

Advanced Product Information
September 1996 (1 of 2)

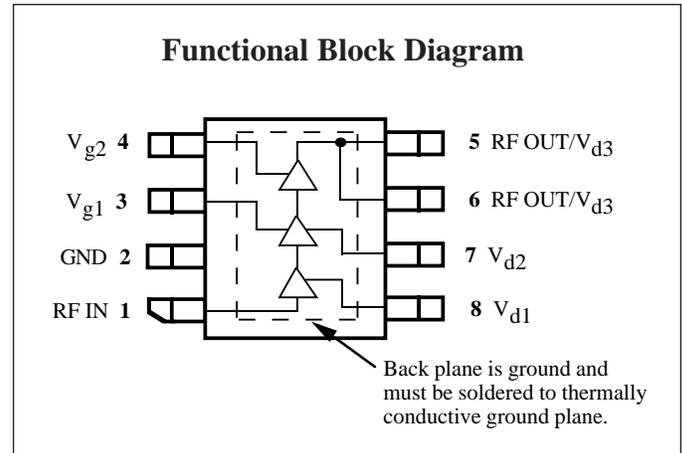
1.85 to 1.91 GHz 3V, 30 dBm PCS/PCN Power Amplifier

Features

- ❑ 40% Linear Power Added Efficiency
- ❑ 30 dBm Output Power (IS-136 TDMA)
- ❑ 30 dB Gain
- ❑ Low Cost, SO-8 Surface Mount Package
- ❑ Tested Under Digital Modulation

Applications

- ❑ IS-136 Handsets
- ❑ Wireless Local Loop Subscriber Units
- ❑ PCS Base Stations



Description

The CMM1330 is a 3V linear power amplifier intended for use in PCS handsets, wireless local loop subscriber units and PCS base stations. As a pin-compatible member of the new **Trinity DX™** amplifier family, the CMM1330 offers maximum performance and flexibility. The flexible amplifier can be biased to support the requirements

of PCS-1900, IS-136, or DCS-1800 systems.

The CMM1330 is packaged in a low-cost, space efficient SO-8 power package that gives excellent electrical stability and thermal handling performance with a R_{θ} of less than 18° C/W. The part is designed to require minimal external circuitry for bias matching, simplifying design and keeping board space and cost to a minimum.

Absolute Maximum Ratings

Parameter	Rating	Parameter	Rating	Parameter	Rating
Drain Voltage (+V _d)	+9.0 V*	Power Dissipation	5 W	Operating Temperature	-40°C to +100°C
Drain Current (I _d)	1.8 A	Thermal Resistance	18°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.
DC Gate Voltage (-V _g)	-4.0 V*				

* Max (+V_d) and (-V_g) under linear operation. Max potential difference across the device in RF compression (2V_d + |-V_g|) not to exceed the minimum breakdown voltage (V_{br}) of +18V.

Recommended Operating Conditions

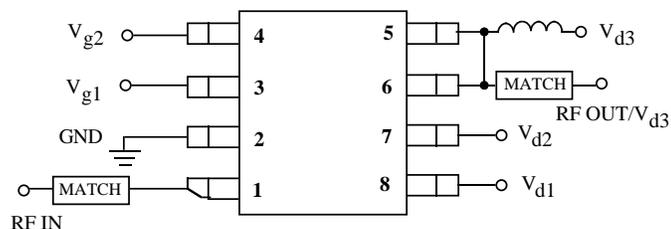
Parameter	Typ	Units	Parameter	Typ	Units
Drain Voltage (+V _d)	3.0 to 4.0	Volts	Operating Temperature (PC Board)	-30 to +80	°C

Electrical Characteristics

Unless otherwise specified the following specifications are guaranteed at room temperature with drain voltage (+V_d) = 3.6 V, in Celeritek test fixture.

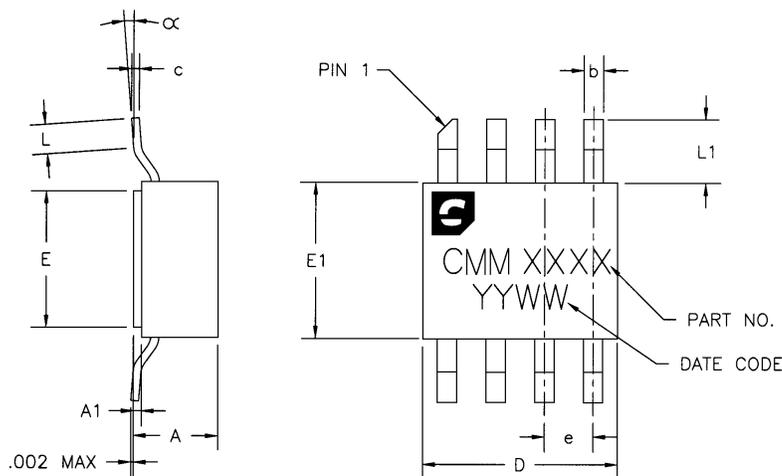
Parameter	Condition	Min	Typ	Max	Units
Frequency Range		1.85		1.91	GHz
Power Output	Meets IS-136 TDMA mask	28.8	30.0		dBm
Efficiency	Pout IS-136 TDMA	30	35		%
Gain		28	30		dB
Harmonics (in Celeritek test fixture)	2nd @ Pout = +30.5 dBm 3rd @ Pout = +30.5 dBm			-30 -35	dBc dBc
Return Loss	In Celeritek Test Fixture		10		dB
Negative Supply Current				1	mA
Supply Current			600		mA
Quiescent Current	No RF		300		mA

Connection Diagram and Pin Descriptions



Pin #	Name	Description
1	RF IN	RF input (internally DC blocked)
2	GND	Ground
3	V _{g1}	Input stage gate bias
4	V _{g2}	Output stage gate bias
5	RF OUT/V _{d3}	RF output and V _{d3} . External matching circuit required
6	RF OUT/V _{d3}	RF output and V _{d3} . External matching circuit required
7	V _{d2}	Intermediate stage drain bias
8	V _{d1}	Input stage drain bias

Physical Dimensions



DIMENSION	MINIMUM	NOMINAL	MAXIMUM
A		.086[2.184]	.100[2.540]
A1	.005[.1270]	.008[.2032]	.011[.2794]
b	.017[.4318]	.020[.5080]	.023[.5842]
c	.007[.1778]	.008[.2032]	.009[.2286]
D	.195[4.953]	.200[5.080]	.205[5.207]
E	.135[3.429]	.140[3.556]	.145[3.683]
E1	.155[3.937]	.160[4.064]	.165[4.191]
e		.050[1.270]	
L	.020[.5080]		.040[1.016]
L1	.055[1.397]	.065[1.651]	.075[1.905]
α	0°		8°

DIMENSIONS IN INCHES [MILLIMETERS]

Ordering Information

The CMM1330 is available in a surface mount SO-8 power package and devices are available in tape and reel.

Part Number for Ordering

CMM1330-AK

CMM1330-AK-000T

Package

SO-8 surface mount power package

SO-8 surface mount power package in tape and reel

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.