

SCHOTTKY DETECTORS



APPLICATIONS

- ECM Receivers
- Power Monitors
- Radar

FEATURES

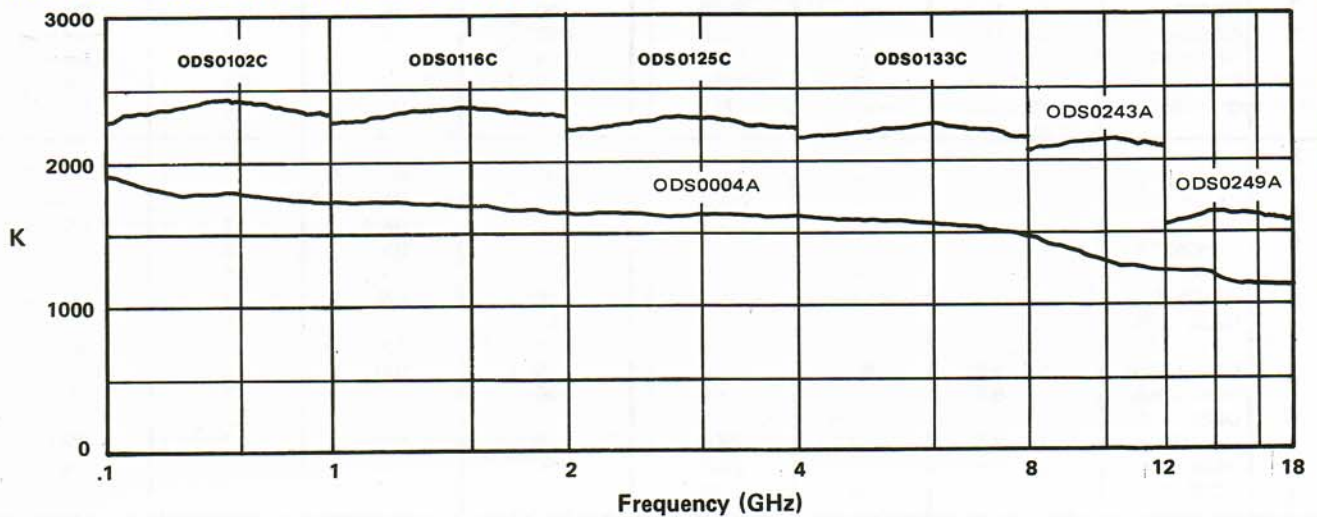
- High Sensitivity
- Low Cost
- Flat Response
- Compact Size
- Positive or Negative Polarity
- Diode Replaceable
- Good Temperature Stability

DESCRIPTION

The Omniyig Schottky detectors are designed for octave or broad band performance. The Schottky detectors are available in many models from 0.1 to 26 GHz. These components utilize diodes in metal-ceramic or glass packages. The units display ± 1.0 dB sensitivity stability over MIL-type temperature ranges. They include

internal d.c. return and bypass capacitors. The dynamic range of these detectors covers at least 70 dB from T_{SS} to +20 dBm. The square law range is from T_{SS} to between -18 dBm and -14 dBm where 1 dB compression occurs depending upon bias level and video load. Transition to linear occurs at approximately 0 dBm. The safe power handling capability of these Schottky detectors is +20 dBm.

