

**Temperature Compensation Attenuator DC~6GHz 50Ω 2W 1~10dB N3~N10**
**Part No. Descriptions**

|        |           |                            |                              |                         |                                     |
|--------|-----------|----------------------------|------------------------------|-------------------------|-------------------------------------|
| ***    | **        | **                         | **                           | **                      | *                                   |
| Series | Frequency | Attenuation                | Temperature Coefficient Code | Metallization Options   | Termination Plating Options         |
|        |           |                            |                              |                         |                                     |
| TCA,   | 06        | (01 to 10)<br>1dB to 10 dB | N3 to N10                    | Planar(no code), W1, W3 | (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 (W) | Attenuation Accuracy (dB) |
|-----------|-----------------------|------------------|------------------------------|---|---------------------------|----------------------|---------------------------|
| TCA0601N* | DC-6                  | 1                | N3~N9                        | -0.003~-0.009                                     | 1.25                      | 2                    | ±0.5                      |
| TCA0602N* | DC-6                  | 2                | N3~N10                       | -0.003~-0.010                                     | 1.25                      | 2                    | ±0.5                      |
| TCA0603N* | DC-6                  | 3                | N3~N10                       | -0.003~-0.010                                     | 1.25                      | 2                    | ±0.5                      |
| TCA0604N* | DC-6                  | 4                | N3~N10                       | -0.003~-0.010                                     | 1.25                      | 2                    | ±0.5                      |
| TCA0605N* | DC-6                  | 5                | N3~N10                       | -0.003~-0.010                                     | 1.25                      | 2                    | ±0.5                      |
| TCA0606N* | DC-6                  | 6                | N3~N10                       | -0.003~-0.010                                     | 1.25                      | 2                    | ±0.5                      |
| TCA0607N* | DC-6                  | 7                | N3~N10                       | -0.003~-0.010                                     | 1.25                      | 2                    | ±0.5                      |
| TCA0608N* | DC-6                  | 8                | N3~N10                       | -0.003~-0.010                                     | 1.25                      | 2                    | ±0.5                      |
| TCA0609N* | DC-6                  | 9                | N3~N10                       | -0.003~-0.010                                     | 1.25                      | 2                    | ±0.5                      |
| TCA0610N* | DC-6                  | 10               | N3~N10                       | -0.003~-0.010                                     | 1.25                      | 2                    | ±0.5                      |

**General Specifications**

- Frequency Range DC to 6GHz
- Attenuation 5dB
- Attenuation Accuracy at 25°C ±0.5dB@1GHz
- VSWR 1.25:1 Max. @1GHz, 1.30:1 Max.@2GHz at 25°C
- Nominal Impedance 50 Ohms
- Power Rating 2 Watts 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 3.
- 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**

