

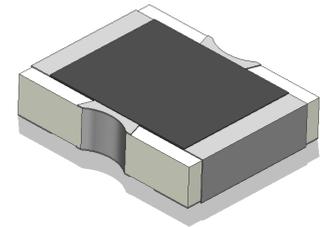
**Part No. Descriptions**

*** 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**

- Frequency Range DC to 20GHz
- Attenuation 2dB
- Attenuation Accuracy at 25°C ±0.5dB@1GHz
- VSWR at 25°C 1.50:1 Max. over DC-12GHz  
1.40:1 Max. over 12-18GHz  
1.30:1 Max. over 18-20GHz
- 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 (Al<sub>2</sub>O<sub>3</sub>)
- Resistive material: Thick film
- Terminal material: Thick film, Nickel barrier with pure tin plate (lead free) or with tin (Sn90) plate (10% lead contained)
- 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.

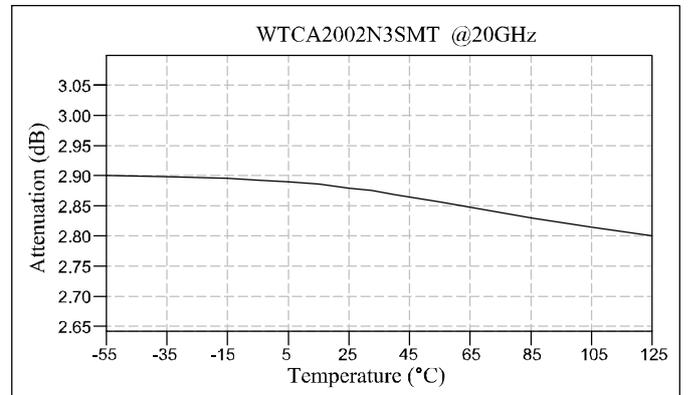
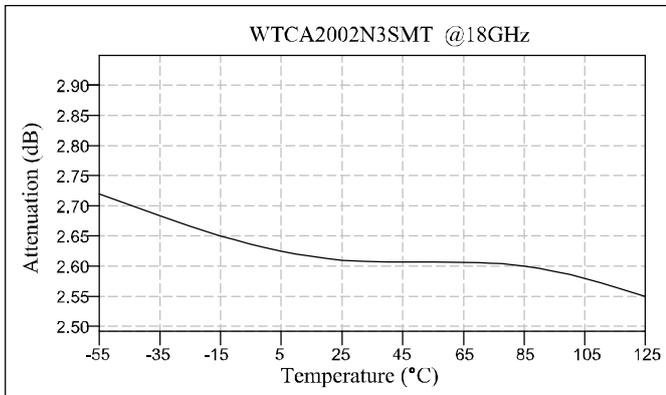
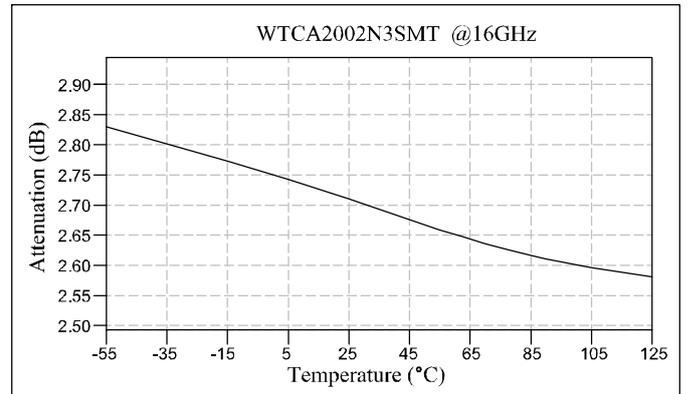
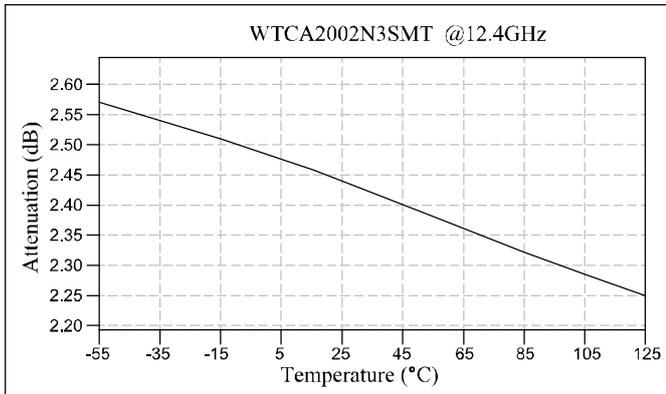
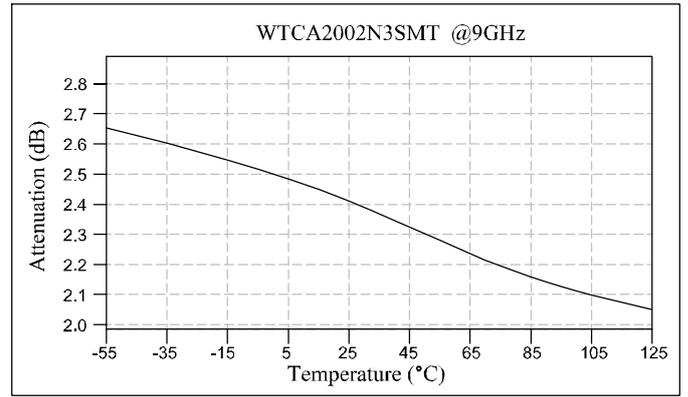
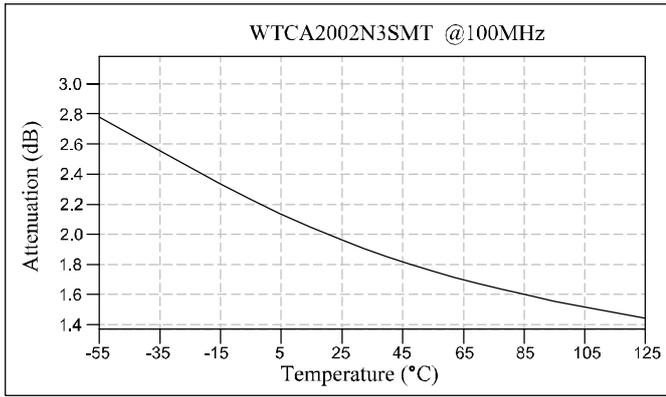


