LUMPED LC SURFACE MOUNT

Triplexer

TPLX-E870+

50Ω DC to 870 MHz (DC-174, 378-522, 763-870 MHz)

KEY FEATURES

- Low Passband Insertion Loss, 0.4 dB Typ. at Lowpass and 0.6 dB Typ. at Bandpass and 0.5 dB Typ. at Highpass Channel
- Good Rejection, 40 dB Typ.
- Power Handling: 3 Watts
- Compact Size, 30.48 x 30.48 mm

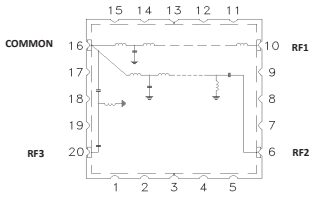


Generic photo used for illustration purposes only

APPLICATIONS

- Fixed Wireless Access
- Police Mobile Radio

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

Mini-Circuits' TPLX-E870+ is a high performance 50Ω triplexer with the lowpass channel-1 at DC-174 MHz, bandpass channel-2 at 378-522 MHz and highpass channel-3 at 763-870 MHz. The channels are well isolated to minimize inter-channel interference and have minimal insertion loss through their respective bands. The triplexer is built in a shielded package.

ELECTRICAL SPECIFICATIONS[1] AT +25°C

Parameter		Function (Port)	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Low Pass (RF COM-RF1)	DC - 174	—	0.4	0.6	dB
		Band Pass (RF COM-RF2)	378 - 522	—	0.6	1.0	
		High Pass (RF COM-RF3)	763 - 870	—	0.5	0.7	
	Return Loss	Low Pass (RF1)	DC - 174	15	20	—	dB
		Band Pass (RF2)	378 - 522	12	15	—	
		High Pass (RF3)	763 - 870	12	15	—	
		Common (COM)	DC - 174	15	20	—	
			378 - 522	12	15	—	
			763 - 870	12	15	—	
Stop Band Rejection		Low Pass (RF COM-RF1)	378 - 522	25	30	—	dB
			522 - 870	35	40	—	
		Band Pass (RF COM-RF2)	DC - 174	30	35	—	
			763 - 870	20	25	—	
		High Pass (RFCOM-RF3)	DC - 174	35	40	—	
			174 - 522	25	30	—	

1. Tested in Evaluation Board P/N TB-TPLX-E870+.

ABSOLUTE MAXIMUM RATINGS[2]

Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C
Input Power (RF COM)[3]	3 W
Input Power (RF1)[3]	3 W
Input Power (RF2)[3]	3 W
Input Power (RF3)[3]	3 W

2. Permanent damage may occur if any of these limits are exceeded.
3. Power rating applies only to signals within the passband.

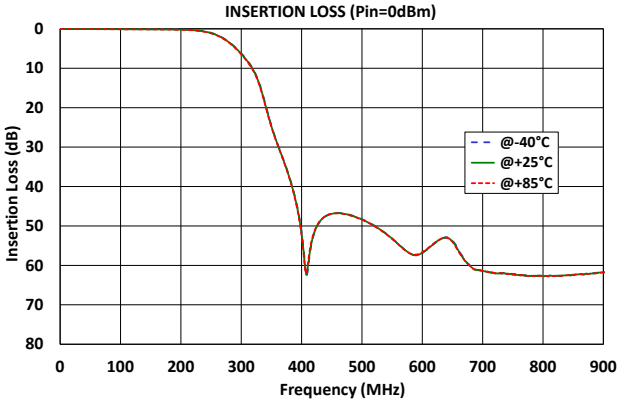
Triplexer

TPLX-E870+

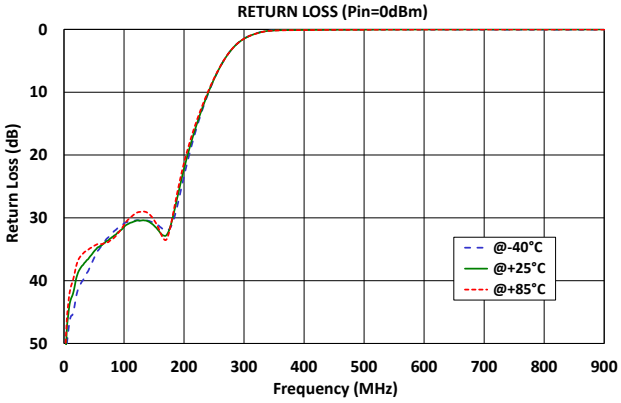
50Ω DC to 870 MHz (DC-174, 378-522, 763-870 MHz)

