*Surface Mount*

# RF Transformer

50Ω 0.15 to 250 MHz

## T8-1-KK81+
## T8-1-KK81



*Generic photo used for illustration purposes only*

CASE STYLE: KK81

***+RoHS Compliant***

*The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications*

Available Tape and Reel at no extra cost

| Reel Size | Devices/Reel |
|---|---|
| 13" | 900 |

## Maximum Ratings

| | |
|---|---|
| Operating Temperature | -20°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 250mW |
| DC Current | 30mA |

Permanent damage may occur if any of these limits are exceeded.

## Pin Connections

| | |
|---|---|
| PRIMARY DOT | 6 |
| PRIMARY | 3 |
| SECONDARY DOT | 1 |
| SECONDARY | 3 |
| NOT USED | 2,4,5 |

## Features

- wideband, 0.15 to 250 MHz
- excellent return loss
- also available with plug-in (X65) & flat-pack (W38) leads

## Applications

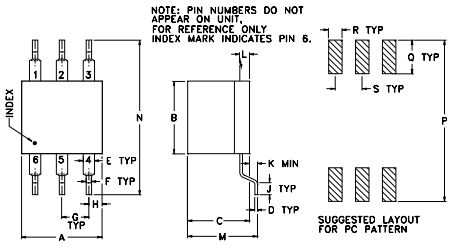
- impedance matching
- communication systems

## Transformer Electrical Specifications

| Ω RATIO (Secondary/Primary) | FREQUENCY (MHz) | INSERTION LOSS* | | |
|---|---|---|---|---|
| | | 3 dB MHz | 2 dB MHz | 1 dB MHz |
| 8 | 0.15-250 | 0.15-250 | 0.25-200 | 2-100 |

* Insertion Loss is referenced to mid-band loss, 0.6 dB typ.

## Outline Drawing




## Outline Dimensions (inch / mm)

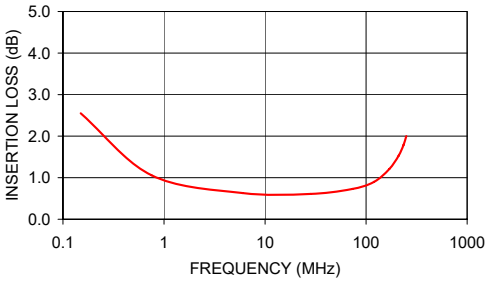
| A | B | C | D | E | F | G | H | J |
|---|---|---|---|---|---|---|---|---|
| .30 | .27 | .23 | .010 | .042 | .020 | .100 | .05 | .05 |
| 7.62 | 6.86 | 5.84 | 0.25 | 1.07 | 0.51 | 2.54 | 1.27 | 1.27 |

| K | L | M | N | P | Q | R | S | wt |
|---|---|---|---|---|---|---|---|---|
| .020 | .036 | .26 | .575 | .600 | .125 | .050 | .100 | grams |
| 0.51 | 0.91 | 6.60 | 14.61 | 15.24 | 3.18 | 1.27 | 2.54 | 0.50 |

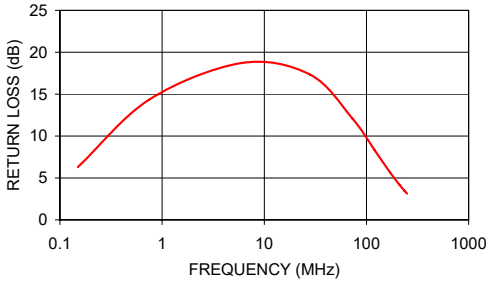
## Typical Performance Data

| FREQUENCY (MHz) | INSERTION LOSS (dB) | INPUT R. LOSS (dB) |
|---|---|---|
| 0.15 | 2.55 | 6.30 |
| 0.75 | 1.06 | 14.36 |
| 6.00 | 0.63 | 18.72 |
| 28.00 | 0.61 | 17.34 |
| 73.00 | 0.73 | 12.07 |
| 120.00 | 0.90 | 8.32 |
| 170.00 | 1.21 | 5.67 |
| 210.00 | 1.53 | 4.20 |
| 235.00 | 1.79 | 3.49 |
| 250.00 | 2.00 | 3.14 |

