

## TWO-TONE-TERMINATOR MIXER/LO-AMPLIFIER

## T3A3-08

The T3A3-08 is a broadband Two-Tone-Terminator (T3) mixer integrated with a single positive bias only LO buffer amplifier. The T3A3 is a cost effective, “plug and play” solution for applications where excellent mixer linearity is required (IIP3, spurious and P<sub>1dB</sub>) with low (0 dBm) Sine Wave drive. The T3A3 is extremely power efficient (+5V @ 145 mA) while still delivering excellent linearity from 10 MHz to 8 GHz.



### Features

- Optimized square-wave LO amplifier integrated with T3 mixer
- High IIP3 performance with 0 dBm sine wave input
- Power efficient design (+5 V @ 145 mA)
- Low cost plug and play solution shortens design cycle and time to market
- Available in .920” x .320” [CK](#) Package

**Electrical Specifications** - Specifications guaranteed from -30 to +70°C, measured in a 50Ω system.

Parameter	LO (MHz)	RF (MHz)	IF (MHz)	Min	Typ	Max
Conversion Loss (dB)	10-8000 10-8000	10-8000 10-8000	1-500 1-5000		See Plots	9.0 10.5
Noise Figure (dB)	10-8000	10-8000	1-5000		See Plot	10.5
LO Drive Level (dBm)				-1	0	+3
LO Leakage (dBm)						
LO-RF	10-8000	10-8000			See Plots	
LO-IF	10-8000	10-8000			See Plot	
RF-IF Isolation (dB)	10-8000	10-8000			See Plot	
Input 1 dB Compression (dBm)	10-8000	10-8000		+17	+18	
Input Two-Tone Third Order Intercept Point (dBm)	10-8000	10-8000			See Plot	
Bias Requirements (mA) <sup>1</sup> +5.0 Volts DC					145	200

<sup>1</sup>Positive-bias only required.

### Part Number Options

Please specify diode level and package style by adding to model number.		
Package Style(s) <sup>1,2</sup>		Example
Connectorized	<a href="#">CKP</a>	T3A3-08 <a href="#">CKP</a>
Surface Mount	<a href="#">CK</a>	T3A3-08 <a href="#">CK</a>

<sup>1</sup>Connectorized test fixtures available for most carrier and surface mount packages. Consult factory.

<sup>2</sup>For non-connectorized packages, specify I-port configuration by adding -1 or -2 suffix to model number. Default is -2 configuration when not specified.