TYPICAL PERFORMANCE CURVES



SPECIFICATIONS

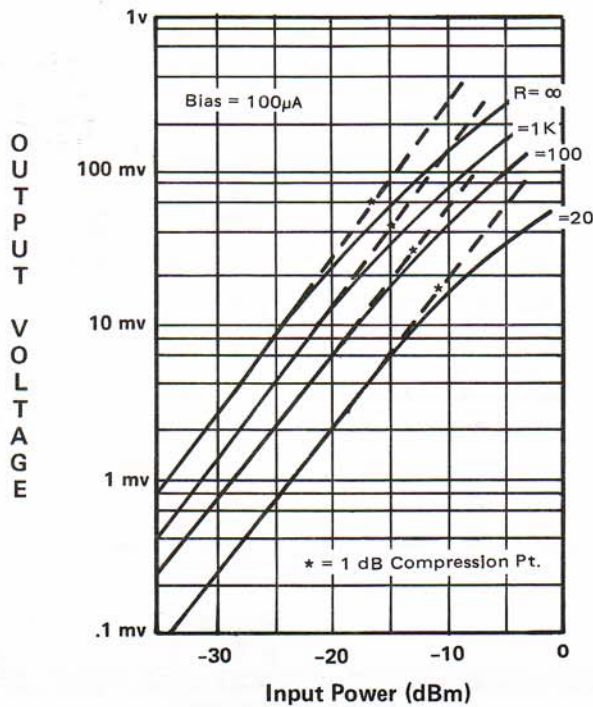
| | OMNIYIG MODEL NUMBER | FREQUENCY RANGE (GHz) | TYPICAL ² TSS (dBm) | K-FACTOR ¹ MINIMUM (mv/mw) | RF BYPASS ⁴ CAPACITOR (pf) | BIAS ³ (microamps) | FLATNESS (±dB) | VIDEO CONNECTOR (female) |
|---|----------------------------|-----------------------------|--------------------------------------|---|---|----------------------------------|-------------------|--------------------------------|
| B R O A D B A N D U N I T S | ODS0004A | 0.1-18 | -51 | 1000 | 15 | 100 | 1.5 | SMA |
| | ODS0102C | 0.1-1.0 | -54 | 2000 | 500 | 100 | 0.5 | BNC |
| | ODS0502A | 0.1-1.0 | -54 | 2000 | 500 | 100 | 0.5 | SMA |
| | ODS0109C | 0.5-2.0 | -53 | 2000 | 100 | 100 | 0.5 | BNC |
| | ODS0509A | 0.5-2.0 | -53 | 2000 | 100 | 100 | 0.5 | SMA |
| | ODS0110C | 0.5-4.0 | -53 | 1750 | 100 | 100 | 0.5 | BNC |
| | ODS0510A | 0.5-4.0 | -53 | 1750 | 100 | 100 | 0.5 | SMA |
| | ODS0117C | 1.0-4.0 | -53 | 1750 | 50 | 100 | 0.5 | BNC |
| | ODS0517A | 1.0-4.0 | -53 | 1750 | 50 | 100 | 0.5 | SMA |
| | ODS0118C | 1.0-12 | -52 | 1250 | 50 | 200 | 1.0 | BNC |
| | ODS0518A | 1.0-12 | -52 | 1250 | 50 | 200 | 1.0 | SMA |
| | ODS0126C | 2.0-8.0 | -52 | 1500 | 50 | 100 | 0.7 | BNC |
| | ODS0526A | 2.0-8.0 | -52 | 1500 | 50 | 100 | 0.7 | SMA |
| | ODS0127C | 2.0-12 | -52 | 1250 | 50 | 100 | 1.0 | BNC |
| | ODS0527A | 2.0-12 | -52 | 1250 | 50 | 100 | 1.0 | SMA |
| | ODS0328A | 2.0-18 | -51 | 1000 | 30 | 150 | 1.2 | SMA |
| | ODS0428C | 2.0-18 | -51 | 1000 | 30 | 150 | 1.2 | BNC |
| | ODS0134C | 4.0-12 | -51 | 1250 | 30 | 100 | 0.7 | BNC |
| | ODS0234A | 4.0-12 | -52 | 1250 | 30 | 100 | 0.7 | SMA |
| | ODS0434C | 4.0-12 | -52 | 1250 | 30 | 100 | 0.7 | BNC |
| ODS0235A | 4.0-18 | -51 | 1000 | 30 | 100 | 1.0 | SMA | |
| O C T A V E B A N D U N I T S | ODS0101C | 0.1-0.5 | -54 | 2000 | 500 | 100 | 0.3 | BNC |
| | ODS0501A | 0.1-0.5 | -54 | 2000 | 500 | 100 | 0.3 | SMA |
| | ODS0108C | 0.5-1.0 | -54 | 2000 | 100 | 100 | 0.3 | BNC |
| | ODS0508A | 0.5-1.0 | -54 | 2000 | 100 | 100 | 0.3 | SMA |
| | ODS0116C | 1.0-2.0 | -53 | 2000 | 50 | 100 | 0.3 | BNC |
| | ODS0516A | 1.0-2.0 | -53 | 2000 | 50 | 100 | 0.3 | SMA |
| | ODS0125C | 2.0-4.0 | -53 | 2000 | 50 | 100 | 0.4 | BNC |
| | ODS0525A | 2.0-4.0 | -53 | 2000 | 50 | 100 | 0.4 | SMA |
| | ODS0131C | 2.5-5.0 | -53 | 2000 | 50 | 100 | 0.4 | BNC |
| | ODS0531A | 2.5-5.0 | -53 | 2000 | 50 | 100 | 0.4 | SMA |
| | ODS0133C | 4.0-8.0 | -53 | 2000 | 30 | 100 | 0.5 | BNC |
| | ODS0533A | 4.0-8.0 | -53 | 2000 | 30 | 100 | 0.5 | SMA |
| | ODS0137C | 5.0-10.0 | -52 | 2000 | 30 | 100 | 0.5 | BNC |
| | ODS0137A | 5.0-10.0 | -52 | 2000 | 30 | 100 | 0.5 | SMA |
| | ODS0537A | 5.0-10.0 | -52 | 2000 | 30 | 100 | 0.5 | SMA |
| | ODS0139C | 6.0-12.0 | -52 | 2000 | 30 | 100 | 0.6 | BNC |
| | ODS0139A | 6.0-12.0 | -52 | 2000 | 30 | 100 | 0.6 | SMA |
| | ODS0141C | 7.0-11.0 | -52 | 2000 | 30 | 100 | 0.5 | BNC |
| | ODS0241A | 7.0-11.0 | -52 | 2000 | 30 | 100 | 0.5 | SMA |
| | ODS0143C | 8.0-12.0 | -52 | 2000 | 30 | 100 | 0.5 | BNC |
| ODS0243A | 8.0-12.0 | -52 | 2000 | 30 | 100 | 0.5 | SMA | |
| ODS0244A | 8.0-16.0 | -52 | 1500 | 20 | 100 | 0.7 | SMA | |
| ODS0245A | 8.0-18.0 | -51 | 1250 | 20 | 100 | 0.7 | SMA | |
| ODS0248A | 11.0-18.0 | -51 | 1500 | 20 | 100 | 0.6 | SMA | |
| ODS0249A | 12.0-18.0 | -51 | 1250 | 20 | 100 | 0.7 | SMA | |
| ODS0251A | 18.0-26.0 | -47 | 750 | 15 | 100 | 1.0 | SMA | |
| S P E C I A L U N I T S | ODS0115C | 0.7-1.4 | -54 | 3000 | 100 | 100 | 0.3 | BNC |
| | ODS0515A | 0.7-1.4 | -54 | 3000 | 100 | 100 | 0.3 | SMA |
| | ODS0123C | 1.7-2.4 | -54 | 3000 | 50 | 100 | .15 | BNC |
| | ODS0523A | 1.7-2.4 | -54 | 3000 | 50 | 100 | .15 | SMA |
| | ODS0129C | 2.2-2.3 | -54 | 3000 | 50 | 100 | .15 | BNC |
| | ODS0529A | 2.2-2.3 | -54 | 3000 | 50 | 100 | .15 | SMA |
| | ODS0132C | 3.7-4.2 | -53 | 3000 | 50 | 100 | .15 | BNC |
| | ODS0532A | 3.7-4.2 | -53 | 3000 | 50 | 100 | .15 | SMA |
| | ODS0138C | 5.4-5.9 | -53 | 3000 | 30 | 100 | .15 | BNC |
| | ODS0538A | 5.4-5.9 | -53 | 3000 | 30 | 100 | .15 | SMA |
| | ODS0142C | 7.5-8.5 | -53 | 2500 | 30 | 100 | 0.2 | BNC |
| | ODS0242A | 7.5-8.5 | -53 | 2500 | 30 | 100 | 0.2 | SMA |
| | ODS0146C | 8.5-9.6 | -53 | 2500 | 30 | 100 | 0.2 | BNC |
| | ODS0146A | 8.5-9.6 | -53 | 2500 | 30 | 100 | 0.2 | SMA |

