



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

## 1.85 to 1.91 GHz 6V, 32 dBm, PCS/PCN, Power Amplifier

### Features

- ❑ 35% Linear Power Added Efficiency
- ❑ 32 dBm Output Power (IS-136 TDMA)
- ❑ 32 dB Gain
- ❑ Low Cost, SO-8 Surface Mount Package
- ❑ Tested Under Digital Modulation

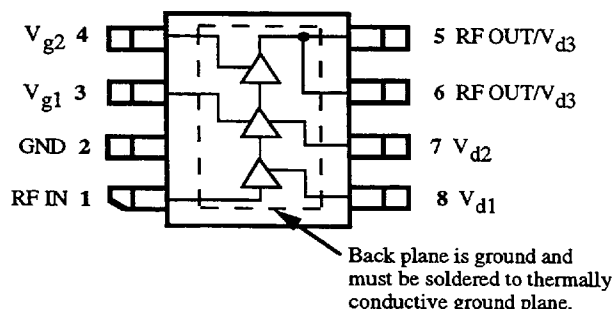
### Applications

- ❑ PCS-1900, IS-136, IS-98, DCS-1800 Handsets
- ❑ Wireless Local Loop Subscriber Units
- ❑ PCS Base Stations
- ❑ 1.6 GHz Satellite Subscriber Units

### Description

The CMM1335 is a 6 V 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 **Trinité DX™** amplifier family, the CMM1335 offers maximum performance and flexibility. The flexible amplifier can be biased to support the requirements of PCS-1900, IS-136, IS-95 or DCS-1800 systems.

### Functional Block Diagram



The CMM1335 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  $18^{\circ}\text{C/W}$ . The part is designed to require minimal external circuitry for bias matching, simplifying design and keeping board space and cost to a minimum. Through simple matching adjustment, equivalent performance can also be achieved for the 1.6 GHz satellite bands.

### 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 ( $2V_d + 1-V_g$ ) not to exceed the minimum breakdown voltage ( $V_{br}$ ) of +18V.

### Recommended Operating Conditions

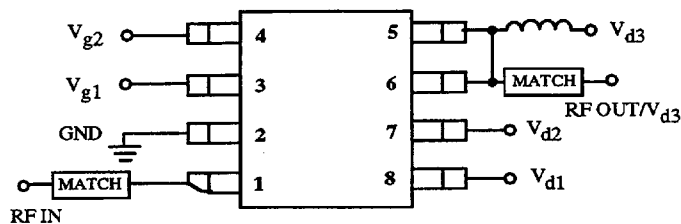
Parameter	Typ	Units	Parameter	Typ	Units
Drain Voltage ( $+V_d$ )	5.3 to 6.3	Volts	Operating Temperature (PC Board)	-30 to +80	°C

### 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.

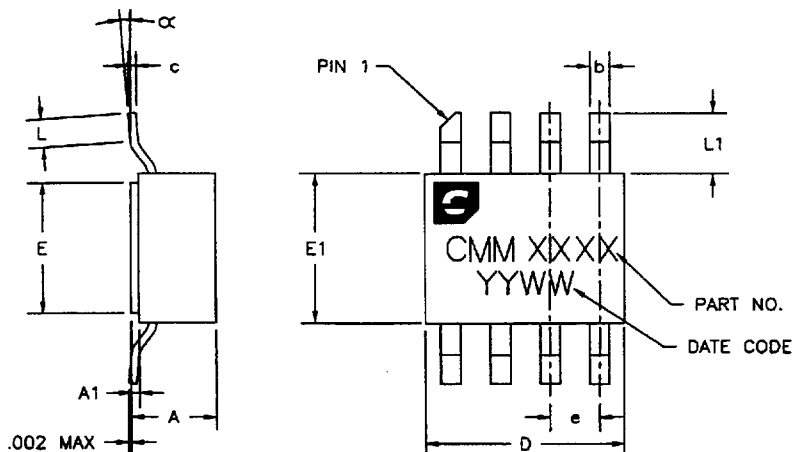
Parameter	Condition	Min	Typ	Max	Units
Frequency Range		1.85		1.91	GHz
Power Output	Meets IS-136 TDMA mask Meets IS-98 CDMA mask	31.0 30.0	32.0 30.5		dBm dBm
Efficiency	Pout IS-136 TDMA Pout IS-98 CDMA	30 27	35 30		% %
Gain		31	34		dB
Harmonics (in Celeritek test fixture)	2nd @ Pout = +34 dBm 3rd @ Pout = +34 dBm			-30 -35	dBc dBc
Return Loss	In Celeritek Test Fixture		10		dB
Negative Supply Current				1	mA
Supply Current	TDMA/CDMA		600/575		mA
Quiescent Current	No RF		350		mA

## Connection Diagram and Pin Descriptions



Pin #	Name	Description
1	RF IN	RF input (internally DC blocked)
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>	Intermediate 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 CMM1335 is available in a surface mount SO-8 power package and devices are available in tape and reel.

## Part Number for Ordering

CMM1335-AK

CMM1335-AK-000T

## Package

SO-8 surface mount power package

SO-8 surface mount power package in tape and reel

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