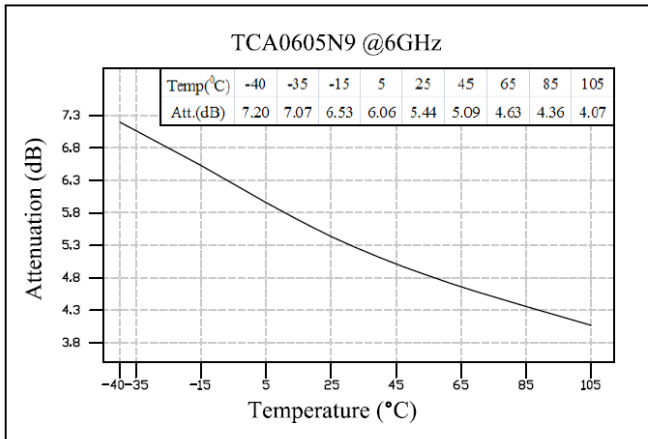
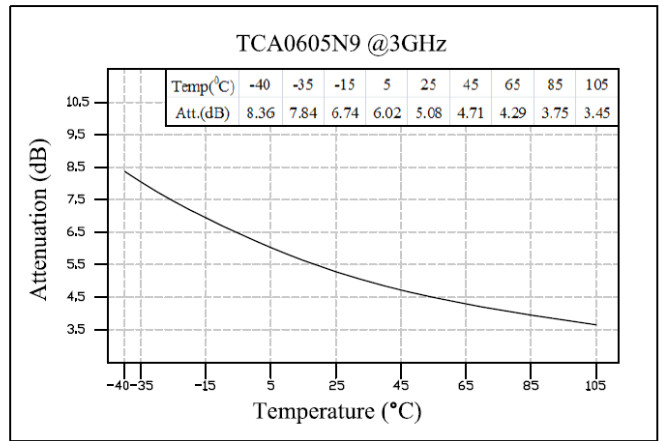
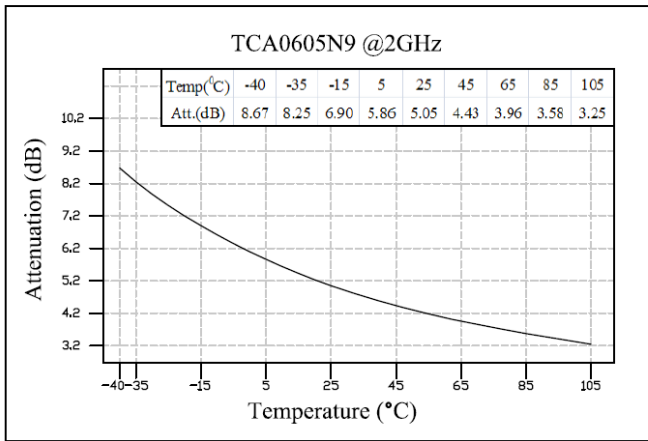
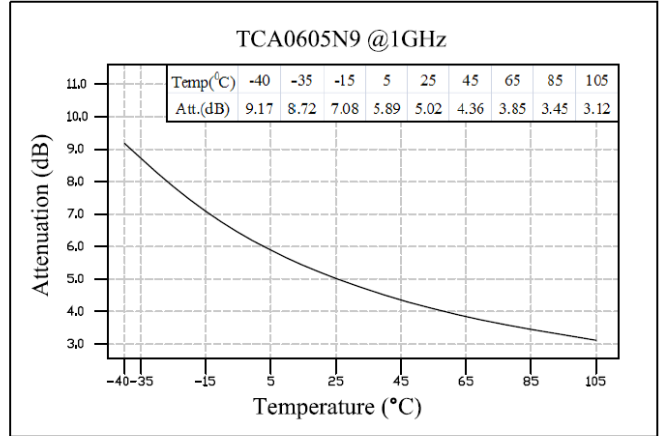
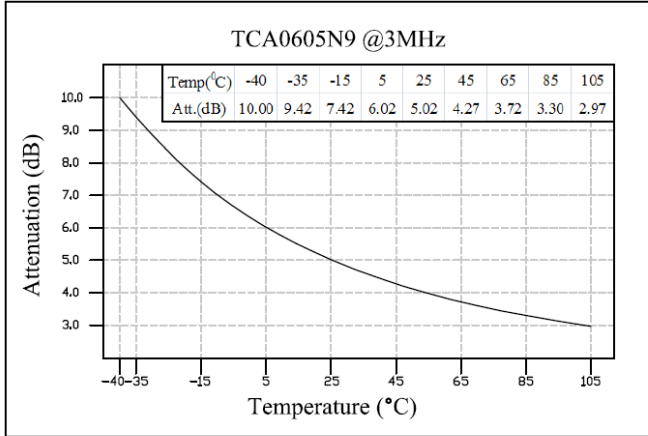
- Sample inspect per ANSI/ASQC Z1.4 general inspection, LEVEL II, AQL = 1.0.
  - 1.1 Visual and mechanical examination for conformance to outline package requirements.
- Select five (5) Units from lot measure attenuation from DC to 6 GHz every 20°C over the temperature range -35°C to +105°C.
  - 2.1 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.

