

Superior performance and high reliability are designed into these detectors. They offer extremely stable output voltage over wide temperature excursions, typically  $\pm 0.15\text{dB}$  from  $-65^\circ\text{C}$  to  $+100^\circ\text{C}$  at 1GHz and approx.  $\pm 0.3\text{dB}$  at 18GHz. No bias is required for operation. Designs are available, in selected frequency bands, from 100MHz (or lower) to 18GHz. Typical output impedance is in the range of  $95\Omega$  to  $125\Omega$ . This allows for fast pulsed video response and use in wide bandwidth requirements. Video bandwidths may be modified by selection of the RF bypass capacitor and load value. Square law typically ranges from TSS up to  $-17\text{dBm}$ . The upper limit can be raised as high as  $-13\text{dBm}$  with selected load values. The output polarity is usually negative but can be made positive if requested.

## Features:

- Exceptional Temperature Stability
- Low Video Resistance ( $112\Omega$  typical)
- Flat Output vs. Frequency Over Broadband Performance
- Very Fast Pulse Response
- No Bias Required
- Flexible Design Options

## Applications:

- Transmitter Monitoring
- Missile Guidance Systems
- Input to Low-Noise Amplifiers
- Broadband Or Narrowband ECM Receivers
- Power and Signal Monitors
- Doppler Radar and Beacon Receivers
- Matched units available for Multi-channel Receivers, Amplitude Comparator Systems and Discriminators



Frequency Range (GHz)	Part (1) Number	Minimum (2) Sensitivity K (mV/mW)	Flatness vs Frequency (+/-dB)	Typical (3) TSS (dBm)	Typical (4) VSWR	Nominal (5) Video Capacitance (pF)	Standard Case Styles	Optional Case Styles
0.1 - 0.5	ACTP1523N	800	0.3	-51	2.5:1	270	C3	C8,C15,C62
0.1 - 1	ACTP1572N	900	0.4	-51	2.5:1	270	C3	C8,C15,C62
0.5 - 1	ACTP1524N	800	0.2	-51	2.5:1	39	C3	C8,C15
0.1 - 2	ACTP1629N	900	0.35	-51	2.3:1	75	C3	C8,C15,C62
0.5 - 2	ACTP1501N	800	0.35	-51	2.3:1	39	C3	C15
1 - 2	ACTP1525N	800	0.25	-51	2.5:1	20	C3	C15
0.1 - 4	ACTP1573N	800	0.3	-51	2.3:1	75	C3	C8,C15,C62
2 - 4	ACTP1502N	800	0.2	-51	2.3:1	20	C3	C15
2 - 6	ACTP1514N	800	0.5	-51	2.3:1	20	C32	C3,C5,C15
1 - 12	ACTP1663N	700	0.85	-50	2.5:1	20	C3	C8,C15,C62
2 - 8	ACTP1555N	750	0.5	-51	2.5:1	20	C3	C8,C15
4 - 8	ACTP1503N	750	0.4	-51	2.5:1	9	C3	C32
4 - 8	ACTP1648N	650	0.4	-50	2.0:1	12	C8	C15
6 - 12	ACTP1583N	750	0.4	-50	2.5:1	12	C3	C8,C15
8 - 12	ACTP1504N	700	0.4	-50	2.4:1	9	C3	-
2 - 18	ACTP1528N	650	1.0	-50	2.8:1	12	C3	C32
0.5 - 18	ACTP1584N	600	1.3	-50	3.0:1	20	C32	C3,C15
1 - 18	ACTP1625N	650	1.1	-50	2.7:1	20	C32	C3,C15
6 - 18	ACTP1563N	600	0.9	-50	2.8:1	12	C32	C3,C15
7 - 18	ACTP1662N	650	1.0	-50	2.7:1	12	C32	C3
8 - 18	ACTP1506N	650	0.7	-50	2.3:1	12	C3	-
12 - 18	ACTP1505N	700	0.4	-51	2.1:1	9	C3	-

## NOTES:

- 1) Standard output polarity is negative. If positive output is required, substitute "P" for "N" in part number.
- 2) Diode values can be changed to alter the level of sensitivity. As sensitivity is increased, VSWR will degrade. VSWR will improve as sensitivity is lowered. Flatness and TSS will also be influenced by these changes. If your applications require something special, please contact the factory.
- 3) Tangential Signal Sensitivity (TSS) is a measure of low level sensitivity with respect to noise. It is measured using a video amplifier with a 2MHz bandwidth and a 3dB noise figure.
- 4) VSWR measured at or below  $-20\text{dBm}$  input power level.
- 5) Video capacitance is used for RF bypass. This value can be changed if required for video response time or other considerations. Contact the factory if value other than those shown are needed.

