



Advanced Product Information  
September 1996 (1 of 2)

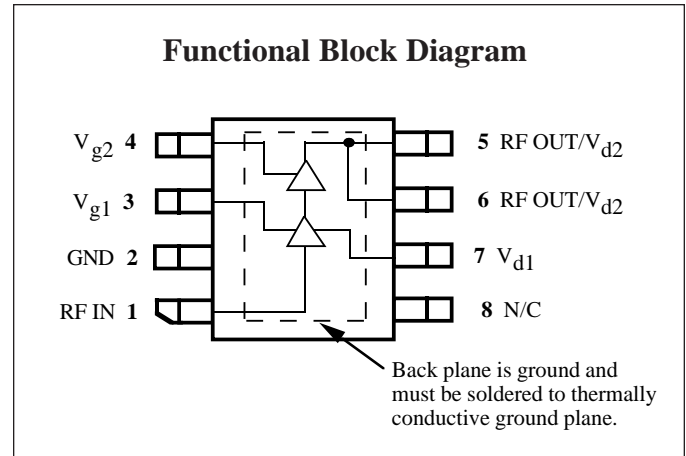
## 890 to 915 MHz 6V, 35 dBm, GSM Power Amplifier

### Features

- ❑ 55% Power Added Efficiency
- ❑ 35 dBm Output Power
- ❑ Low Harmonic Distortion
- ❑ Low Cost, SO-8 Surface Mount Package
- ❑ 34 dB Gain

### Applications

- ❑ GSM Class IV Cellular Handsets
- ❑ 900 MHz ISM Products
- ❑ SMR Radio



### Description

The CMM0335 is a highly efficient, 6V power amplifier intended for use in portable cellular handsets and datacom products operating in the SMR, GSM and 902-928 MHz ISM bands. As a pin-compatible member of the new *Trinita DX™* amplifier family, the CMM0335 offers maxi-

imum performance and flexibility. The CMM0335 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

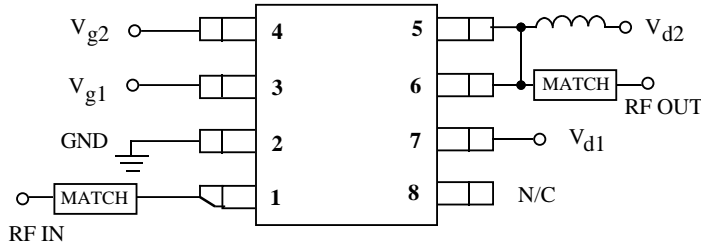
| Parameter                        | Typ        | Units | Parameter                        | Typ        | Units |
|----------------------------------|------------|-------|----------------------------------|------------|-------|
| Drain Voltage (+V <sub>d</sub> ) | 5.3 to 6.3 | Volts | Operating Temperature (PC Board) | -30 to +80 | °C    |

### Electrical Characteristics

Unless otherwise specified the following specifications are guaranteed at room temperature with drain voltage (+V<sub>d</sub>) = 5.8 V and P<sub>IN</sub> = +8 dBm, in Celeritek test fixture.

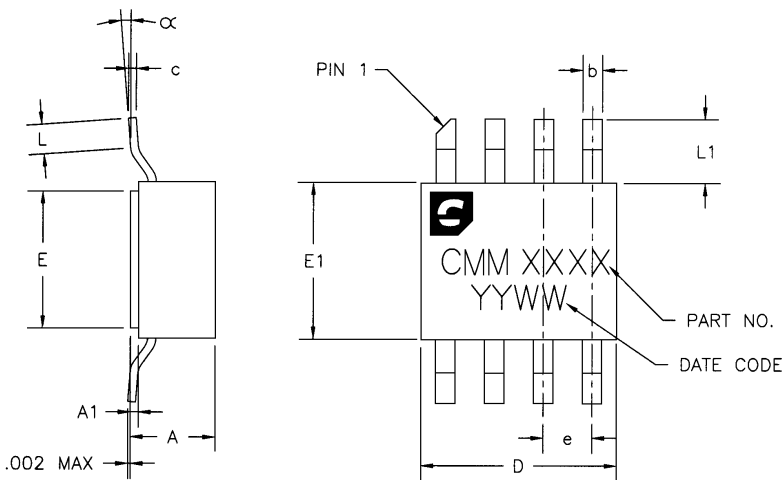
| Parameter               | Condition  | Min  | Typ  | Max        | Units      |
|-------------------------|--|------|------|------------|------------|
| Frequency Range         |  | 890  |      | 915        | MHz        |
| P <sub>out</sub>        | P <sub>IN</sub> = +8 dBm   | 34.5 | 35.5 |            | dBm        |
| Efficiency              | 35 dBm output meeting GSM template                                       | 50   | 55   |            | %          |
| Gain                    |  | 30   | 34   |            | dB         |
| Harmonics               | 2nd @ P <sub>out</sub> = +34.5 dBm<br>3rd @ P <sub>out</sub> = +34.5 dBm |      |      | -30<br>-30 | dBc<br>dBc |
| Return Loss             | In Celeritek test fixture  |      | 10   |            | dB         |
| Negative Supply Current |  |      |      | 3          | mA         |
| Supply Current          |  |      | 950  |            | mA         |
| Quiescent Current       | No RF  |      | 250  |            | 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>d2</sub> | RF output and V <sub>d2</sub> . External matching circuit required |
| 6     | RF OUT/V <sub>d2</sub> | RF output and V <sub>d2</sub> . External matching circuit required |
| 7     | V <sub>d1</sub>        | 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 [MILLIMETERS]

## Ordering Information

The CMM0335 is available in a surface mount SO-8 power package and devices are available in tape and reel.

### Part Number for Ordering

CMM0335-AK

CMM0335-AK-000T

### Package

SO-8 surface mount power package

SO-8 surface mount power package in tape and reel

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