TWO-TONE-TERMINATOR MIXER/LO-AMPLIFIER T3A-12

The T3A-12 is a versatile and robust, broadband Two-Tone-Terminator mixer integrated with a sub 10 ps risetime square wave amplifier. The T3A-12 employs the most sophisticated mixer circuit on the market today and offers unparalleled performance when compared to all other mixer technologies. The T3A-12 delivers exceptional IMD suppression with low conversion loss.

Features

- High Two-Tone Intercept for low LO Drive
- Integrated LO Buffer Amplifier
- LO/RF .01 to 12 GHz
- IF .001 to 5 GHz
- Low Typical Conversion Loss
- Ultra-Broadband RF, LO, and IF

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

Parameter	LO (GHz)	RF (GHz)	IF (GHz)	Min	Typ	Max
Conversion Loss (dB)	.01-12 .01-12	.01-12 .01-12	.001-0.5 .001-5.0		7.5 8.5	9.0 11.0
LO Drive Level (dBm)				+10		+15
LO Leakage (dBm) LO-RF LO-IF	 .01-12 .01-12	 .01-12 .01-12			 See Plots	
RF-IF Isolation (dB)	.01-12	.01-12			See Plot	
Input 1 dB Compression (dBm)	.01-12	.01-12			+17	
Input Two-Tone Third Order Intercept Point (dBm)	.01-12	.01-12			See Plot	
Bias Requirements (mA)[1] +5.0 Volts DC (+7 V max) -5.0 Volts DC					 200 10	 250 20

[1]It is required that the negative bias be applied before or concurrent with the positive bias to avoid damage.

Part Number Options

Please specify diode level and package style by adding to model number.				
Package Style		**Examples**		
Connectorized	EZP	T3A-12EZP, T3A-12EZ-2		
Surface Mount [1,2]	EZ	T3A-12 (Model)	EZP (Package)	-2 (I-Port Configuration)

[1]Connectorized test fixtures available for most carrier and surface mount packages. Consult factory.
[2]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 .01 to 12 GHz
IF .001 to 5 GHz

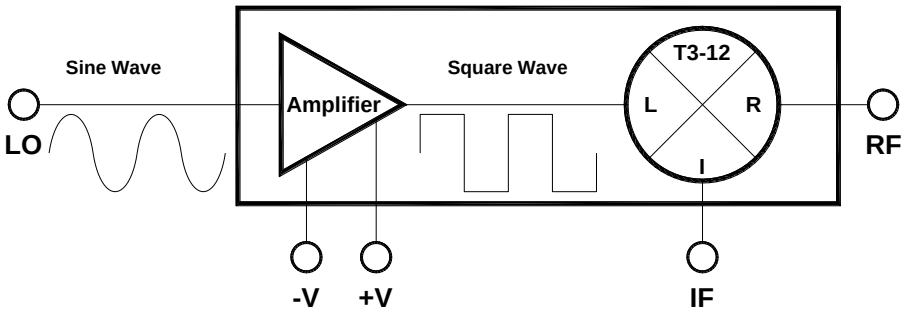
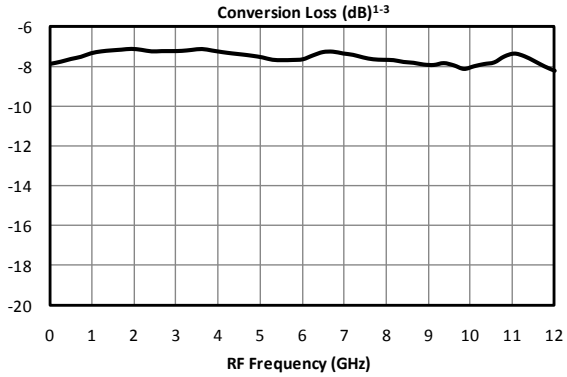
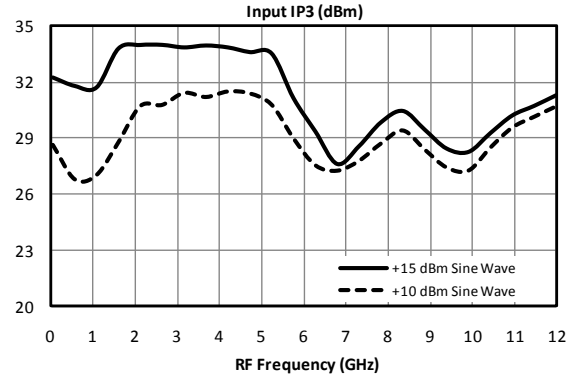
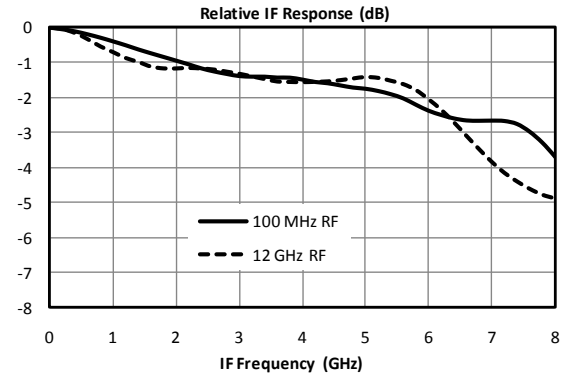