**Yantel Corporation**

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Tel: 86-755-8355-1886 Fax: 86-755-8355-2533

For detailed performance specs & shopping online see Yantel web site : [www.yantel-corp.com](http://www.yantel-corp.com)

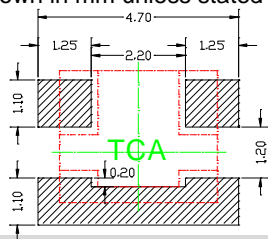
TCA Response



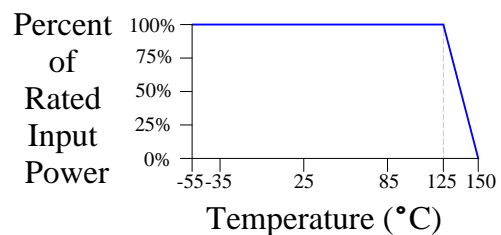
| ATT(dB) / Temp(°C) | 3MHz  | 1GHz | 2GHz | 3GHz |
|--------------------|-------|------|------|------|
| -40                | 10.00 | 9.17 | 8.67 | 8.36 |
| -35                | 9.42  | 8.72 | 8.25 | 7.84 |
| -15                | 7.42  | 7.08 | 6.90 | 6.74 |
| 5                  | 6.02  | 5.89 | 5.86 | 6.02 |
| 25                 | 5.02  | 5.02 | 5.05 | 5.08 |
| 45                 | 4.27  | 4.36 | 4.43 | 4.71 |
| 65                 | 3.72  | 3.85 | 3.96 | 4.29 |
| 85                 | 3.30  | 3.45 | 3.58 | 3.75 |
| 105                | 2.97  | 3.12 | 3.25 | 3.45 |

Recommended Layout

All dimensions shown in mm unless stated otherwise



Power Rating & Derating Curve



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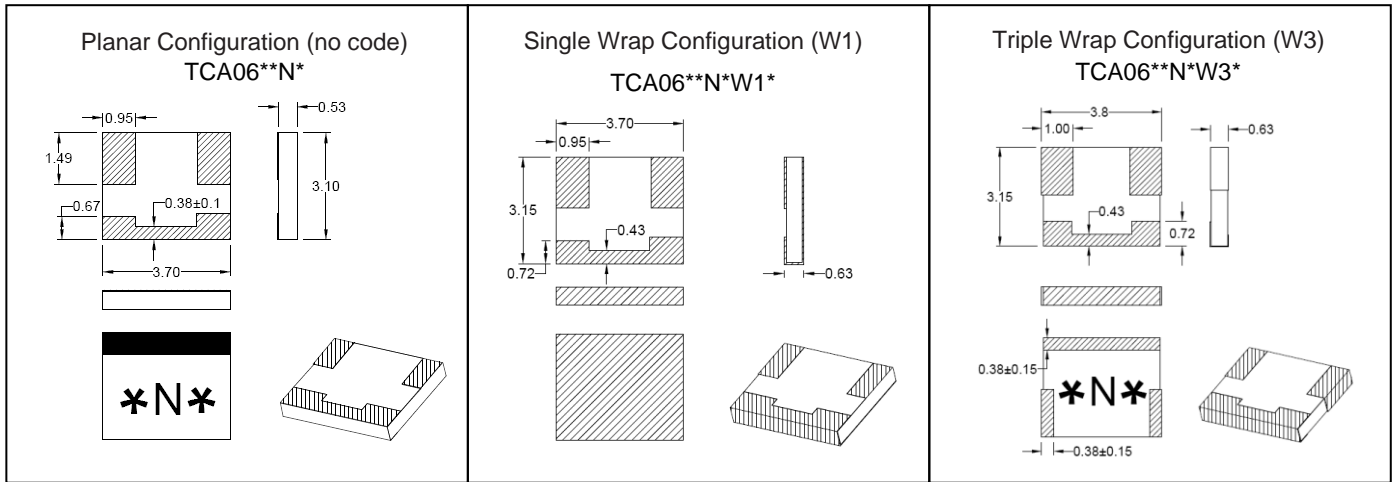
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### Package Outlines

