



MMIC BALUN

# RF Transformer

## MTX2-143+

Mini-Circuits

50Ω 5500 to 13500 MHz

### THE BIG DEAL

- Wideband, 5500 to 13500 MHz
- Low phase unbalance, 8 deg. and amplitude unbalance, 1.0 dB typ.
- Miniature size, (3 x 3 x 0.89 mm)
- Low cost
- Aqueous washable



Generic photo used for illustration purposes only  
CASE STYLE: DQ1225

**+RoHS Compliant**

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

### APPLICATIONS

- WiMAX/WiBRO
- ISM
- RADAR
- SATCOM

### PRODUCT OVERVIEW

Mini-Circuits MTX2-143+ is a wideband MMIC balun transformer with an impedance ratio of 2:1 covering a wide range of applications from 5500 to 13500 MHz. Fabricated using IPD process technology, this model provides outstanding repeatability with low insertion loss, low amplitude unbalance, low phase unbalance, and RF input power handling up to +34 dBm (2.5W). The unit comes housed in a tiny 3 x 3 x 0.89mm QFN package with low inductance, excellent thermal efficiency, and high ESD rating.

Feature	Advantages
Wideband, 5500 to 13500 MHz	MTX2-143+ supports a broad variety of applications including WiMAX, WiBRO, ISM, radar, SATCOM and more.
Low insertion loss • 0.8 dB, 5500 to 11200 MHz • 1.3 dB, 11200 to 13500 MHz	Enables excellent signal power transmission from input to output.
Low unbalance • 1.0 dB amplitude unbalance • 8° phase unbalance	Low unbalance can improve a system's electromagnetic compatibility by rejecting unwanted common-mode noise.
Tiny size, 3 x 3 x 0.89 mm	Accommodates tight space requirements for dense PCB layouts.

REV. B  
ECO-009930  
MTX2-143+  
ED-1501211/9  
JX/CP/AM  
210920





## ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Impedance Ratio (secondary/primary)			2		
Frequency Range		5500	—	13500	MHz
Insertion Loss <sup>1</sup>	5500 - 11200	—	0.8	1.2	dB
	11200 - 13500	—	1.3	2.5	
Amplitude Unbalance	5500 - 13500	—	1.0	—	dB
Phase Unbalance <sup>2</sup>	5500 - 13500	—	8	—	Degree

1. Insertion Loss is referenced to mid-band loss, 1.5 dB.

2. Relative to 180°

## MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-65°C to 150°C
Input RF Power	34 dBm at 25°C

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

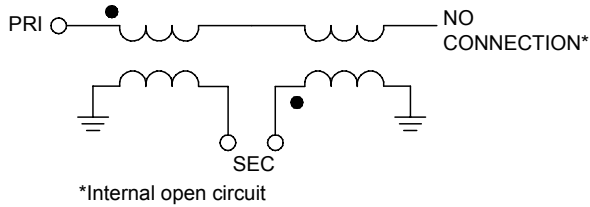


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### CONFIGURATION J



### PAD CONNECTIONS

Function	Pad Number
PRIMARY DOT (Unbalanced Port)	2
SECONDARY DOT (Balanced)	7
SECONDARY (Balanced)	9
EXTERNAL GND	1,3,6,10 & paddle
NO CONNECTION	4,5,8,11,12

### PRODUCT MARKING



Marking may contain other features or characters for internal lot control



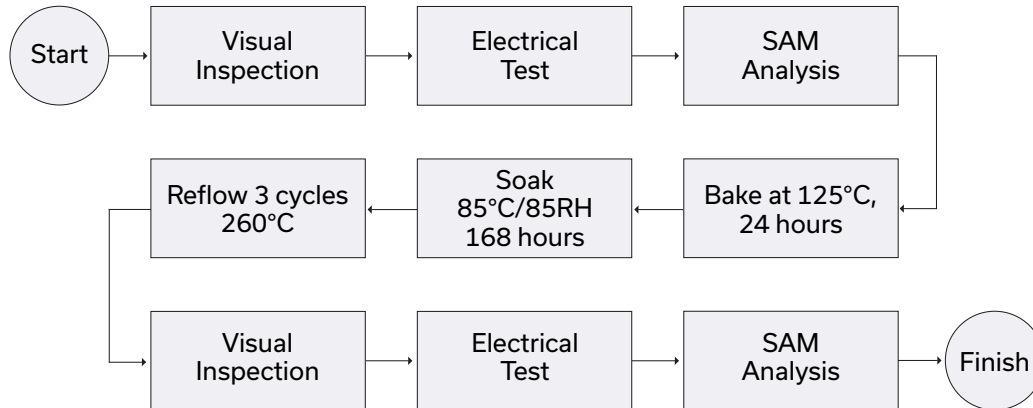
ADDITIONAL DETAILED TECHNICAL INFORMATION IS AVAILABLE ON OUR DASH BOARD. TO ACCESS [CLICK HERE](#)

Performance Data	Data Table Swept Graphs S-Parameter (S2P Files) Data Set (.zip file)
Case Style	DQ1225 Plastic package, exposed paddle lead finish: Matte-Tin
Tape & Reel Standard quantities available on reel	F66 7" reels with 20, 50, 100, 200, 500 or 1K devices
Suggested Layout for PCB Design	PL-497
Evaluation Board	TB-MTX2-143+
Environmental Ratings	ENV12

### ESD RATING

Human body model (HBM): Class 1B (500 to <1000V) in accordance with ANSI/ESD 5.1-2007

### MSL TEST FLOW CHART



- 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](http://www.minicircuits.com/MCLStore/terms.jsp)