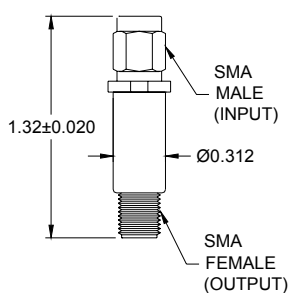


#### ENVIRONMENTAL SPECIFICATIONS:

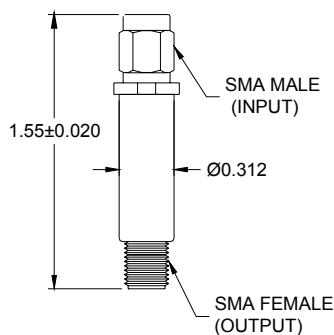
MIL-E-5400, MIL-STD-202, MIL-E-16400  
 Operating Temp: -65°C to +100°C  
 Storage Temp: -65°C to +100°C  
 Humidity: MIL-STD-202F, M103, Cond B  
 Shock: MIL-STD-202F, M213, Cond B  
 Altitude: MIL-STD-202F, M105, Cond B  
 Vibration : MIL-STD-202F, M204, Cond B  
 Thermal Shock: MIL-STD-202F, M107, Cond A  
 Temperature Cycle: MIL-STD-202F, M105C, Cond D  
 Maximum Input Power: +14dBm  
 (This allows for 3dB margin from possible burnout at +17dBm)

#### SCREENING :

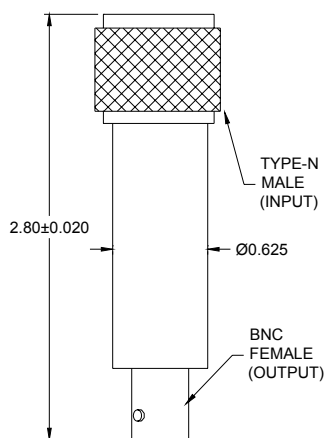
Standard Screening:  
 Internal Visual per MIL-STD-883, Method 2017  
 Temperature Cycle: -65°C to +100°C, 10 cycles  
Optional High-Rel Screening (Ref MIL-PRF-38534):  
 Internal Visual per MIL-STD-883, Method 2017  
 Stabilization Bake per MIL-STD-883, Method 1008  
 Temperature Cycle per MIL-STD-883, Method 1010  
 Constant Acceleration per MIL-STD-883, Method 2001  
 Burn-in per MIL-STD-883, Method 1015  
 Leak Test per MIL-STD-883, Method 1014  
 External Visual per MIL-STD-883, Method 2009



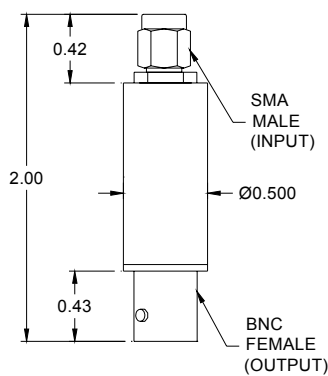
CASE STYLE C3



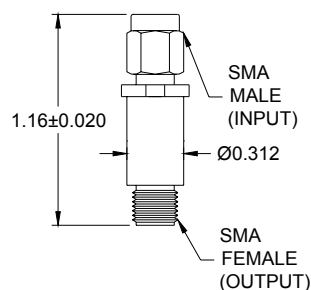
CASE STYLE C5



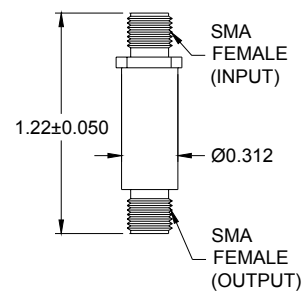
CASE STYLE C8



CASE STYLE C15



CASE STYLE C32



CASE STYLE 62

#### Part Number Ordering Information:

Example: ACTP1555NC312  
 ACTP1555: Coaxial Tunnel Diode Detector, 2 – 8GHz  
 N: Negative output polarity  
 C3: Package type  
 12: 12pF custom video capacitance (omit for standard value)