



Advanced Product Information
November 1997 (1 of 2)

824 to 928 MHz 6V, 32.5 dBm Multi-Mode Power Amplifier

Features

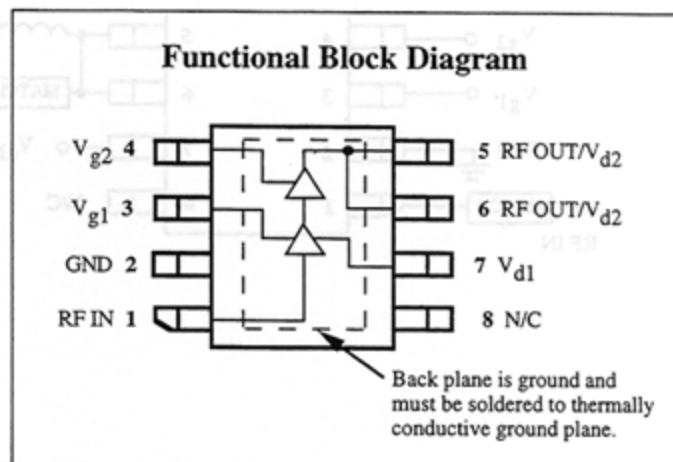
- ☐ Multi-Mode Operation from 6V Supply
- ☐ 40% Linear Power Added Efficiency
- ☐ 32.5 dBm with 55% Power Added Efficiency
- ☐ Low Cost, SO-8 Surface Mount Package
- ☐ 32 dB Gain
- ☐ Tested Under Digital Modulation

Applications

- ☐ IS-136/AMPS Cellular Handsets
- ☐ IS-98/AMPS Cellular Handsets
- ☐ 900 MHz ISM Band Products
- ☐ Wireless Local Loop Subscriber Terminals

Description

The CMM0336 is a highly efficient linear 6 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 CMM0336 offers maxi-



imum performance and flexibility. The CMM0336 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 ($2V_d + I_d \cdot V_g$) not to exceed the minimum breakdown voltage (V_{br}) of +18V.

Recommended Operating Conditions

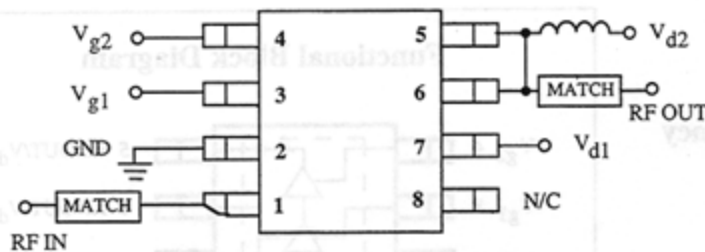
Parameter	Typ	Units	Parameter	Typ	Units
Drain Voltage ($+V_d$)	5.3 to 6.3	Volts	Operating Temperature (PC Board)	-30 to +80	°C

Electrical Characteristics

Unless otherwise specified the following specifications are guaranteed at room temperature with drain voltage ($+V_d$) = 5.8 V, in Celeritek test fixture.

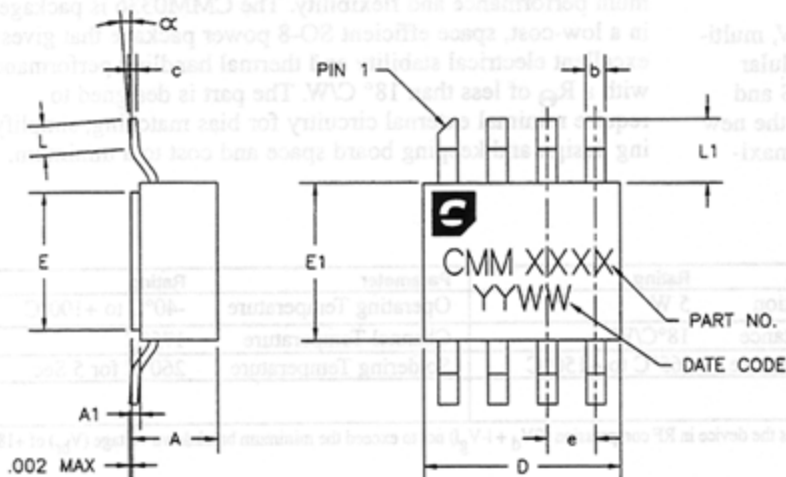
Parameter	Condition	Digital Bias			Analog Bias			Units
		Min	Typ	Max	Min	Typ	Max	
Frequency Range		824		928	824		928	MHz
Pout - Digital Operation	Meets IS-136 TDMA mask Meets IS-98 CDMA mask	31.0 28.5	32.0 29.0					dBm dBm
Pout - Analog Operation	AMPS				32.0	32.5		dBm
Efficiency	TDMA/CDMA	35/30	40/35		55	60		%
Gain	Small signal gain	32	34		32	34		dB
Harmonics	2nd @ Pout = +32.5 dBm 3rd @ Pout = +32.5 dBm						-30 -30	dBc dBc
Return Loss	In Celeritek test fixture		10			10		dB
Negative Supply Current				1			3	mA
Supply Current	TDMA/CDMA		400/350			500		mA
Quiescent Current	No RF		200			200		mA

Connection Diagram and Pin Descriptions



Pin #	Name	Description
1	RF IN	RF input
2	GND	Ground
3	V _{g1}	Input stage gate bias
4	V _{g2}	Output stage gate bias
5	RF OUT/V _{d2}	RF output and V _{d2} . External matching circuit required
6	RF OUT/V _{d2}	RF output and V _{d2} . External matching circuit required
7	V _{d1}	Input stage drain bias
8	N/C	Ground this pin

Physical Dimensions



DIMENSION	MINIMUM	NOMINAL	MAXIMUM
A		.086 [2.184]	.100 [2.540]
A1	.005 [1.270]	.008 [2.032]	.011 [2.794]
b	.017 [4.318]	.020 [5.080]	.023 [5.842]
c	.007 [1.778]	.008 [2.032]	.009 [2.286]
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 [5.080]		.040 [1.016]
L1	.055 [1.397]	.065 [1.651]	.075 [1.905]
α	0°		8°

DIMENSIONS IN INCHES [MILLIMETERS]

Ordering Information

The CMM0336 is available in a surface mount SO-8 power package and devices are available in tape and reel.

Part Number for Ordering

CMM0336-AK-00S0
CMM0336-AK-000T
CMM0336-AK-00T0
CMM0336-AK-00TT

Package

SO-8 surface mount power package for CDMA
SO-8 surface mount power package in tape and reel for CDMA
SO-8 surface mount power package for TDMA
SO-8 surface mount power package in tape and reel for TDMA

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