

GENERAL DESCRIPTION

The Analog Devices OTM5170 is a general purpose single-ended intermediate power broadband MMIC with gain configurable from 15dB to 19dB. The device is power efficient with excellent linearity using advanced circuit design techniques in a cost-effective technology. The device uses bipolar process for superior consistency and low 1/f noise corner. The flexibility of the OTM5170 design allows for use over a wide range of frequencies and bias levels as required for different upstream and downstream DOCSIS 3.1™ equipment.



FEATURES

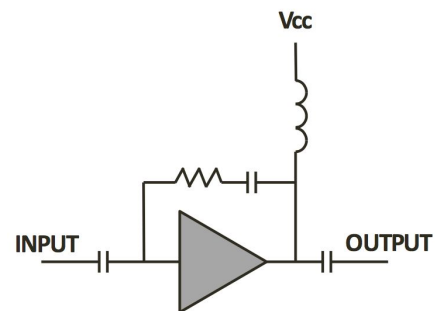
- 15 - 19dB Flexible Gain
- 5V_{DC} to 12V_{DC} Single Supply
- 150 - 250mA Adjustable Bias
- DC to 1.8GHz Operation
- >65 dBmV Upstream DOCSIS 3.1™
- Low Distortion
- Excellent Performance Consistency
- QFN 4mm x 4mm Package
- 75 Ω (configurable to 50 Ω)

APPLICATIONS

- CATV Return Path Drop Amplifiers
- General Purpose Intermediate Gain
- Legacy Systems

Absolute Maximum Ratings

Symbol	Parameter	Min	Max	Unit
V _{CC}	DC Supply Over Voltage (5 min)		15	V
I _{CC}	Max Device Current		325	mA
RF _{input}	RF Input Voltage (single tone)		tbd	dBmV
M	Moisture Sensitivity Level		MSL3	
ESD	HBM ESD Rating	500		V
T _J	Max Operating Junction Temperature		150	°C
T _{amb}	Operating Ambient Temperature	-40	85	°C
T _S	Storage Temperature	-40	150	°C



Ordering Information OTM5170
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

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

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

[Document Feedback](#)

NOMINAL OPERATING PARAMETERS IN UPSTREAM 8V APPLICATION CIRCUIT

General Performance		Min	Typ	Max	Unit	Conditions (T=25C)
V_{CC}	Supply Voltage		8	12	V	
$I_{CC (tot)}$	Total Supply Current (DC)		175	280	mA	
F	Frequency Range	5		204	MHz	
S_{21}	Power Gain		15.0		dB	
FL	Gain Flatness of Frequency Response		0.1		dB	
P1dB	Output P1dB		23.5		dBm	50MHz
OIP3	Output IP3		46		dBm	13MHz / 19MHz tones, +58.5 dBmV per tone
OIP2	Output IP2		68		dBm	13MHz / 19MHz tones, +58.5 dBmV per tone
S_{11}	Input Return Loss		20		dB	
S_{22}	Output Return Loss		20		dB	
NF	Noise Figure		3.9		dB	f = 5MHz
			4.3		dB	f = 204MHz
CTB	Composite Triple Beat		TBD		dBc	$V_0 = 65\text{dBmV Composite}^{[2][4]}$
XMOD	Cross Modulation		TBD		dBc	
CSO	Composite Second Order		TBD		dBc	
θ_{JR}	Thermal Resistance		15		°C/W	Referenced to backside of package

2. NTSC channels; [5=55MHz to 204MHz]; flat V_0 to 204 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.