TECHNICAL NOTES

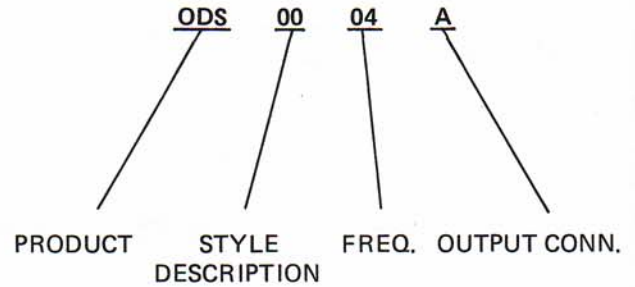
- "K" is the small signal open circuit voltage sensitivity, V_{out}/P_{in} . Measurements are taken at -20 dBm RF incident power.
- BW=2 MHz.
- May be adjusted to obtain increased sensitivity (lower bias) or reduced VSWR (higher bias). Specifications apply for stated bias.
- Capacitor valves listed are typical. Smaller valves available for improved video bandwidth.
- Video connectors have standard options at NO extra cost as follows:
 - BNC female may be replaced with TNC female, SMA female, SMB male, SMC male, or solder pin.
 - SMA female may be replaced with SMB male, SMC male or solder pin.
 - Video connector designations are:

| | |
|----------------|----------------|
| SMA female - A | SMB male - F |
| BNC female - C | SMC male - E |
| TNC female - G | Solder Pin - J |
 - Outline styles 00 and 03 have no video connector option. SMA female only.
- Normal video polarity is negative. Add the letter "R" to the model for positive polarity. (No additional charge.)
- Detectors can be matched within ± 0.25 dB over octave bandwidths and ± 0.4 dB over wider bandwidths. Add the letter "P" to the end of the model number for matched pairs. Add 10% to price for matching in pairs.
- Warranty applies to mount only, not the diode element. This element may be replaced at the factory for a nominal charge of \$45.00.