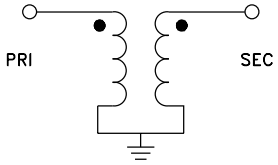
T8-1-KK81
INSERTION LOSS




T8-1-KK81
INPUT RETURN LOSS




## Config. D




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/MCLStore/terms.jsp

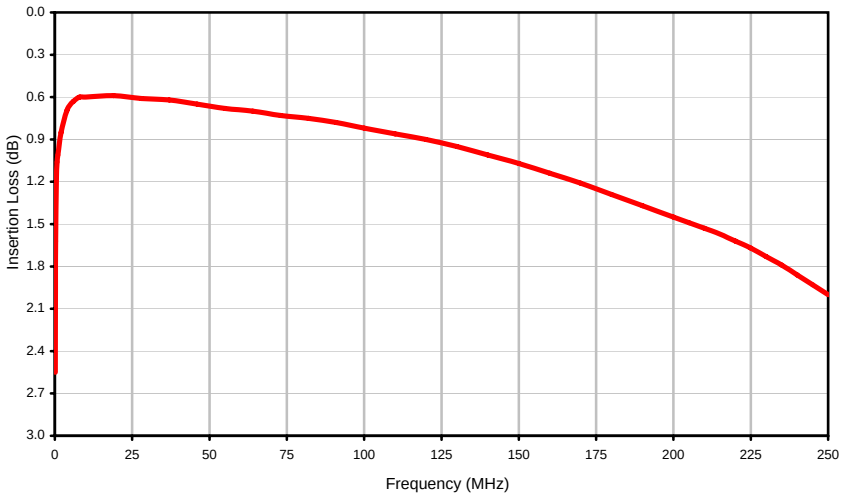
# RF Transformer T8-1+

## *Typical Performance Data*

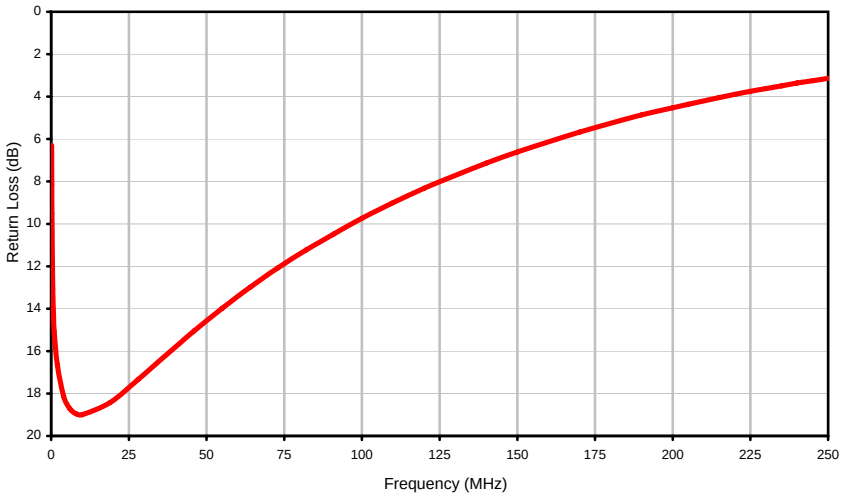
| FREQUENCY (MHz) | INSERTION LOSS (dB) | RETURN LOSS (dB) |
|---|---|---|
| 0.15 | 2.55 | 6.30 |
| 0.20 | 1.95 | 8.14 |
| 0.25 | 1.62 | 9.51 |
| 0.50 | 1.17 | 13.06 |
| 0.75 | 1.06 | 14.36 |
| 1.00 | 1.01 | 15.07 |
| 2.00 | 0.85 | 16.66 |
| 4.00 | 0.69 | 18.13 |
| 6.00 | 0.63 | 18.72 |
| 8.00 | 0.60 | 18.95 |
| 10.00 | 0.60 | 19.00 |
| 19.00 | 0.59 | 18.42 |
| 28.00 | 0.61 | 17.34 |
| 37.00 | 0.62 | 16.18 |
| 46.00 | 0.65 | 15.04 |
| 55.00 | 0.68 | 13.99 |
| 64.00 | 0.70 | 12.99 |
| 73.00 | 0.73 | 12.07 |
| 82.00 | 0.75 | 11.23 |
| 91.00 | 0.78 | 10.47 |
| 100.00 | 0.82 | 9.74 |
| 110.00 | 0.86 | 9.00 |
| 120.00 | 0.90 | 8.32 |
| 130.00 | 0.95 | 7.72 |
| 140.00 | 1.01 | 7.14 |
| 150.00 | 1.07 | 6.61 |
| 160.00 | 1.14 | 6.13 |
| 170.00 | 1.21 | 5.67 |
| 180.00 | 1.29 | 5.26 |
| 190.00 | 1.37 | 4.86 |
| 200.00 | 1.45 | 4.53 |
| 205.00 | 1.49 | 4.36 |
| 210.00 | 1.53 | 4.20 |
| 215.00 | 1.57 | 4.04 |
| 220.00 | 1.62 | 3.89 |
| 225.00 | 1.67 | 3.75 |
| 230.00 | 1.73 | 3.62 |
| 235.00 | 1.79 | 3.49 |
| 240.00 | 1.86 | 3.36 |
| 245.00 | 1.93 | 3.25 |
| 250.00 | 2.00 | 3.14 |

