



COAXIAL

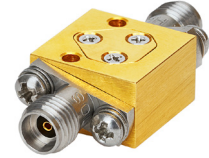
# Broadband Slope Equalizer

## ZEQ-10-44K+

50Ω DC to 40 GHz 2.92mm Female

### THE BIG DEAL

- Wide band operation, DC to 40 GHz
- Negative insertion loss slope of 9.4 dB typ. (other slope values available)
- Internally matched to 50 Ohm
- Minimal slope deviation of  $\pm 0.4$  dB typical
- Small form-factor 0.56 x 0.56 inches
- Power Handling of +28 dBm



Generic photo used for illustration purposes only

|            |                        |
|------------|------------------------|
| Model No.  | ZEQ-10-44K+            |
| Case Style | UK2938-2               |
| Connectors | 2.92mm Female (K-type) |

### APPLICATIONS

- Amplifier gain slope compensation
- Cable loss compensation
- Ka and Ku band satellite communications
- 5G mmW systems

**+RoHS Compliant**  
 The +Suffix identifies RoHS Compliance.  
 See our website for methodologies and qualifications

### PRODUCT OVERVIEW

Mini-Circuits' ZEQ-10-44K+ is a broadband, connectorized negative insertion loss slope equalizer, with a slope of 9.4 dB typ. over the range of DC to 40 GHz. The model is bi-directional and offers excellent electrical performance in applications where frequency dependent transmission line losses (negative gain slope) hinder the overall system performance. Model ZEQ-10-44K+ is a great choice for compensating negative gain slope of amplifiers, receivers and transmitters to achieve a flat gain response with respect to frequency.

### KEY FEATURES

| Features                                       | Advantages  |
|--|---|
| Minimal slope deviation of $\pm 0.4$ dB (typ.) | Provides low signal distortion over the broadband range from DC to 40 GHz   |
| Good 50 Ohm match over broadband               | Model offers good return loss of 15 dB (typ.) over entire band, minimizing signal distortion                      |
| Small form factor                              | Model is offered in a small case size of 0.56 " x 0.56 " providing advantages in densely clustered systems        |
| Wide operating temperature                     | The device operates over a wide temperature range of -40 °C to +85 °C with slope deviation of $\pm 0.4$ dB (typ.) |





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### ELECTRICAL SPECIFICATIONS AT 25°C

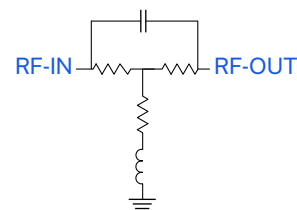
| Parameter       | Condition (GHz) | Min. | Typ. | Max. | Units |
|-----------------|-----------------|------|------|------|-------|
| Frequency Range | -               | 0.01 | -    | 40   | GHz   |
| Insertion Loss  | 0.01            | 11.7 | 12.0 | 12.4 | dB    |
|                 | 10              | 9.7  | 10.1 | 10.5 |       |
|                 | 20              | -    | 7.2  | -    |       |
|                 | 30              | 4.1  | 4.6  | 5.0  |       |
|                 | 40              | -    | 2.7  | -    |       |
| VSWR            | 0.01-10         | -    | 1.2  | -    | :1    |
|                 | 10-20           | -    | 1.2  | -    |       |
|                 | 20-40           | -    | 1.4  | -    |       |

### MAXIMUM RATINGS

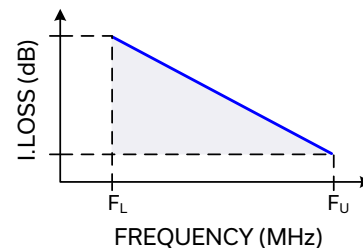
| Parameter                  | Ratings           |
|----------------------------|-------------------|
| Operating Case Temperature | -40 °C to +85 °C  |
| Storage Temperature        | -55 °C to +100 °C |
| Input Power*               | +28 dBm           |

Permanent damage may occur if any of these limits are exceeded.  
 \*Max. RF power rating is the same in either direction.  
 Derate to +25 dBm at 85 °C