TYPICAL PERFORMANCE GRAPHS

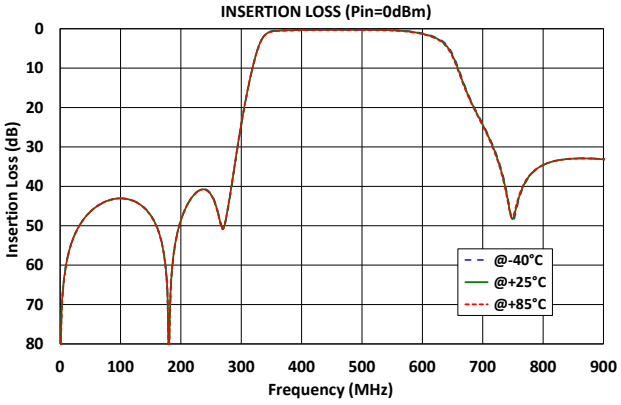
TPLX-E870+ LOW PASS PORT
INSERTION LOSS (Pin=0dBm)



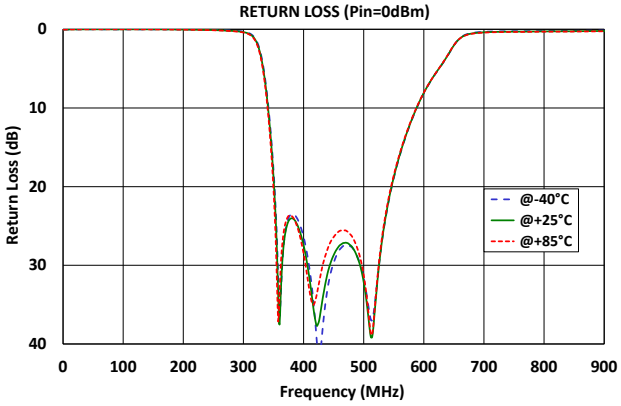
TPLX-E870+ LOW PASS PORT
RETURN LOSS (Pin=0dBm)



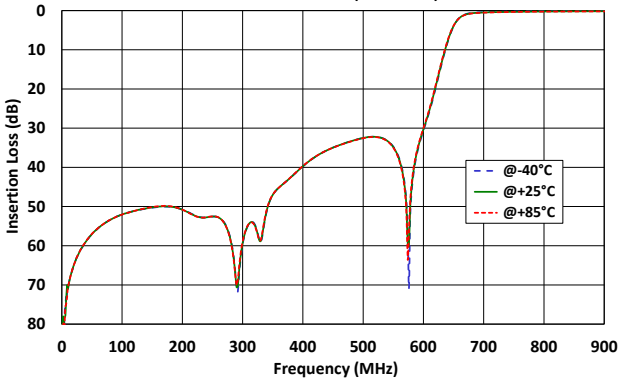
TPLX-E870+ BAND PASS PORT
INSERTION LOSS (Pin=0dBm)



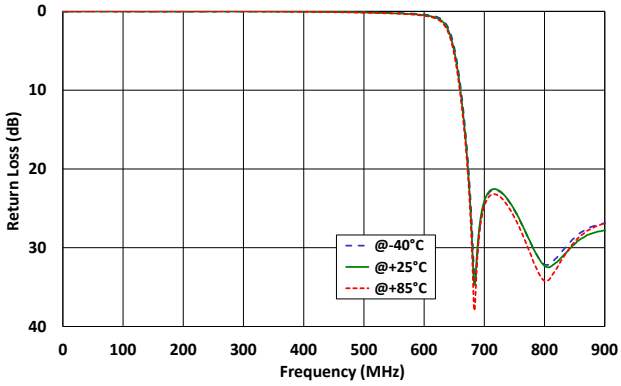
TPLX-E870+ BAND PASS PORT
RETURN LOSS (Pin=0dBm)



TPLX-E870+ HIGH PASS PORT
INSERTION LOSS (Pin=0dBm)



TPLX-E870+ HIGH PASS PORT
RETURN LOSS (Pin=0dBm)