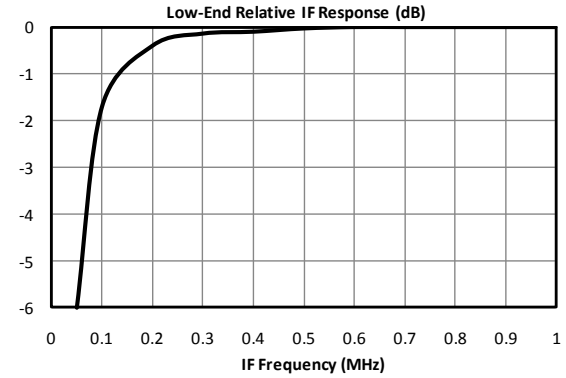
Figure 1. Block Diagram

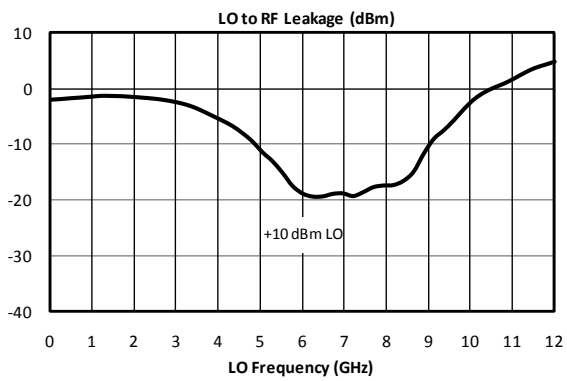
Typical Performance

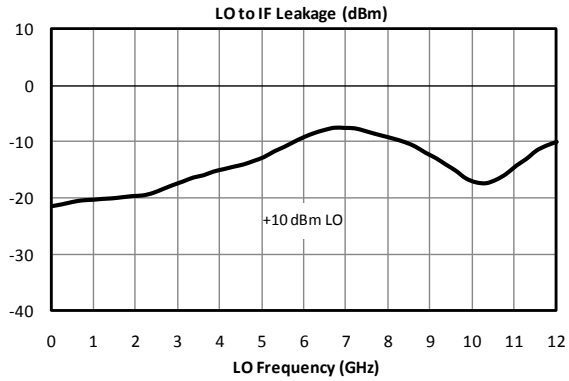








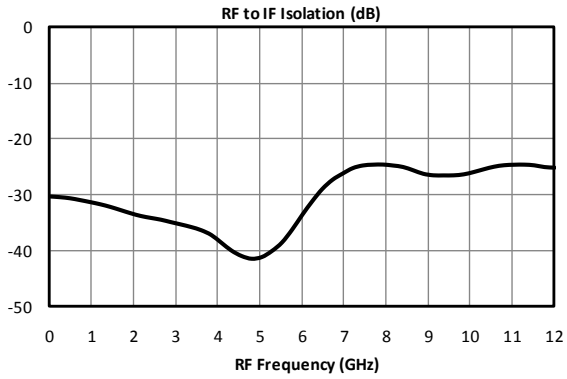


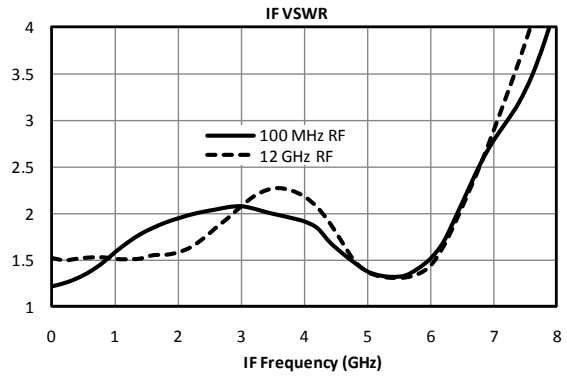


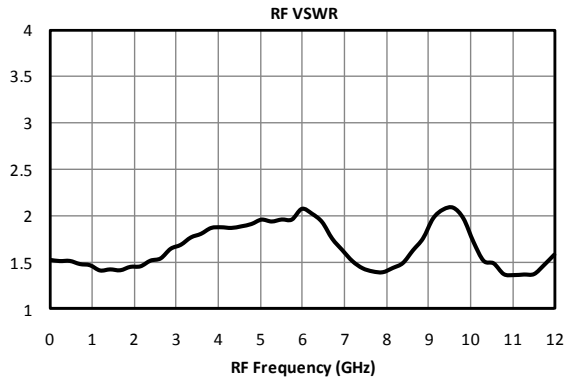
TWO-TONE-TERMINATOR MIXER

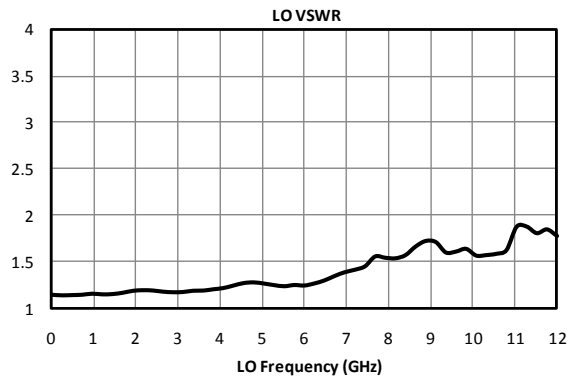
T3A-12

LO/RF .01 to 12 GHz
IF .001 to 5 GHz









Typical Up/Downconversion Spurious Suppression (dBc)

-10 dBm IF/RF Input +10 dBm Sine Wave LO	1xL	2xL	3xL	4xL	5xL
1xR	Ref	23	11	25	16
2xR	70	65	65	62	65
3xR	90	95	85	92	85
4xR	>120	>120	>120	>120	>120
5xR	>120	>120	>120	>120	>120

DATA SHEET NOTES:

1. Mixer Conversion Loss Plot IF frequency is 100 MHz.
2. Mixer Noise Figure typically measures within 0.5 dB of conversion loss for IF frequencies greater than 5 MHz.
3. Conversion Loss typically degrades less than 0.5 dB at +100°C and improves less than 0.5 dB at -55°C.
4. Maximum LO input power is +20 dBm.
5. Maximum RF input power is +25 dBm.
6. Specifications are subject to change without notice. Contact Marki Microwave for the most recent specifications and data sheets.
7. Catalog mixer circuits are continually improved. Configuration control requires custom mixer model numbers and specifications.

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