# ATTENUATOR
# TEMPERATURE VARIABLE

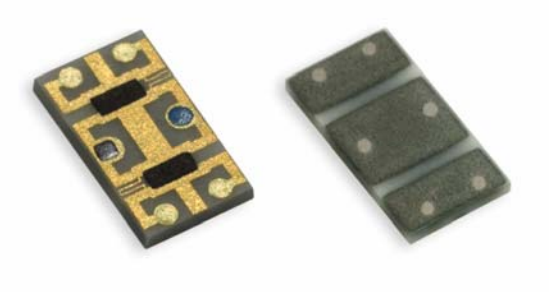


## FEATURES

- Temperature Variable
- Compact Package
- Wideband Performance
- Passive Gain Compensation
- Rugged Construction
- MIL-PRF-55342
- Wirebond Based Mounting

## APPLICATIONS

- Power Amplifiers
- Instrumentation
- Mobile Networks
- Point-to-Point Radios
- Satellite Communications
- Military Radios
- Up/Down Converters



## GENERAL DESCRIPTION

EMC Technology is the leading authority in temperature variable attenuators. Thermopad® temperature variable attenuators have been a highly reliable passive solution for over temperature gain compensation for more than 20 years. All Thermopad® products can be qualified for high-reliability and space applications.

## ORDERING INFORMATION

### Part Identifier:

K2TVAXXNXX3

- Attenuation (dB)
- Negative TCA
- Temperature Coefficient of Attenuation ($10^{-3}$ dB/dB/°C)
- Operating Frequency 3 = 27 – 32 GHz

## SPECIFICATIONS

### 1.0 ELECTRICAL

| | |
|---|---|
| Nominal Impedance: | 50 ohms |
| Frequency Range: | 27 – 32 GHz |
| Attenuation Values Available: | 3 – 6 dB in one dB increments |
| Attenuation Accuracy: | ±0.5 dB Typical, ±1.0 dB Max |
| VSWR: | 1.25:1 Typical; 1.40:1 Max |
| Input Power | 200 Milliwatts |
| Temperature Coefficient of Attenuation: | -0.005 and -0.007 dB/dB/°C |
| Temperature Coefficient Tolerance: | ±0.001 dB/dB/°C Typical, ±0.002 dB/dB/°C Max |

### 2.0 ENVIRONMENTAL

| | |
|---|---|
| Operating Temperature: | -55˚C to +150˚C |
| Non-operating Temperature: | -65˚C to +150˚C |
| Temperature Coefficient: | ± 200 PPM / ˚C Max |

### 3.0 MARKING

| | |
|---|---|
| Unit Marking: | Dot Marking See Table |

## 4.0 QUALITY ASSURANCE

Sample Inspect Per ANSI/ASQC Z1.4 General Inspection, Level II, AQL=1.0.

Visual and Mechanical Examination for Conformance to Outline Drawing Requirements

Sample Inspection (Destructive Testing).

Select three (3) units from lot and measure attenuation from 27-32 GHz every 20ºC over the temperature range of -55°C to +125°C; Calculate using linear regression, the slope of the curve.

Calculate TCA using the following formula:

$$TCA = \frac{Slope}{Attenuation\ @\ 25°C}$$

Inspection in accordance with 824W107

Test Data Requirements:

No Data Required for Customer

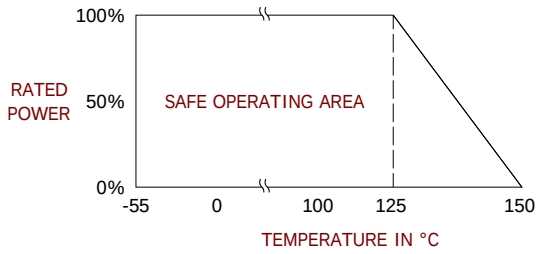
Data Retention – 24 Months

## 5.0 PACKAGING

| | |
|---|---|
| Standard: | Waffle |

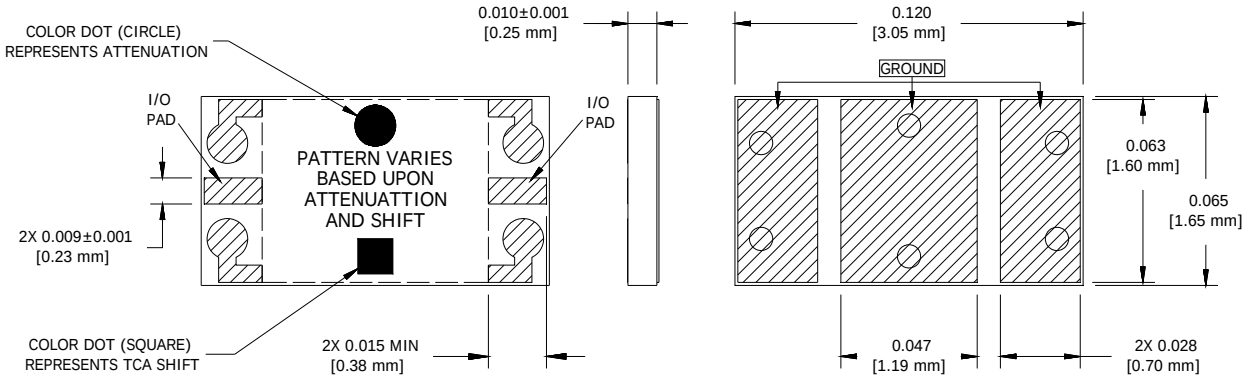
## 6.0 MECHANICAL

| | |
|---|---|
| Substrate Material: | Alumina |
| Terminal Material: | Thick Film Bondable Gold |
| Ground Plane: | Solderable Gold |
| Resistive Element: | Thick Film |
| Workmanship: | PER MIL-PRF-55342 |
| Metric Dimensions: | Provided for reference only |



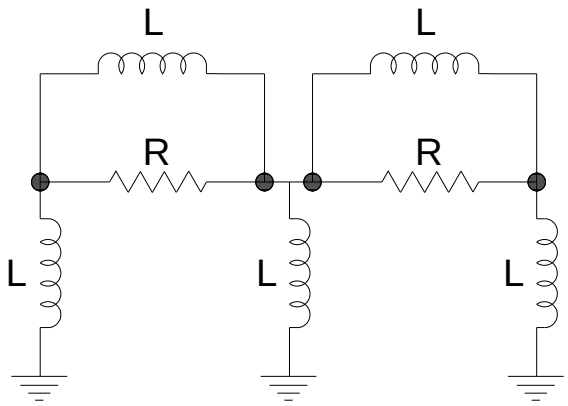
## 7.0 SUGGESTED MOUNTING

Refer to Application Note AN006 Figure 7, for Recommended Mounting Instructions.




| COLOR DOT CODE TABLE | | |
|---|---|---|
| COLOR | ATTENUATION (dB) | TCA (dB/dB/°C) |
| ORANGE | 3 | NA |
| YELLOW | 4 | NA |
| GREEN | 5 | -0.005 |
| BLUE | 6 | NA |
| VIOLET | NA | -0.007 |

CIRCUIT SCHEMATIC




Unless Otherwise Specified: TOLERANCE: X.XX = ± 0.01 X.XXX = ± 0.005