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LO/RF 10 to 8000 MHz

IF 1 to 5000 MHz

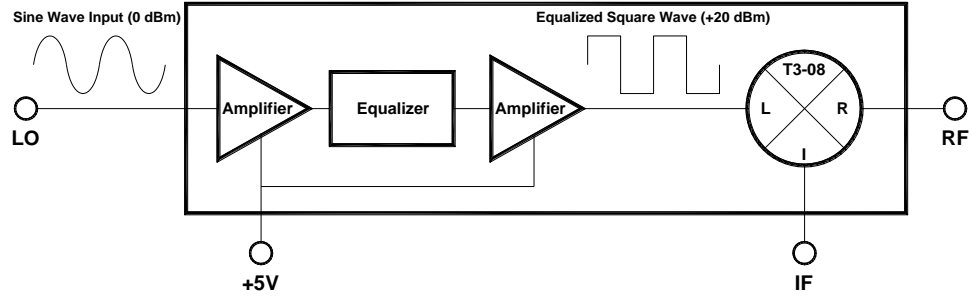
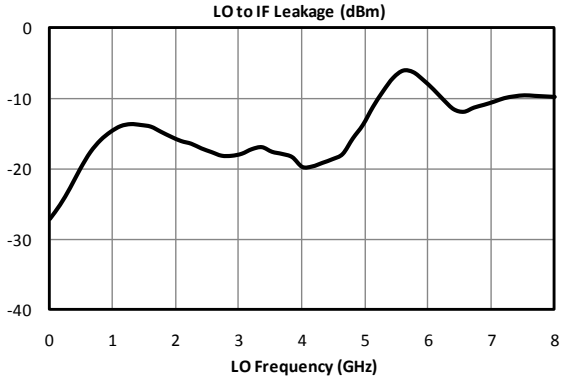
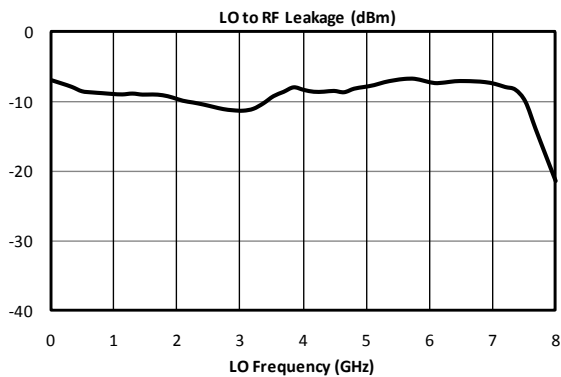
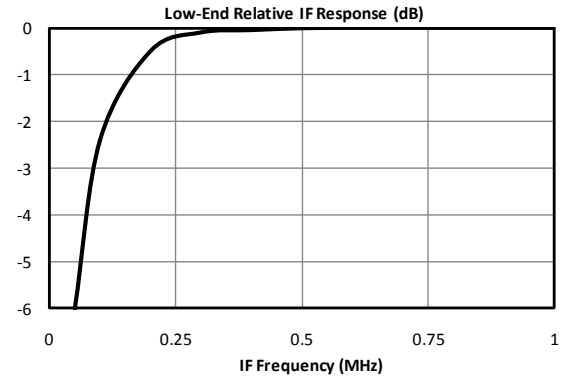
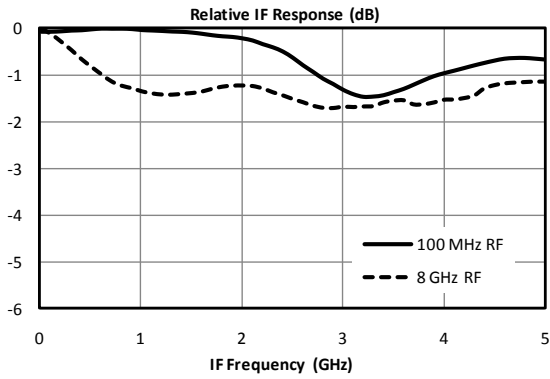
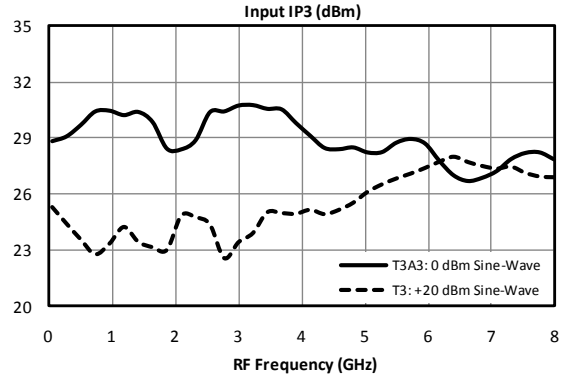
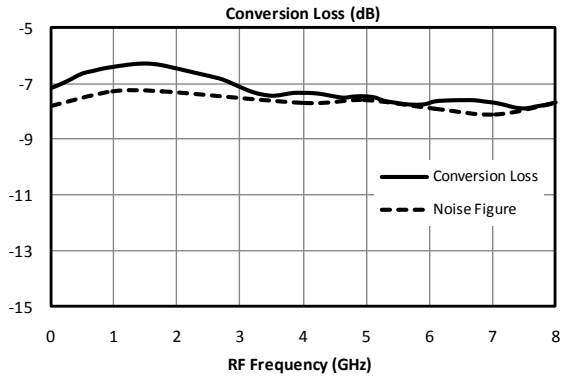


