Advanced Product Information
September 1996 *(1 of 2)*

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

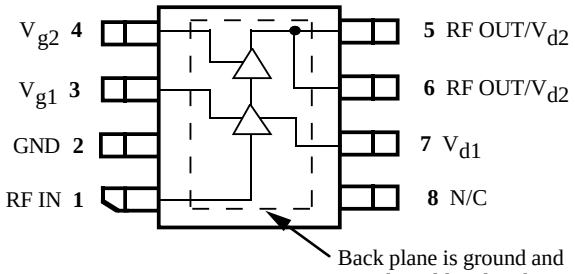
Features

- ❑ **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**

Functional Block Diagram



Back plane is ground and must be soldered to thermally conductive ground plane.

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 maximum 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 ($2V_d + |-V_g|$) 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.

		Digital Bias			Analog Bias			
Parameter	**Condition**	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Units**
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

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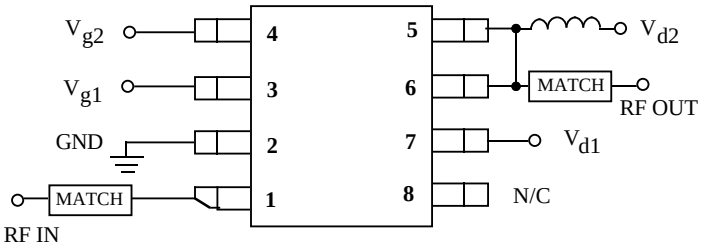
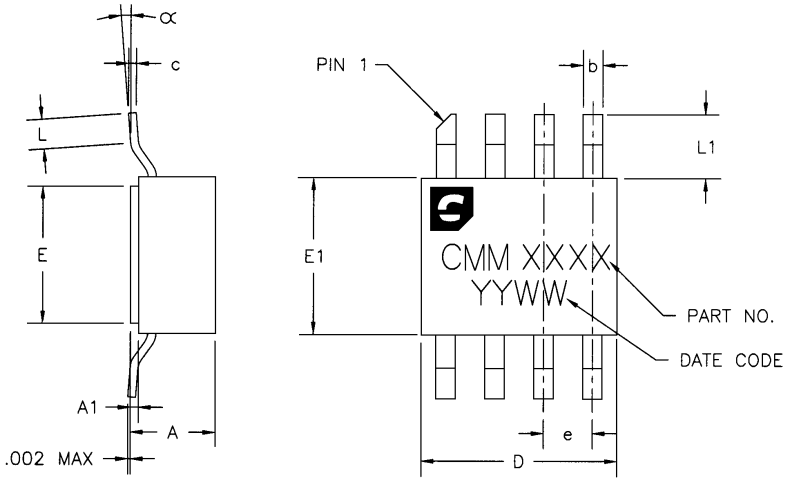
Connection Diagram and Pin Descriptions



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[.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 [MILIMETERS]

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	Package
CMM0336-AK	**SO-8 surface mount power package**
CMM0336-AK-000T	**SO-8 surface mount power package in tape and reel**

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