCA2005N*SMT	DC-20	5	N3~N9	-0.003~ -0.09	1.2	200	±0.5
WTCA2006N*SMT	DC-20	6	N3~N9	-0.003~ -0.09	1.2	200	±0.5
WTCA2007N*SMT	DC-20	7	N3~N9	-0.003~ -0.09	1.2	200	±0.5
WTCA2008N*SMT	DC-20	8	N3~N9	-0.003~ -0.09	1.2	200	±0.5
WTCA2009N*SMT	DC-20	9	N3~N9	-0.003~ -0.09	1.2	200	±0.5
WTCA20010N*SMT	DC-20	10	N3~N9	-0.003~ -0.09	1.2	200	±0.5

**General Specifications**

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Frequency Range</li> <li>2. Attenuation</li> <li>3. Attenuation Accuracy</li> <li>4. VSWR</li> <br/> <li>5. Nominal Impedance</li> <li>6. Power Rating</li> <li>7. Power Derating</li> <br/> <li>8. Operating Temperature</li> <li>9. Temperature Coefficient over Operating Temperature Range: See Table Above.<br/>Temperature Coefficient Tolerance: ±0.001dB/dB/°C.</li> <li>10. Substrate: Alumina (Al<sub>2</sub>O<sub>3</sub>)</li> <li>11. Resistive material: Thick film</li> <li>12. Terminal material: Thick film, Nickel barrier with pure tin plate (lead free) or with tin (Sn90) plate (10% lead contained)</li> <li>13. Protective Coating: Thick film (ethyl acetate)</li> <li>14. Package Outline: See Sheet 4.</li> <li>15. Workmanship: per MIL-PRF-55342.</li> <li>16. RoHS Compliant.</li> <li>17. Electrostatic Discharge Control: per MIL-STD-1686.</li> </ol> | <p>DC to 20GHz<br/>2dB<br/>at 25°C ±0.5dB@1GHz<br/>at 25°C 1.50:1 Max. over DC-20GHz</p><br><p>50 Ohms<br/>200 mW CW<br/>100% @ 125°C<br/>Derates to 0% @ 150°C</p> |
|--|---|

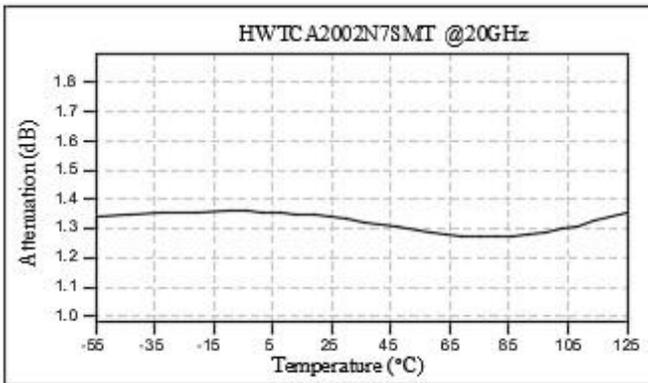
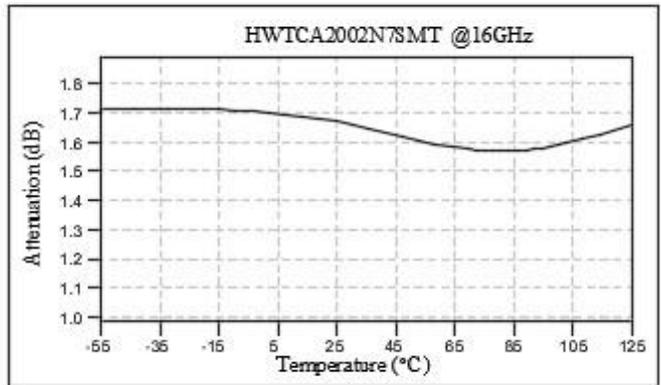
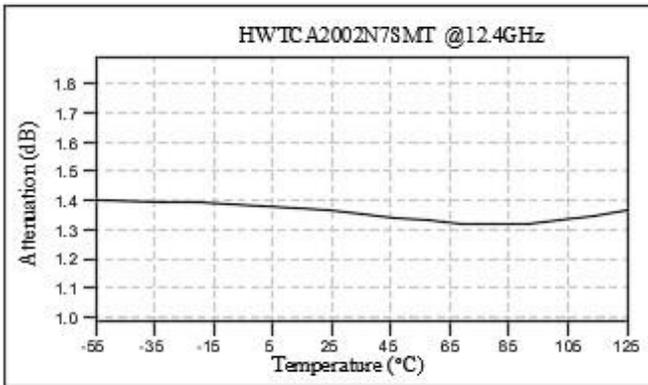
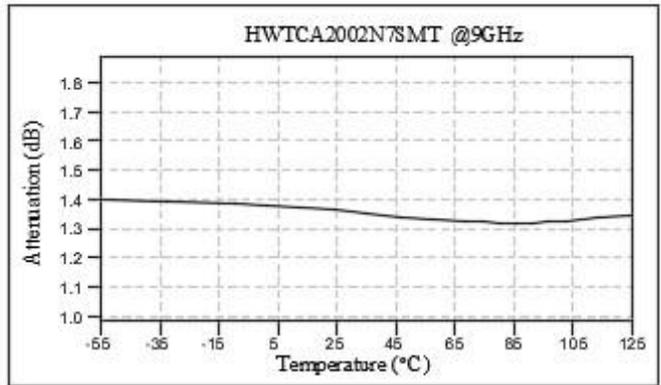
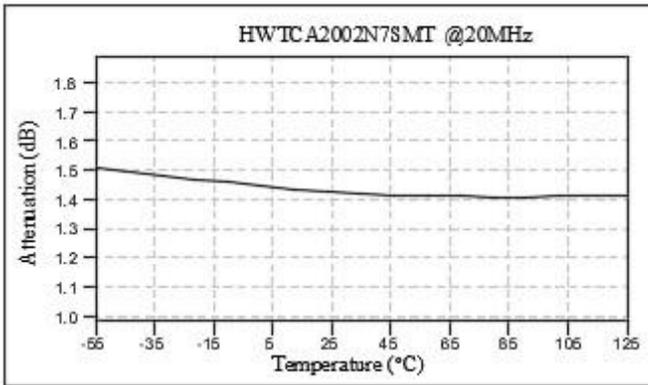


