

Surface Mount RF Transformer

50Ω 0.075 to 500 MHz

TT1.5-1-KK81+ TT1.5-1-KK81



CASE STYLE: KK81

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

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 | 4 |
| PRIMARY | 6 |
| PRIMARY CT | 5 |
| SECONDARY DOT | 3 |
| SECONDARY | 1 |
| SECONDARY CT | 2 |

Features

- wideband, 0.075 to 500 MHz
- good return loss
- also available with plug-in (X65) and flat-pack (W38) leads

Applications

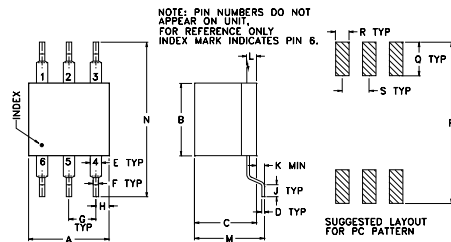
- VHF/UHF
- impedance matching
- CATV

Transformer Electrical Specifications

| Ω RATIO (Secondary/Primary) | FREQUENCY (MHz) | INSERTION LOSS* | | |
|-----------------------------------|--------------------|-----------------|-------------|-------------|
| | | 3 dB MHz | 2 dB MHz | 1 dB MHz |
| 1.5 | 0.075-500 | 0.075-500 | 0.2-100 | 1-50 |

* Insertion Loss is referenced to mid-band loss, 0.4 dB typ.

Outline Drawing



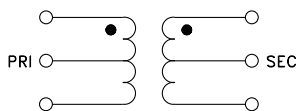
Outline Dimensions (inch)

| 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) |
|--------------------|---------------------------|--------------------------|
| 0.080 | 2.88 | 4.70 |
| 0.910 | 0.67 | 19.36 |
| 4.940 | 0.41 | 23.51 |
| 19.840 | 0.40 | 23.36 |
| 81.210 | 0.75 | 16.19 |
| 201.510 | 1.47 | 8.72 |
| 297.470 | 1.80 | 5.38 |
| 351.510 | 1.89 | 4.13 |
| 439.130 | 1.70 | 2.79 |
| 500.000 | 1.57 | 2.35 |

Config. B



Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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

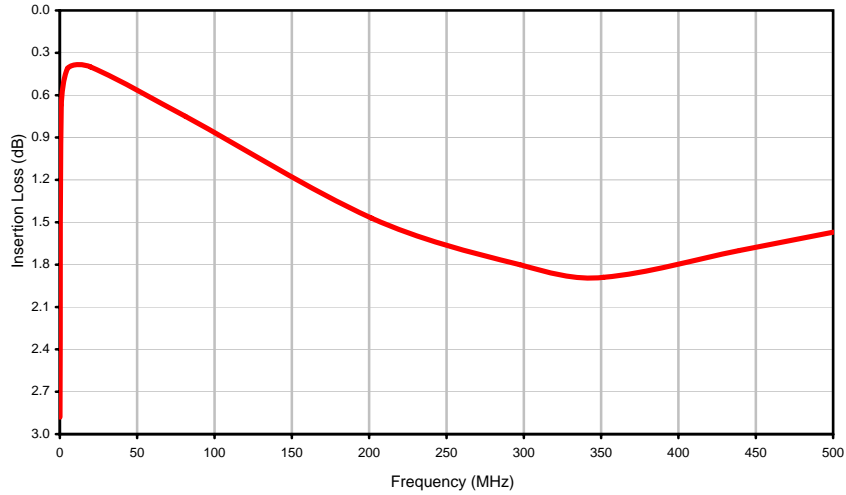


Typical Performance Data

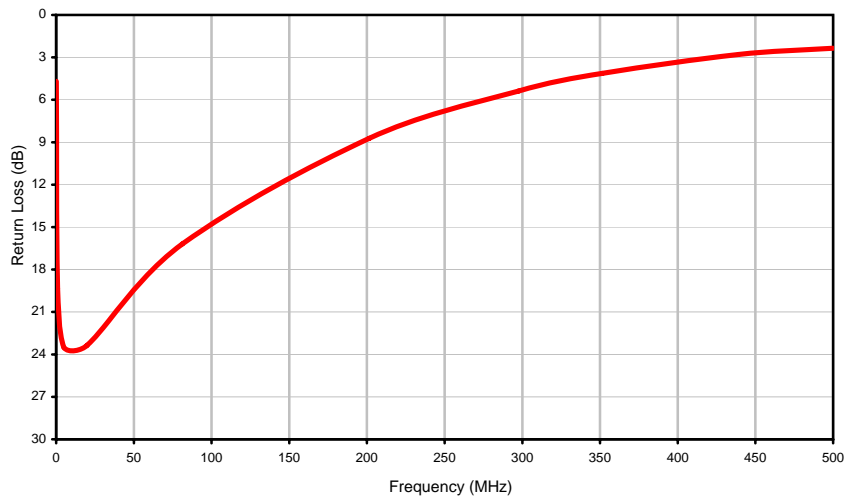
| FREQUENCY (MHz) | INSERTION LOSS (dB) | RETURN LOSS (dB) |
|--------------------|---------------------------|------------------------|
| 0.08 | 2.88 | 4.70 |
| 0.91 | 0.67 | 19.36 |
| 4.94 | 0.41 | 23.51 |
| 19.84 | 0.40 | 23.36 |
| 81.21 | 0.75 | 16.19 |
| 201.51 | 1.47 | 8.72 |
| 297.47 | 1.80 | 5.38 |
| 351.51 | 1.89 | 4.13 |
| 439.13 | 1.70 | 2.79 |
| 500.00 | 1.57 | 2.35 |

Typical Performance Curves

Insertion Loss



Return Loss



Case Style

KK

Outline Dimensions

KK81
KK265

NOTE: PIN NUMBERS DO NOT APPEAR ON UNIT, FOR REFERENCE ONLY INDEX MARK INDICATES PIN 6.



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

| 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 (2.54) | .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. $\pm .03$; 3 Pl. $\pm .015$

Notes:

- Case material: Plastic.
- Termination finish:
For RoHS Case Styles: Tin plate over Nickel plate.
For RoHS-5 Case Styles: Tin-Lead plate.
- Special Tolerances: Termination width $\pm .005$ inch, termination thickness $\pm .003$ 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.

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| Specification | Test/Inspection Condition | Reference/Spec |
|--------------------------------|---|---|
| Operating Temperature | -20° to 85°C Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C 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 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; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C | MIL-STD-202, Method 215 |