OTM3227

CATV DOCSIS 3.1™ Power Doubler MMIC
45 to 1218 MHZ

GENERAL DESCRIPTION

The Analog Devices OTM3227 is a 24V Power Doubler MMIC with configurable gain between 25-32 dB. The device is power efficient and achieves very high RF output using advanced circuit design techniques in a cost-effective technology. Its two stages of amplification provide high gain and high reverse isolation, simplifying the design and manufacture of DOCSIS 3.1™ infrastructure equipment.

FEATURES

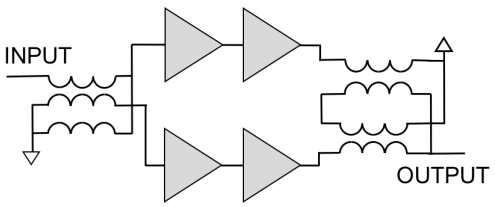
- 25-32 dB Flexible Gain at 1218MHZ
- Adjustable Bias Current 300-420mA at $24V_{DC}$
- Very High Output
- Excellent Linearity
- Low Distortion
- Superiror Reverse Isolation
- Unconditionally Stable
- Excellent Performance Consistency
- QFN 7mm x 7mm Package
- Optimized for flat PAL D and NTSC loading

APPLICATIONS

- 45MHz to 1218MHz CATV Infrastructure Amplifier Systems
- Green Applications
- CATV Doubler – Hybrid RFIC

Absolute Maximum Ratings

Symbol	Parameter	Min	Max	Unit
V_{CC}	DC Supply Over Voltage (5 min)		30	V
RF_{input}	RF Input Voltage (single tone)		75	dBmV
T_{amb}	Operating Ambient Temperature	-30	85	°C
T_S	Storage Temperature	-40	100	°C



Ordering Information OTM3227
Reel with 1k Pieces

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Stresses at or above those listed under Absolute Maximum Ratings may cause permanent damage to the product. This is a stress rating only; functional operation of the product at these or any other conditions above those indicated in the operational section of this specification is not implied. Operation beyond the maximum operating conditions for extended periods may affect product reliability

RoHS (Restriction of Hazardous Substances) Compliant per EU Directive 2011/65/EU

Caution: ESD Sensitive Device.
Meets Class 2 (2k to 4k HBM)

Rev. 5/17

Document Feedback

NOMINAL OPERATING PARAMETERS

General Performance		Min	Typ	Max	Unit	Conditions
S_{21}	Power Gain	26.5	27.5	28.0	dB	f = 45MHz
		28.0	29.0	29.5	dB	f = 1218MHz
SL[1]	Slope Straight Line		1.0		dB	f = 45MHz to 1218MHz
FL	Flatness of Frequency Response		0.75		dB	f = 45MHz to 1218MHz
S_{12}	Reverse Isolation		48		dB	f = 45MHz to 1218MHz
S_{11}	Input Return Loss		20		dB	f = 45MHz to 550MHz
			18		dB	f = 550MHz to 1000MHz
			16		dB	f = 1000MHz to 1218MHz
S_{22}	Output Return Loss		20		dB	f = 45MHz to 550MHz
			18		dB	f = 550MHz to 1000MHz
			16		dB	f = 1000MHz to 1218MHz
NF	Noise Figure		5		dB	f = 45MHz
			5.5		dB	f = 1218MHz
V_{CC}	Supply Voltage		24		V	
$I_{CC\ (tot)}$	Total Supply Current (DC)		350	380	mA	
Distortion Data 40MHz to 550MHz						V+ = 24V; T_{MB} = 30C; Z_S = Z_L = 75Ω
CTB			-66		dBc	V_0 = 48dBmV/ch, 112 channels NTSC flat [2][4]
XMOD			-68		dBc	
CSO			-68		dBc	
Distortion Data 40MHz to 550MHz						V+ = 24V; T_{MB} = 30C; Z_S = Z_L = 75Ω
CTB			tbd		dBc	V_0 = 48dBmV/ch, 98 channels PAL D flat [3][4]
XMOD			tbd		dBc	
CSO			tbd		dBc	

1. The Slope is defined as the delta of the gain at the start frequency and the gain at the stop frequency
2. 112 NTSC channels; [f=45MHz to 750 MHz]; flat V_0 to 750 MHz.
3. 98 PAL D channels with 8MHz bandwidth per channel; [f=47 MHz to 862 MHz]; flat V_0 to 862 MHz
4. Composite Second Order (CSO) - The CSO parameter (sum and difference products) is defined by the NCTA. Composite Triple Beat (CTB) - The CTB is defined by the NCTA. Cross Modulation (XMOD) - Cross Modulation is measured at baseband (selective voltmeter method) referenced to 100% modulation of the carrier being tested. Carrier to Intermodulation Noise (CIN) - The CIN parameter is defined by ANSI/SCTE 17 (Test procedure for carrier to noise).
5. In recommended 28 dB gain application circuit, 350mA typical bias