PERFORMANCE CURVES



MODEL NUMBER SYSTEM

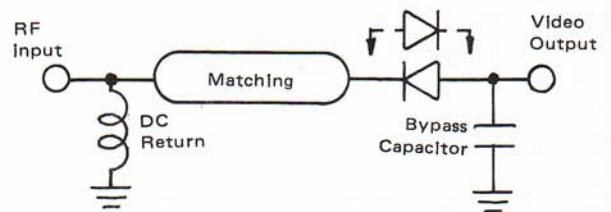


ENVIRONMENTAL

| | MIL-STD-883 | CONDITION |
|--------------------------------|-------------|---|
| Temperature Range | | |
| Storage | 1008C | -65°C to +150°C |
| Operating (see derating curve) | 1008C | -65°C to +125°C |
| Temperature Cycling | 1010C | 5 cycles, -65°C to +125°C |
| Thermal Shock | 1011A | 5 cycles, 0 to +100°C |
| Moisture Resistance | 1004 | 10 days, 90 to 98% R H |
| Shock (Mechanical) | 2002A | 5 blows, X Y Z @ 50 G's |
| Vibration Variable | | |
| Frequency | 2007A | 4, 4-min. cycles x y z @ 20 G's peak, 100 to 2,000 Hz |
| Constant Acceleration | 2001A | X ₁ Y ₁ Y ₂ 500 G's |

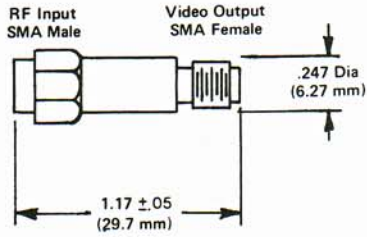
CIRCUIT

These Omniyig detector mounts include all circuit elements necessary for operation. These elements are DC return, matching network, diode and RF bypass capacitor.

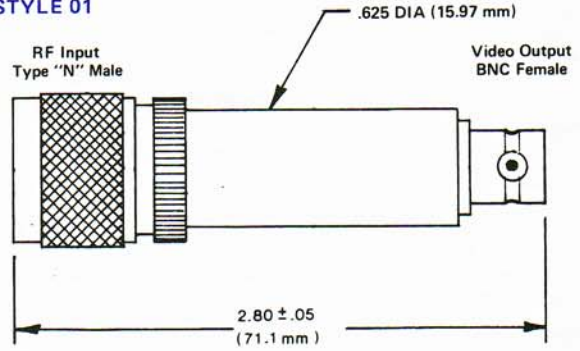


OUTLINES

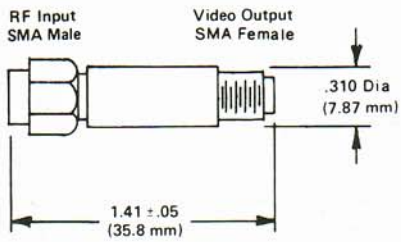
STYLE 00



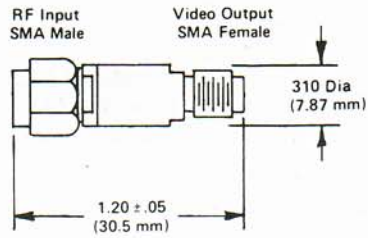
STYLE 01



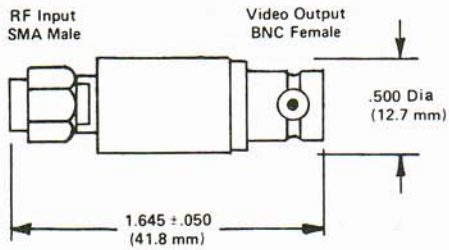
STYLE 02



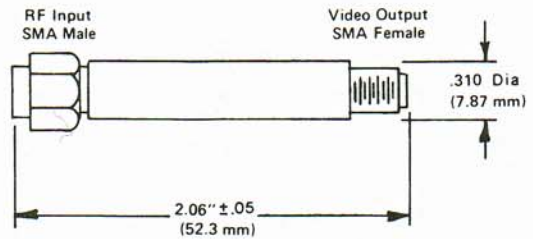
STYLE 03



STYLE 04



STYLE 05



NOTE: ALL DIA ±.010, PLUS LABEL