**Unit Marking** dB Value (XX), Direction of Shift (N) and TCA Shift (X).  
Legibility and Permanency: per MIL-STD-130.

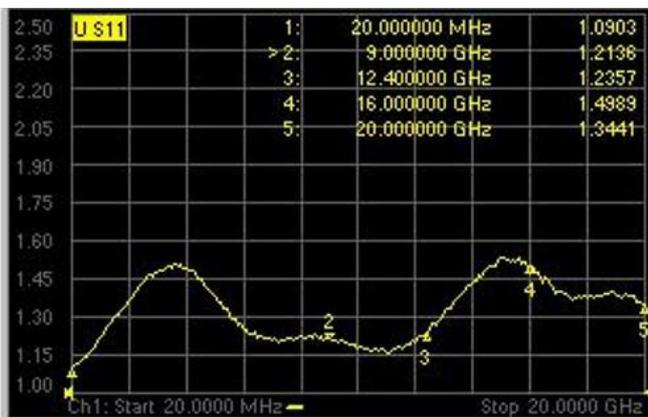
**Quality Assurance**

1. 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.
2. Select five (5) Units from lot measure attenuation from DC to 20GHz 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.
3. Test data required for customer.

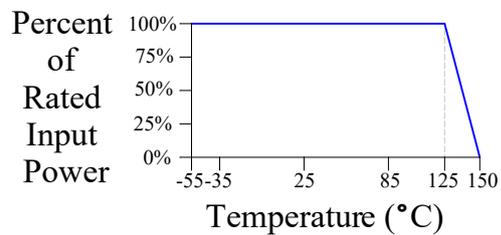
WTCA Response



Typical VSWR @25°C

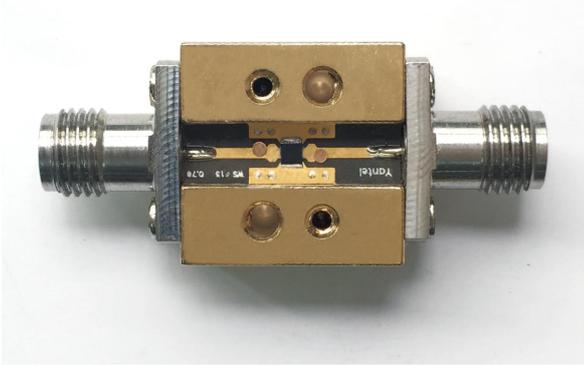


Power Rating & Derating Curve

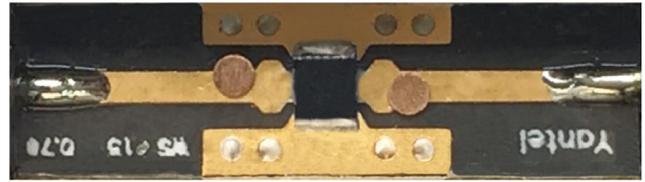


**Notes on RF Testing and Circuit Layout**

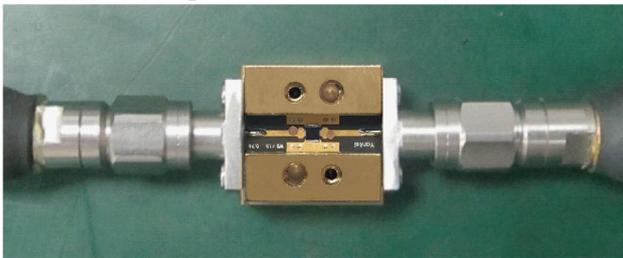
**DC-20GHz SMT series(for SMT type) Test Fixture**