### SIMPLIFIED FUNCTIONAL SCHEMATIC



### TYPICAL FREQUENCY RESPONSE





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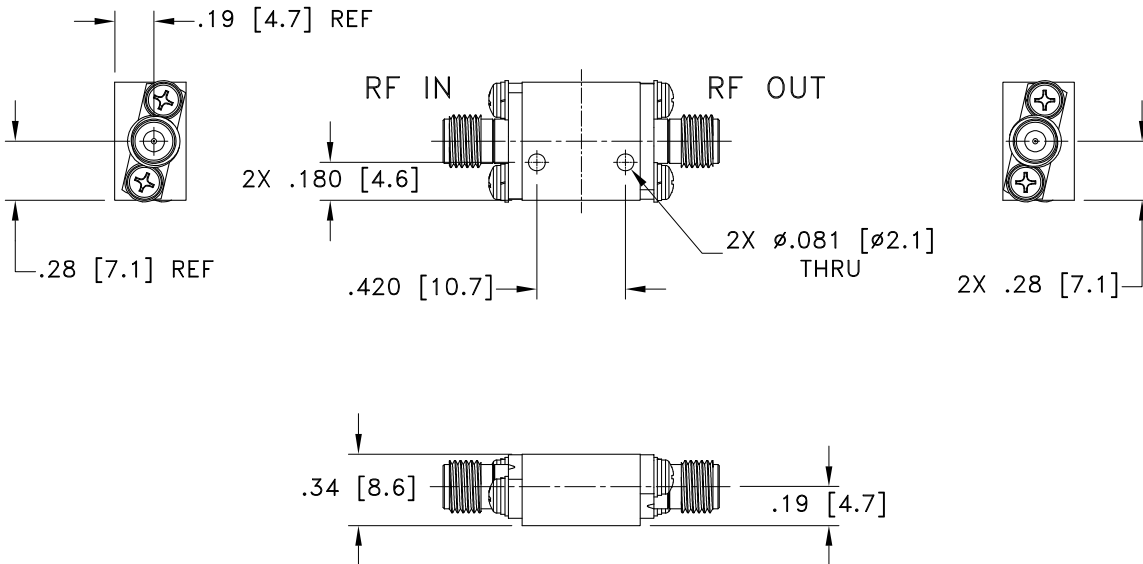
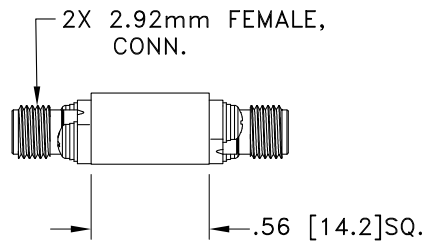
# ZEQ-10-44K+

50Ω DC to 40 GHz 2.92mm Female

### COAXIAL CONNECTIONS

|        |               |
|--------|---------------|
| Input  | 2.92mm Female |
| Output | 2.92mm Female |

### OUTLINE DRAWING



Weight: 20 grams; Dimensions are in inches [mm]. Tolerances: 2 Pl.±.03; 3 Pl. ±.015



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# Broadband Slope Equalizer

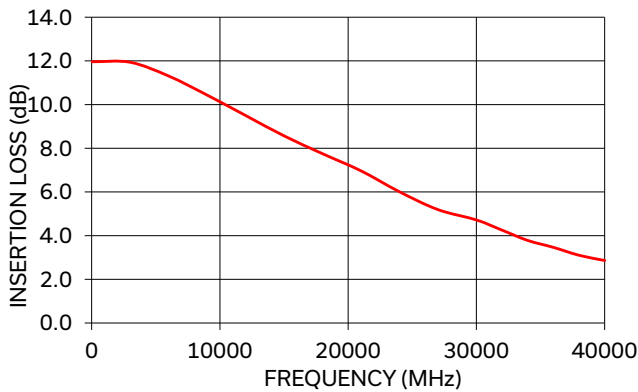
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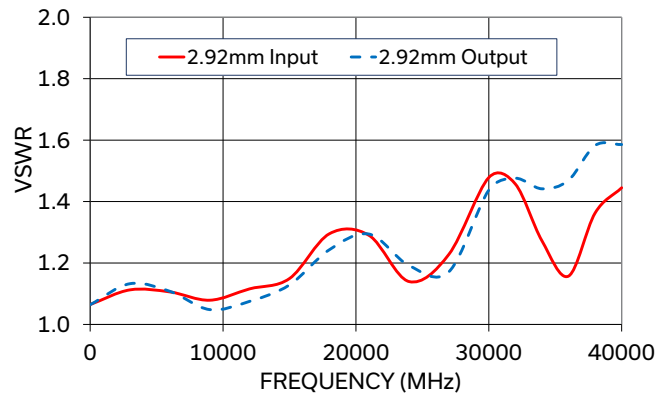
### TYPICAL PERFORMANCE DATA AND CHARTS

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1)    |               |
|-----------------|---------------------|--------------|---------------|
|                 |                     | 2.92mm RF-IN | 2.92mm RF-OUT |
| 10              | 11.96               | 1.06         | 1.06          |
| 3000            | 11.94               | 1.11         | 1.13          |
| 6000            | 11.31               | 1.11         | 1.11          |
| 9000            | 10.44               | 1.08         | 1.05          |
| 12000           | 9.50                | 1.12         | 1.08          |
| 15000           | 8.57                | 1.15         | 1.13          |
| 18000           | 7.75                | 1.30         | 1.24          |
| 21000           | 6.97                | 1.29         | 1.29          |
| 24000           | 6.01                | 1.14         | 1.19          |
| 27000           | 5.19                | 1.23         | 1.17          |
| 30000           | 4.72                | 1.48         | 1.44          |
| 32000           | 4.25                | 1.46         | 1.48          |
| 34000           | 3.78                | 1.27         | 1.44          |
| 36000           | 3.46                | 1.16         | 1.47          |
| 38000           | 3.10                | 1.36         | 1.58          |
| 40000           | 2.86                | 1.44         | 1.59          |

ZEQ-10-44K+  
INSERTION LOSS



ZEQ-10-44K+  
VSWR



#### NOTES

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)

