

Advanced Product Information
May 1998 (1 of 2)

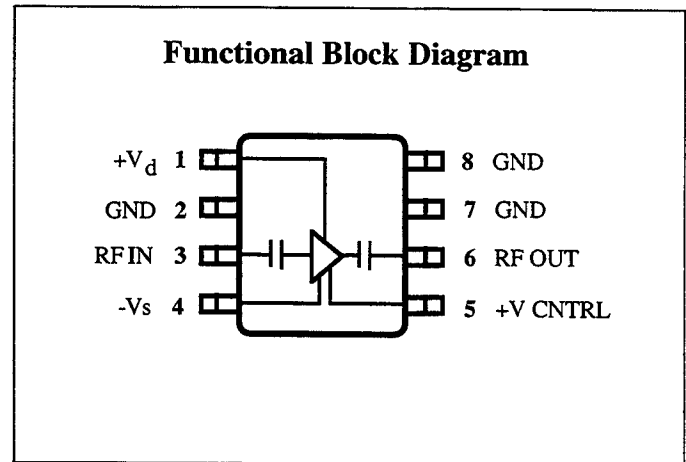
800 to 2700 MHz 3.0V Wideband Driver

Features

- +15.5 dBm Output Power @ 3.0V
- 800 – 2700 MHz Operation
- 35 dB Gain Control Range
- Variable Current: 5–75 mA, Typical
- Fixed +3.0V to -3.0V Supplies
- DC Blocked, 50Ω Matched
- Low-Cost MSOP-8 Package

Applications

- Cellular Handsets
- PCS Handsets



Description

The Celeritek CMM2311 is a flexible broadband driver amplifier with typical gain control range of 35 dB. Packaged in a miniature low-cost MSOP-8 package, this device is ideal for cellular and PCS handsets where space and cost are of primary concerns.

This driver amplifier is an excellent companion when used with Celeritek's **Trinita DX™** family of 3.0V power amplifiers for cellular and PCS applications.

Absolute Maximum Ratings

Parameter	Rating	Parameter	Rating	Parameter	Rating
Drain Voltage (+V _d)	+7 V	Power Dissipation	1.0 W	Operating Temperature	-40°C to +85°C
Drain Current (I _d)	150 mA	Thermal Resistance	55°C/W	Channel Temperature	175°C
RF Input Power	+15 dBm	Storage Temperature	-65°C to +150°C	Soldering Temperature	260°C for 5 Sec

Recommended Operating Conditions

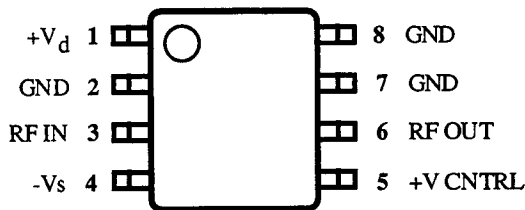
Parameter	Typ	Units	Parameter	Typ	Units
Drain Voltage (+V _d)	2.7 to 6.0	Volts	Operating Temperature (PC Board)	-40 to +70	°C

Electrical Characteristics

The following specifications are guaranteed at room temperature with drain voltage (+V_d) = 3.0 V and drain current (I_d) = 75 mA at 2.0 GHz.

Parameter	Condition	Min	Typ	Max	Units
Frequency Range		800		2700	MHz
Small Signal Gain		15	19	22	dB
Gain Control (from max. gain)	Absolute Constant IIP3		35 10		dB dB
Noise Figure				5	dB
Power Output @ 1 dB Compression		15	15.5		dBm
Output 3rd Order Intercept			26		dBm
Input Return Loss			10		dB
Output Return Loss			10		dB
DC Supply Current	Note: DC Bias is set by +V CNTRL	2	75	95	mA
Supply Voltage		2.7	3	6	V

Connection Diagram and Pin Description



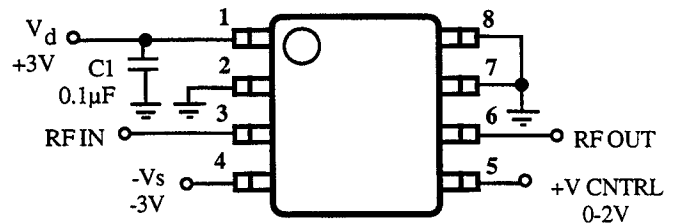
Pin #	Name	Description
1	+V _d	Drain voltage. Connect to positive supply.
2	GND	Ground.
3	RF IN	RF input (Internally DC blocked).
4	-V _s	Fixed Negative Supply (-3V).
5	+V CNTRL	Bias Control Voltage (0 - 2V).
6	RF OUT	RF output (Internally DC blocked).
7	GND	Ground.
8	GND	Ground.