LUMPED LC SURFACE MOUNT

Triplexer

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FUNCTIONAL DIAGRAM

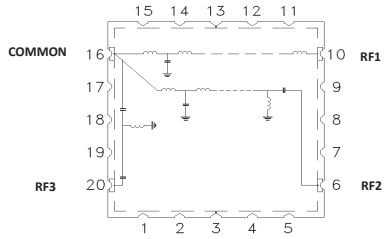
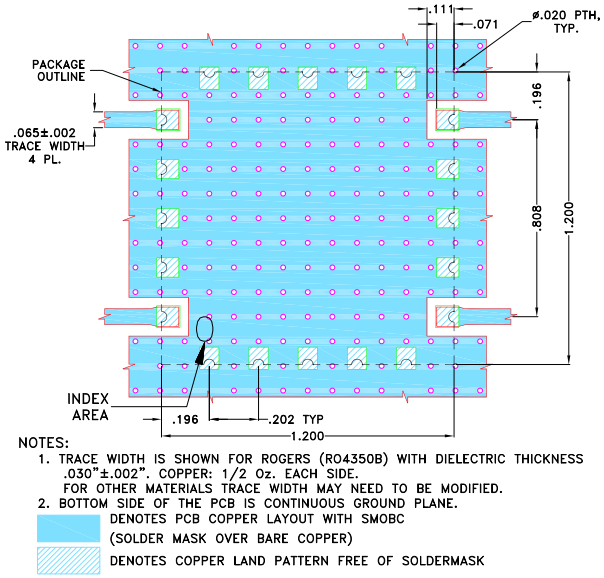


Figure 1. TPLX-E870+ Functional Diagram

PAD DESCRIPTION

Port	Pad Number	Description
COMMON	16	Connects to Common Port
RF1	10	Connects to Low Pass Port
RF2	6	Connects to Band Pass Port
RF3	20	Connects to High Pass Port
GROUND	1,2,3,4,5,7,8,9,11,12, 13,14,15,17,18,19	Connects to Ground on PCB, (See drawing PL-409)

SUGGESTED PCB LAYOUT



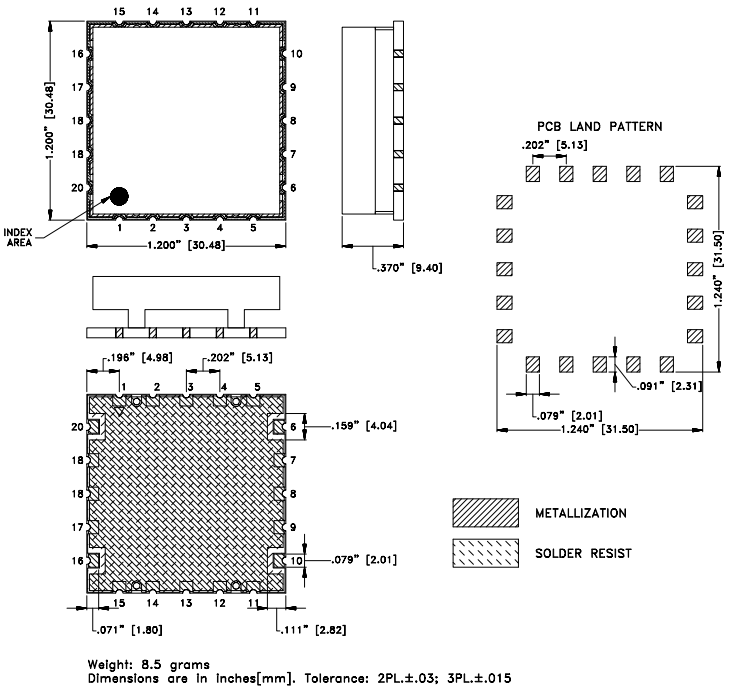
NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS (RO4350B) WITH DIELECTRIC THICKNESS .030"±.002". COPPER: 1/2 Oz. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

Figure 2. Suggested PCB Layout PL-409

CASE STYLE DRAWING



Weight: 8.5 grams
Dimensions are in Inches[mm]. Tolerance: 2PL.±.03; 3PL.±.015

PRODUCT MARKING*: TPLX-E870

*Marking may contain other features or characters for internal lot control.

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ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASHBOARD. CLICK HERE

Performance Data & Graphs	Data Graphs S-Parameter (S4P Files) Data Set (.zip file) De-embedded to device pads
Case Style	HR1843 Lead Finish: Gold over Nickel Place
RoHS Status	Compliant
Tape and Reel	F80
Suggested Layout for PCB Design	PL-409
Evaluation Board	TB-TPLX-E870+ Gerber File
Environmental Rating	ENV02T1

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-Circuits' 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