



Advanced Product Information  
September 1996 (1 of 2)

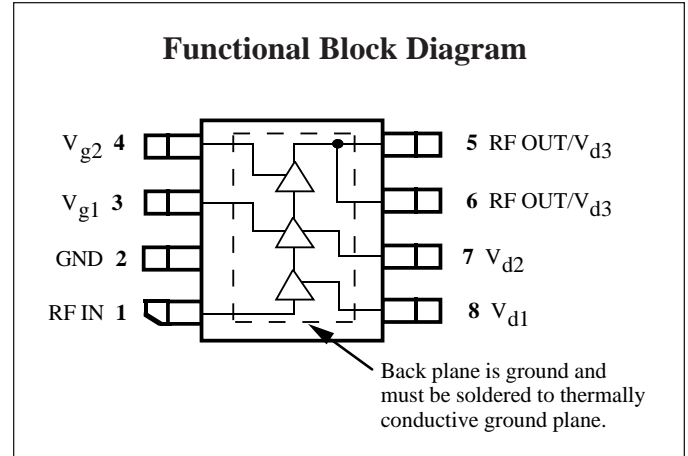
## 824 to 928 MHz 3V, 30.5 dBm Multi-Mode Power Amplifier

### Features

- ❑ Multi-Mode Operation from 3V Supply
- ❑ 40% Linear Power Added Efficiency
- ❑ 30 dBm with 55% Power Added Efficiency
- ❑ Low Cost, SO-8 Surface Mount Package
- ❑ 39 dB Gain
- ❑ Tested Under Digital Modulation

### Applications

- ❑ IS-136/AMPS Cellular Handsets
- ❑ 900 MHz ISM Band Products
- ❑ Wireless Local Loop Subscriber Terminals



### Description

The CMM0330 is a highly efficient 3 V, multi-mode power amplifier intended for use in portable cellular handsets and datacom products operating in the AMPS and 902-928 MHz bands. As a pin-compatible member of the new **Triniti DX™** amplifier family, the CMM0330 offers maximum performance

and flexibility. The CMM0330 is packaged in a low-cost, space efficient SO-8 power package that gives excellent electrical stability and thermal handling performance with a  $R_{\theta}$  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 <sub>d</sub> )	+9.0 V*	Power Dissipation	5 W	Operating Temperature	-40°C to +100°C
Drain Current (I <sub>d</sub> )	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 <sub>g</sub> )	-4.0 V*				

\* Max (+V<sub>d</sub>) and (-V<sub>g</sub>) under linear operation. Max potential difference across the device in RF compression (2V<sub>d</sub> + |-V<sub>g</sub>|) not to exceed the minimum breakdown voltage (V<sub>br</sub>) of +18V.

### Recommended Operating Conditions

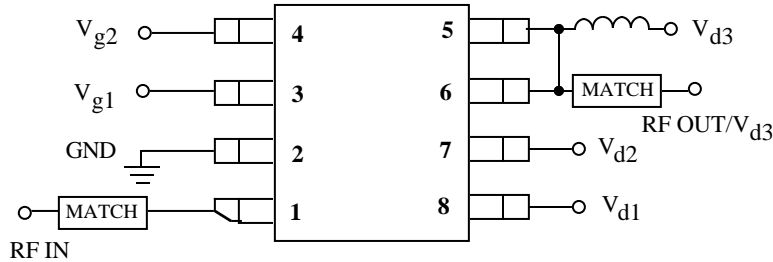
Parameter	Typ	Units	Parameter	Typ	Units
Drain Voltage (+V <sub>d</sub> )	3.0 to 4.0	Volts	Operating Temperature (PC Board)	-30 to +80	°C

### Electrical Characteristics

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

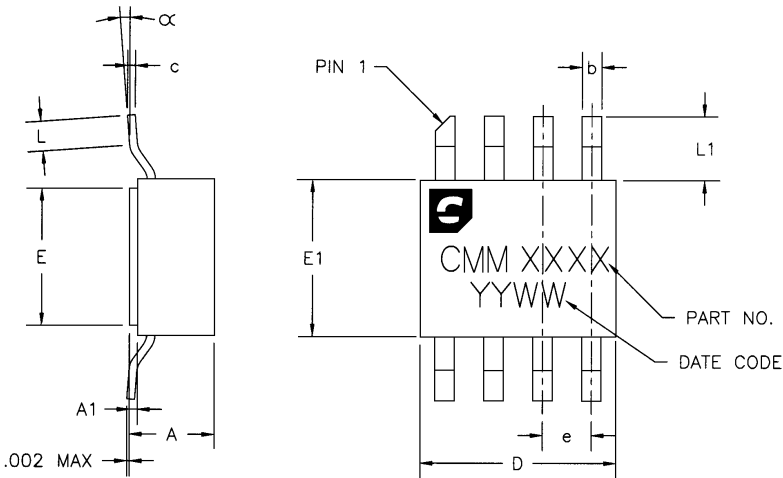
Parameter	Condition	Digital Bias			Analog Bias			Units
		Min	Typ	Max	Min	Typ	Max	
Frequency Range		824		928	824		928	MHz
Pout - Digital Operation	Meets IS-136 TDMA mask	28.5	30.0					dBm
Pout - Analog Operation	AMPS				30.0	30.5		dBm
Efficiency	Digital cellular operation	35	40		50	55		%
Gain		36	39		36	39		dB
Harmonics	2nd @ Pout = +30.5 dBm 3rd @ Pout = +30.5 dBm						-30 -30	dBc dBc
Return Loss	In Celeritek test fixture		10			10		dB
Negative Supply Current				1			3	mA
Supply Current			500			500		mA
Quiescent Current	No RF		450			450		mA

## Connection Diagram and Pin Descriptions



Pin #	Name	Description
1	RF IN	RF input
2	GND	Ground
3	V <sub>g1</sub>	Input stage gate bias
4	V <sub>g2</sub>	Output stage gate bias
5	RF OUT/V <sub>d3</sub>	RF output and V <sub>d3</sub> . External matching circuit required
6	RF OUT/V <sub>d3</sub>	RF output and V <sub>d3</sub> . External matching circuit required
7	V <sub>d2</sub>	Second input stage drain bias
8	V <sub>d1</sub>	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 CMM0330 is available in a surface mount SO-8 power package and devices are available in tape and reel.

### Part Number for Ordering

CMM0330-AK  
CMM0330-AK-000T

### Package

SO-8 surface mount power package  
SO-8 surface mount power package in tape and reel

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