*Typical Performance Curves*

**Insertion Loss**



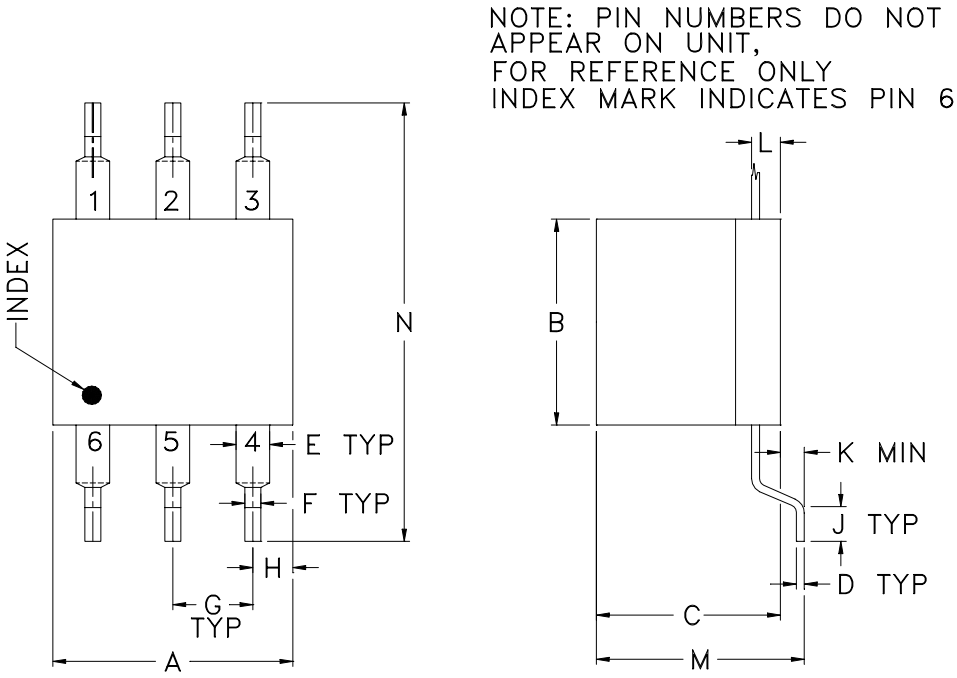

**Return Loss**



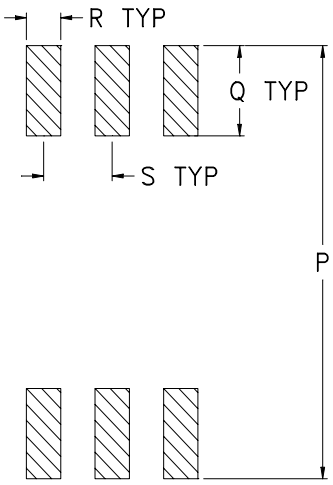
# Case Style KK

**KK81**
**KK265**

## Outline Dimensions




### PCB Land Pattern




Suggested Layout,
Tolerance to be within ±.002

| CASE # | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KK81 | .30 (7.62) | .27 (6.86) | .23 (5.84) | .010 (0.25) | 0.42 (1.07) | .020 (0.51) | .100 (2.54) | .05 (1.27) | .05 (1.27) | .020 (0.51) | .036 (0.91) | .26 (6.60) | .575 (14.61) | .600 (15.24) |
| KK265 | .30 (7.62) | .27 (6.86) | .22 (5.84) | .010 (0.25) | .020 (0.50) | .020 (0.51) | .100 (2.54) | .05 (1.27) | .05 (1.27) | 0.1 (0.25) | .032 (0.81) | .23 (5.84) | .450 (10.62) | .475 (12.07) |

| CASE # | Q | R | S | WT. GRAM |
|---|---|---|---|---|
| KK81 | .125 (3.18) | .050 (1.27) | .100 (2.54) | .50 |
| KK265 | .125 (3.18) | .050 (1.27) | .100 (2.54) | .65 |