**SMT PCB Test Board**



**Connect test part to Test Fixture**



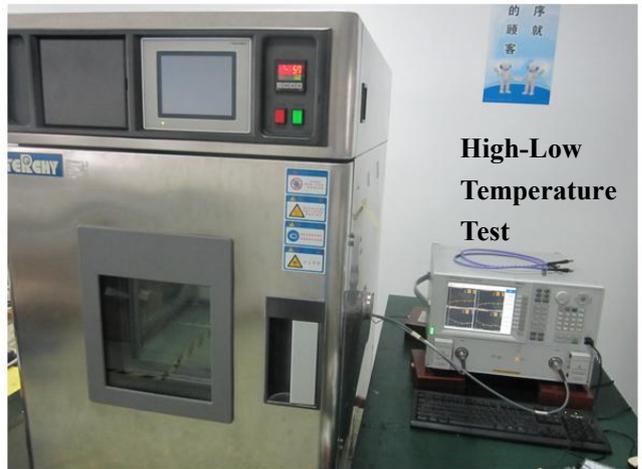
**Equipment Calibration**



**Room  
Temperature  
Test**



**High-Low  
Temperature  
Test**

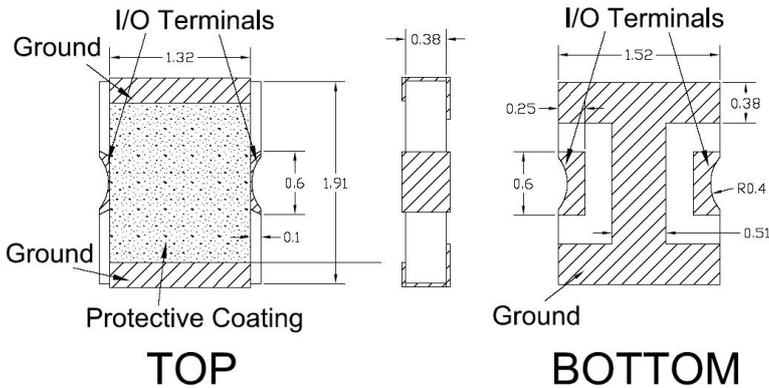


- 1、 S2P documents are available for download
- 2、 DC-20GHz or 16-36GHz test fixture is rentable (only for Chinese customers) , otherwise please purchase them.

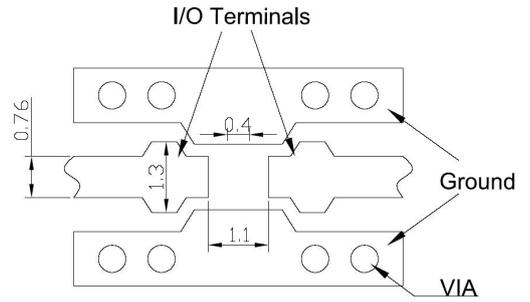
For any questions or needs, please feel free to contact [inform@yantel-corp.com](mailto:inform@yantel-corp.com).

### Package Outlines

All dimensions shown in mm unless stated otherwise  
 Note: Dimension tolerance in  $\pm 0.10$  otherwise mention.



### Recommended PCB Layout

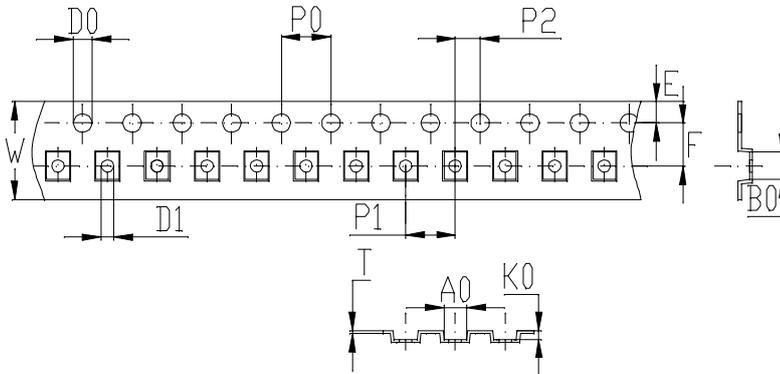


**NOTE:**

1. 50Ω line width is shown above designing from Rogers5880 dielectric thickness 0.254mm; copper H OZ
2. Bottom side of the PCB is continuous ground plane.
3. All dimensions shown in mm.

### Tape & Reel Drawing

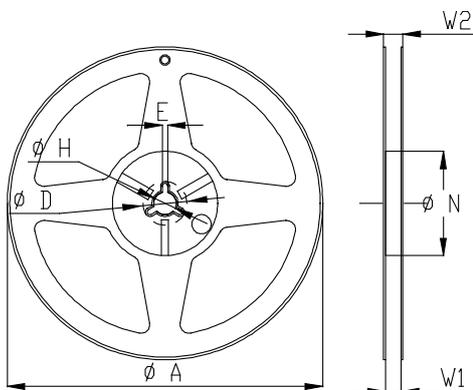
All dimensions shown in mm unless stated otherwise



**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±0.05mm
- H. 3000 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	$\Phi 1.5^{+0.1}_{-0.0}$	$\Phi 1.0^{+0.1}_{-0.0}$



Symbol	Dimensions(mm)
A	180+0/-3
N	60+1/-0
W1	9.0±0.3
W2	11±1.0
D	25±0.8
H	13±0.2
E	3±0.5