Figure 1. Block Diagram

### Typical Performance



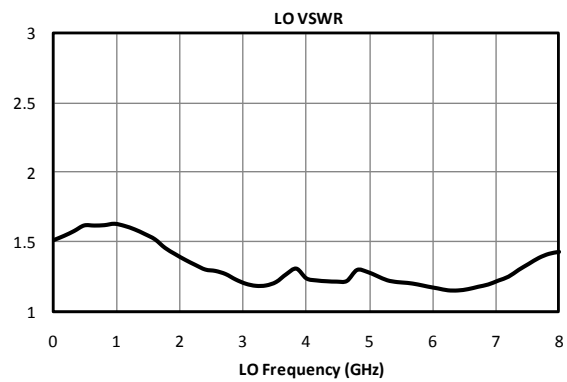
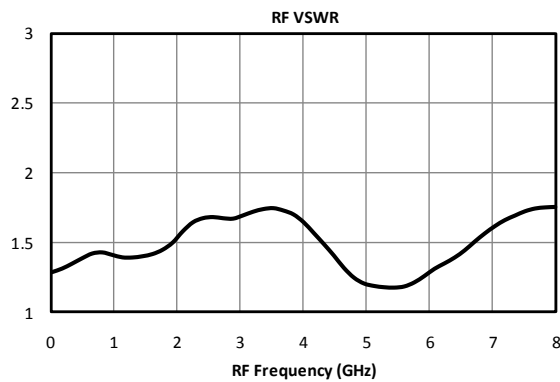
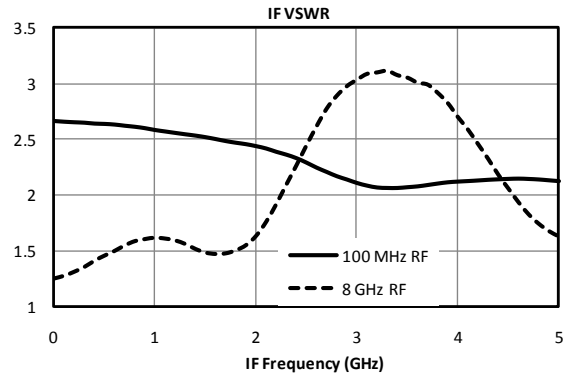
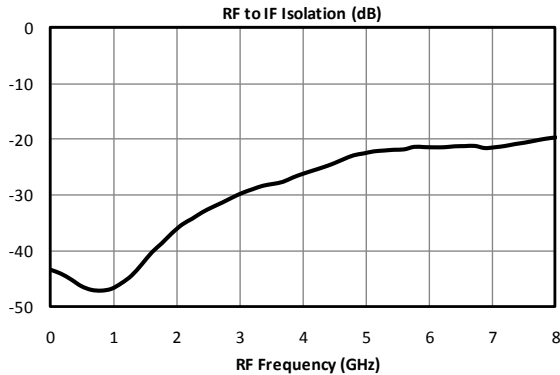


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**LO/RF 10 to 8000 MHz  
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**Typical Up/Downconversion Spurious Suppression (dBc)**

-10 dBm IF/RF Input 0 dBm LO Input	1xL	2xL	3xL	4xL	5xL
1xR	Ref	22	10	17	15
2xR	67	67	67	65	67
3xR	86	93	87	91	82
4xR	>120	>120	>120	>120	>120
5xR	>120	>120	>120	>120	>120

**DATA SHEET NOTES:**

1. Mixer Conversion Loss and Noise Figure IF frequency is 100 MHz.
2. Conversion Loss and Noise Figure typically degrades less than 0.5 dB at +100°C and improves less than 0.5 dB at -55°C.
3. Spurious chart represents averaged performance. Actual performance depends on exact frequency plan.
4. Maximum LO input power is +15 dBm. Maximum RF input power is +25 dBm.
5. Specifications are subject to change without notice. Contact Marki Microwave for the most recent specifications and data sheets.
6. Catalog mixer circuits are continually improved. Configuration control requires custom mixer model numbers and specifications.

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