

Positive Output Plastic Detector, 840 - 2200 MHz

DT65-0009

Features

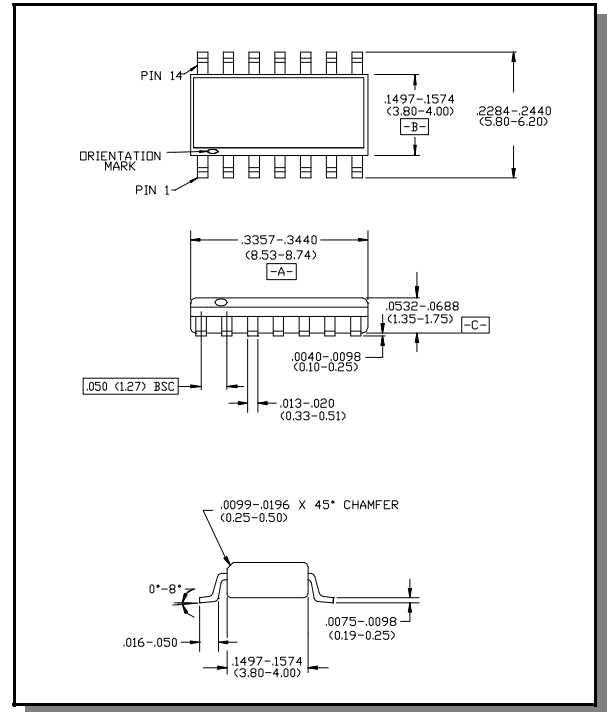
- High Output Sensitivity
- Small, SMT, Plastic SO-14 Package
- Single Design to Cover Cellular, PCS and UMTS Bands
- Single Ended or Differential Output

Description

M/A-COM's DT65-0009 is a plastic detector in an SMT plastic package. The DT65-0009 usable input power range is from Tss to +20 dBm. Square law response is from Tss to approximately -15 dBm, linear range is between -15 dBm and approximately +6 dBm with saturation through +20 dBm and burnout occurring beyond +23 dBm.

This bias schottky detector offers generally high sensitivity (K). The RF power handling of these detectors make them particularly useful in signal processing and power monitoring for telecommunication equipment. An internal reference diode is provided for use as a differential detector.

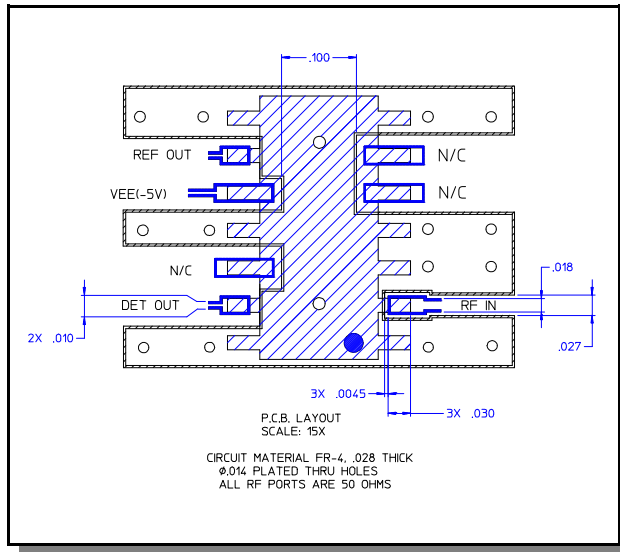
SO-14



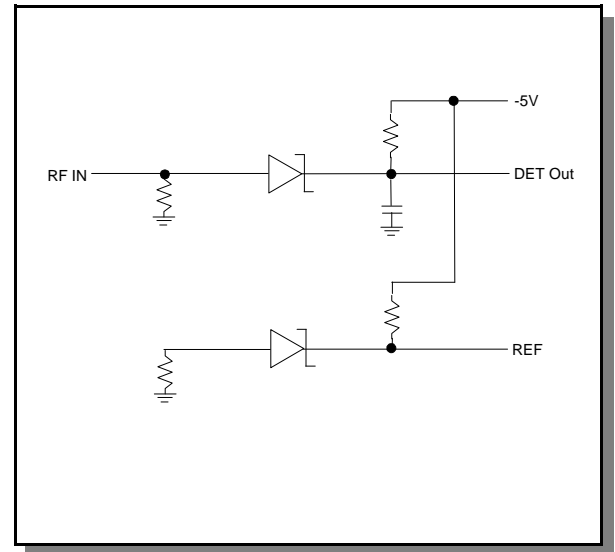
Electrical Specifications: $T_A = 25^\circ\text{C}$, $V_{EE} = -5.0\text{V}$, Load Resistance = 30K Ohms

| Parameter | Test Conditions | Frequency | Units | Min. | Typ. | Max. |
|-------------------------|-----------------|--------------|-------|------|------|------|
| Voltage Sensitivity (K) | RF IN = -20 dBm | 840-2200 MHz | mV/mW | 1800 | 2100 | — |
| In-Band Flatness | RF IN = 0 dBm | 840-2200 MHz | dB | — | — | 0.50 |
| Tss | RF IN = 0 dBm | 1.5 GHz | dBm | — | -47 | -45 |
| RF Bypass Capacitance | | 840-2200 MHz | pF | — | 10 | — |
| Video Resistance | | 840-2200 MHz | Ohms | — | 300 | — |

Recommended PCB Layout



Functional Diagram



Voltage Sensitivity (K) Typ. (mV/mW)¹

| Input Power | -40°C | +25°C | +85°C |
|-------------|-------|-------|-------|
| -20 dBm | 2420 | 2100 | 1830 |
| -15 dBm | 1880 | 1680 | 1560 |
| -10 dBm | 1315 | 1220 | 1185 |
| -5 dBm | 830 | 800 | 770 |
| 0 dBm | 500 | 490 | 480 |
| +5 dBm | 300 | 285 | 290 |
| +10 dBm | 175 | 177 | 170 |

1. V_{EE} = -5V, Load Resistance = 30K Ohms.

Pin Configuration

| Pin # | Function | Pin # | Function |
|-------|----------|-------|-----------------|
| 1 | GND | 8 | GND |
| 2 | RF IN | 9 | REF Out |
| 3 | GND | 10 | V _{EE} |
| 4 | GND | 11 | GND |
| 5 | N/C | 12 | N/C |
| 6 | N/C | 13 | DET Out |
| 7 | GND | 14 | GND |

Absolute Maximum Ratings ²

| Parameter | Absolute Maximum |
|------------------------------------|------------------|
| Max Input Power | +23 dBm |
| Applied Voltage (V _{EE}) | -10V |
| Operating Temperature | -40°C to +85°C |
| Storage Temperature | -65°C to +125°C |

2. Operation of this device above any one of these parameters may cause permanent damage.

Ordering Information ²

| Part Number | Package |
|--------------|-----------------------------|
| DT65-0009 | Bulk Packaging |
| DT65-0009TR | Tape and Reel (1K Reel) |
| DT65-0009-TB | Units Mounted on Test Board |

Specifications subject to change without notice.

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