**Unit Marking** dB Value (XX), Direction of Shift (N) and TCA Shift (X).  
Legibility and Permanency: per MIL-STD-130.

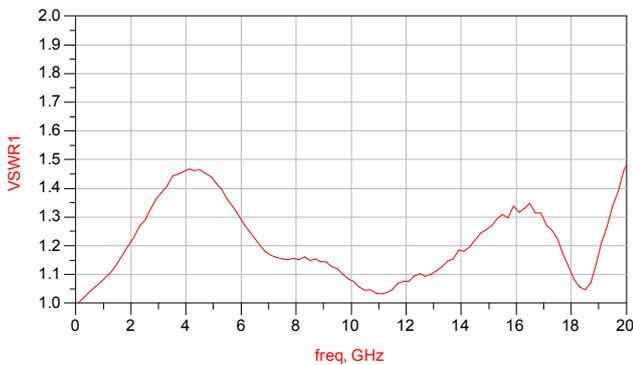
**Quality Assurance**

- 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 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.
- Test data required for customer.

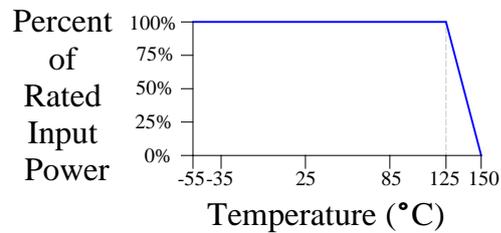
WTCA Response



Typical VSWR @25°C

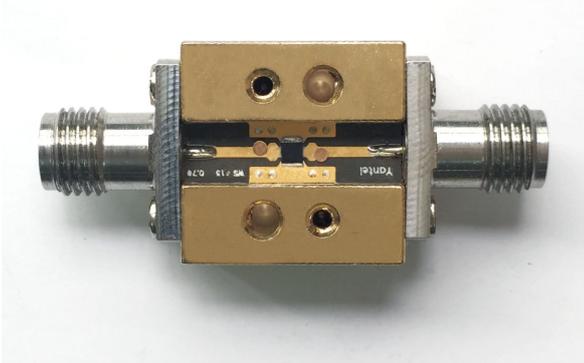


Power Rating & Derating Curve

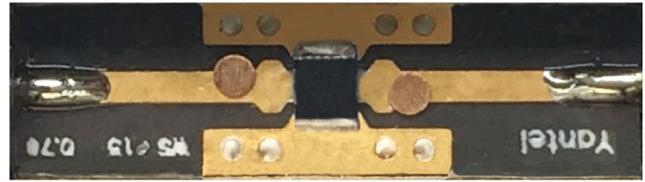


## Notes on RF Testing and Circuit Layout

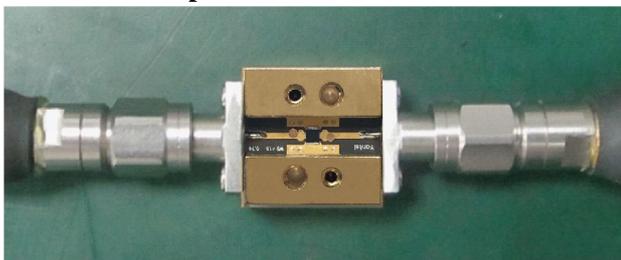
### DC-20GHz SMT series(for SMT type) Test Fixture