Test Configuration and Evaluation

Celeritek tests the CMM2311 on an FR4 PC test board. FR4 was chosen for its low loss characteristics at frequencies up to 2.5GHz. Plated through hole connections from the top of the board to the backside ground plane minimizes inductance in the ground connections. These through hole connections are as close as possible to each ground pin.

For evaluation purposes Celeritek offers a prototype evaluation board (PB-CMM2311-AR-0000) for the CMM2311. Please call the factory or your local representative for more information.

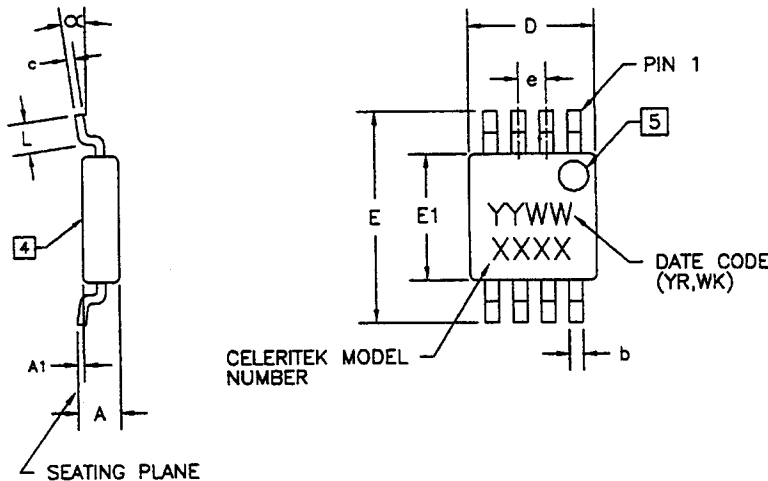
Test Circuit Diagram



Handling Precaution

Microwave devices are sensitive to electrostatic discharge. Proper precautions should be taken to avoid ESD damage.

Physical Dimensions



DIMENSION	MINIMUM	NOMINAL	MAXIMUM
A	0.81[0.032]	0.86[0.034]	0.91[0.036]
A1	0.10[0.004]	0.15[0.006]	0.20[0.008]
b	0.30[0.012]	0.33[0.013]	0.38[0.014]
c	0.13[0.005]	0.15[0.006]	0.18[0.007]
D	2.95[0.116]	3.00[0.118]	3.05[0.120]
E	4.78[0.188]	4.88[0.192]	4.98[0.196]
E1	2.95[0.116]	3.00[0.118]	3.05[0.120]
e		0.68[0.026]	
L		0.53[0.021]	
α	0°		5°

NOTES:(UNLESS OTHERWISE SPECIFIED)

1. DIMENSIONS ARE IN MILLIMETERS[INCHES].
2. LEAD MATERIAL: COPPER
3. BODY MATERIAL: PLASTIC (EPOXY).
4. COUNTRY OF ORIGIN, IF OTHER THAN U.S., SHALL BE MARKED ON THIS SURFACE.
5. PIN 1 IDENTIFICATION IS A DOT OR BEVELED EDGE.

Ordering Information

The CMM2311 is available in a surface mount MSOP-8 plastic package.

Part Number for Ordering

CMM2311-AR-0000

CMM2311-AR-000T

PB-CMM2311-AR-000

Package

MSOP-8 surface mount plastic package

MSOP-8 package in tape and reel

Evaluation Board with CMM2311-AR-0000

Celeritek reserves the right to make changes without further notice to any products herein. Celeritek makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Celeritek assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters can and do vary in different applications. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Celeritek does not convey any license under its patent rights nor the rights of others. Celeritek products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Celeritek product could create a situation where personal injury or death may occur. Should Buyer purchase or use Celeritek products for any such unintended or unauthorized application, Buyer shall indemnify and hold Celeritek and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Celeritek was negligent regarding the design or manufacture of the part. Celeritek is a registered trademark of Celeritek, Inc. Celeritek, Inc. is an Equal Opportunity/Affirmative Action Employer.