**Dimensions are in inches (mm). Tolerances: 2 Pl. ± .03; 3 Pl. ± .015**

**Notes:**

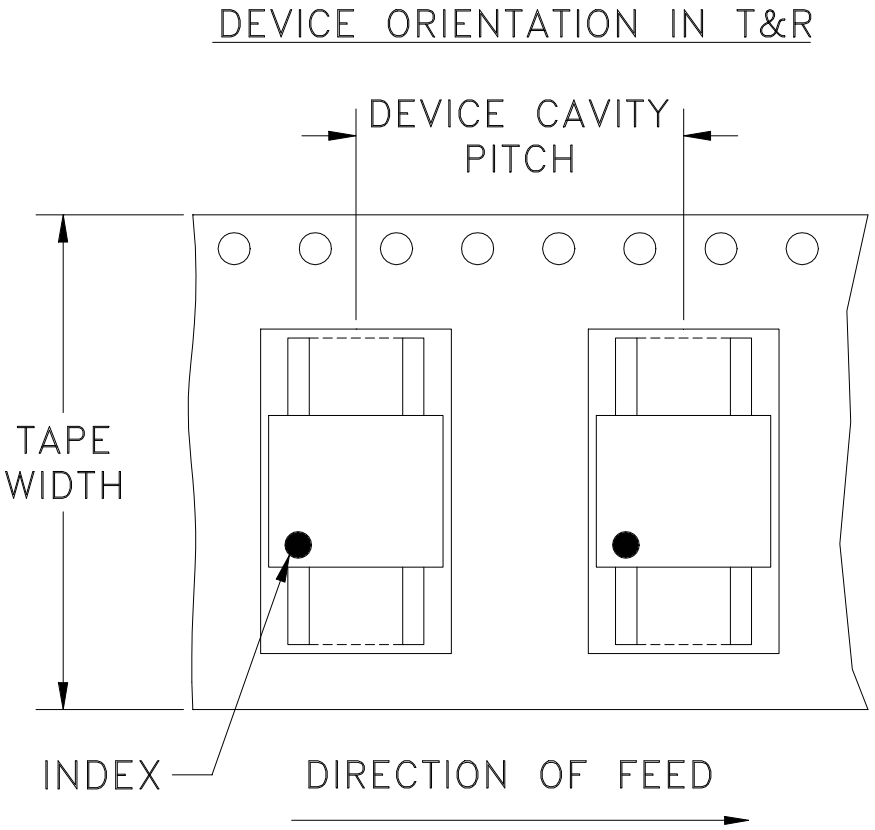
1. Case material: Plastic.
2. Termination finish:
   For RoHS Case Styles: Tin plate over Nickel plate.
   For RoHS-5 Case Styles: Tin-Lead plate.
3. Special Tolerances: Termination width ± .005 inch, termination thickness ± .003 inch.


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# Tape & Reel Packaging TR-F1




| Tape Width, mm | Device Cavity Pitch, mm | Reel Size, inches | Devices per Reel |
|---|---|---|---|
| 24 | 12 | 13 | 900 |

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

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# Environmental Specifications ENV19

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification | Test/Inspection Condition | Reference/Spec |
|---|---|---|
| Operating Temperature | -20° to 85°C<br>Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C<br>Ambient Environment | Individual Model Data Sheet |
| Thermal Shock | -55° to 100°C, 100 cycles | MIL-STD-202, Method 107, Condition A-3, except +100°C |
| Solder Reflow Heat | Sn-Pb Eutetic Process: 225°C peak<br>Pb-Free Process 245° - 250°C peak | J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1 |
| Solderability | 10X Magnification | J-STD-002, Para 4.2.5, Test S, 95% Coverage |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36) | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock | 50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes | MIL-STD-202, Method 213, Condition A |
| Lead Integrity | 2 Pound Pull, perpendicular to edge of unit | MIL-STD-202, Method 211, Condition A |
| Marking Resistance to Solvents | Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C;<br>distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C | MIL-STD-202, Method 215 |


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