### SMT PCB Test Board



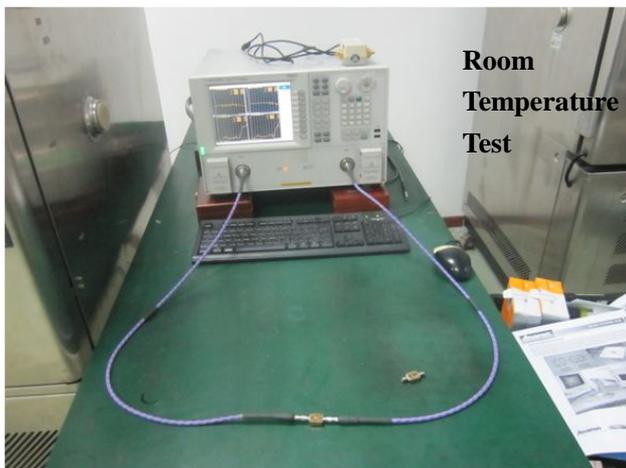
### Connect test part to Test Fixture



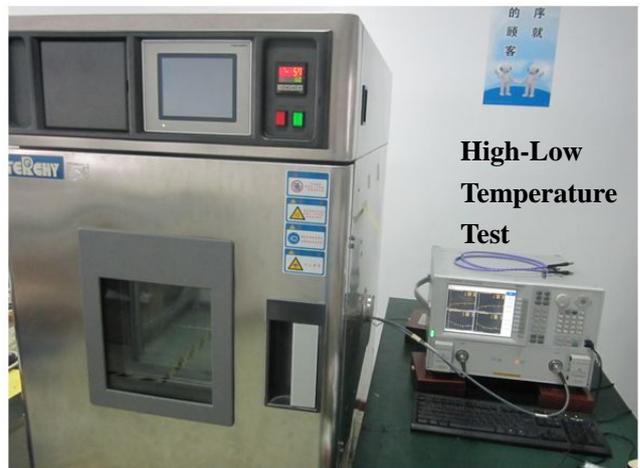
### Equipment Calibration



### Room Temperature Test



### High-Low Temperature Test

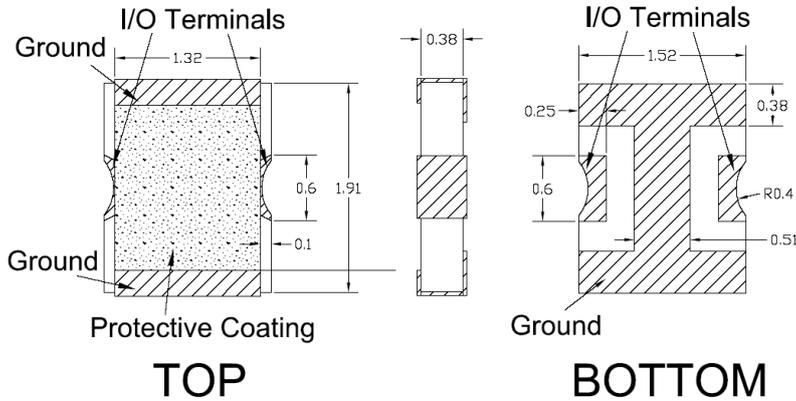


- 1、 S2P documents are available for download
- 2、 DC-20GHz or 16-36GHz test fixture is rentable (only for Chinese customers) , otherwise please purchase them.

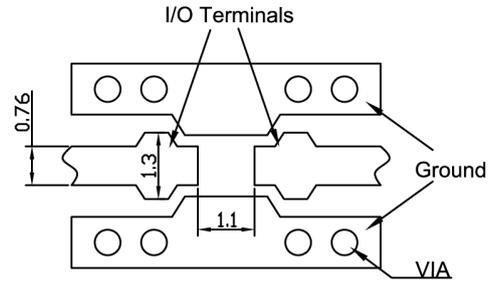
For any questions or needs, please feel free to contact [inform@yantel-corp.com](mailto:inform@yantel-corp.com).

### Package Outlines

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



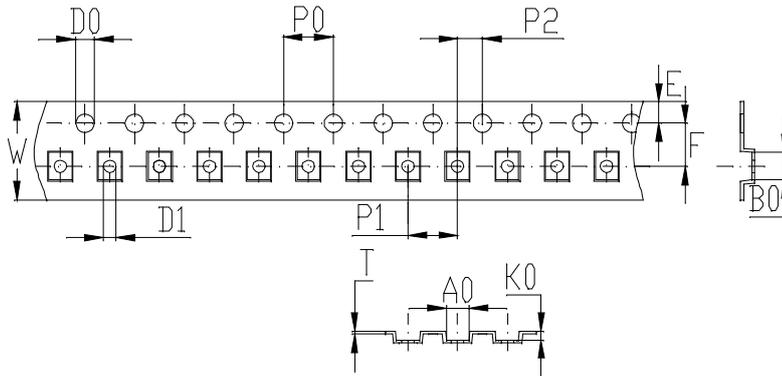
### Recommended PCB Layout



- NOTE:**
1.  $50\Omega$  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

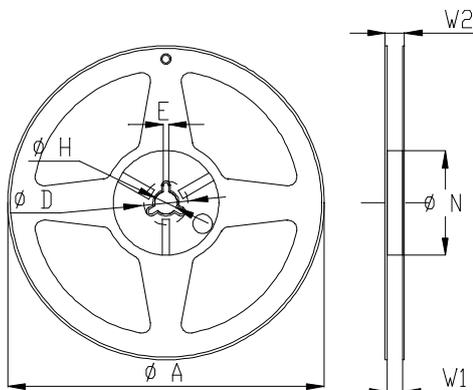
All dimensions shown in mm unless stated otherwise



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:  $0.25 \pm 0.05$ mm
- H. 3000 units (maximum) / T&R

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



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