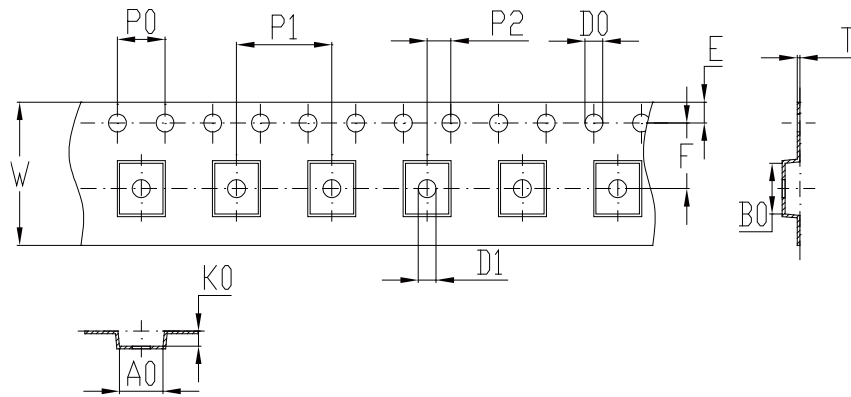
All dimensions shown in mm unless stated otherwise

Note: Dimension tolerance in  $\pm 0.10$  otherwise mention. \* represents number



### Tape & Reel Drawing

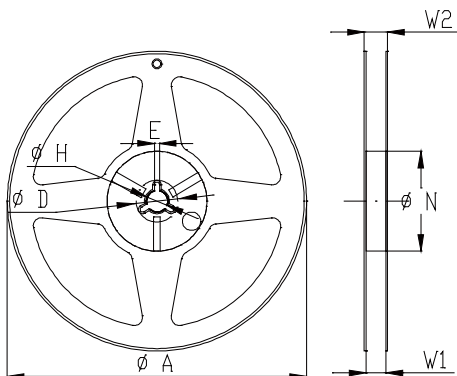
All dimensions shown in mm unless stated otherwise



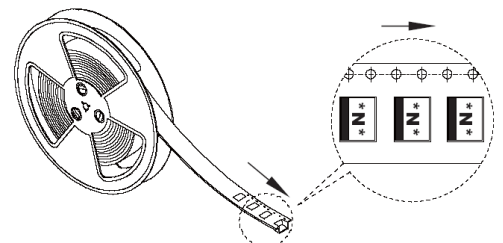
Notice:

- 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: PE 100
- G. Thickness:  $0.23 \pm 0.05$ mm
- H. 1500 units (maximum) / T&R

|        |                |                 |                |               |                          |                |
|--------|----------------|-----------------|----------------|---------------|--------------------------|----------------|
| symbol | A0             | B0              | K0             | P0            | P1                       | P2             |
| spec   | $3.65 \pm 0.1$ | $4.25 \pm 0.1$  | $1.25 \pm 0.1$ | $4.0 \pm 0.1$ | $8.0 \pm 0.1$            | $2.0 \pm 0.1$  |
| symbol | W              | T               | E              | F             | D0                       | D1             |
| spec   | $12.0 \pm 0.3$ | $0.23 \pm 0.05$ | $1.75 \pm 0.1$ | $5.5 \pm 0.1$ | $\Phi 1.5^{+0.1}_{-0.0}$ | $\Phi 1.5$ min |



| Symbol | Dimensions(mm) |
|--------|----------------|
| A      | $180^{+0/-3}$  |
| N      | $60^{+1/-0}$   |
| W1     | $12.0 \pm 0.3$ |
| W2     | $14 \pm 1.0$   |
| D      | $25 \pm 0.8$   |
| H      | $13 \pm 0.2$   |
| E      | $3 \pm 0.5$    |



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