SILICON POINT CONTACT DETECTOR DIODES

ASI Point Contact Detector Diodes are designed for applications from UHF through 16 GHz. They feature high burnout resistance, broadband operation and high tangential signal sensitivity.

These detector diodes are categorized by TSS (Tangential Signal Sensitivity) for detector applications at the designated frequencies from UHF to 16 GHz.

Figure of Merit is expressed by the relationship:

$M = \gamma(R_v + R_a)^{-1/2}$

γ = Voltage sensitivity which is constant between the open circuit voltage and input power level.

R_v = Video Resistance

R_a = Arbitrary resistance to represent amplifier noise (1200 OHMS)

These diodes are available in DO-7, DO-22, DO-23, and DO-37 package styles which make them suitable for use in Coaxial, Waveguide and Stripline applications. The Tangential Signal Sensitivity (TSS) is the amount of signal power below the usually reference level of 1 Milliwatt that is necessary to produce an output pulse whose amplitude is enough to raise the noise fluctuation by an amount equivalent to the average noise level. TSS is approximately 4dB above the MDS (minimum detectable signal-the microwave power requirement to produce an output power equal to the noise power).

TSS = MDS - 4dB

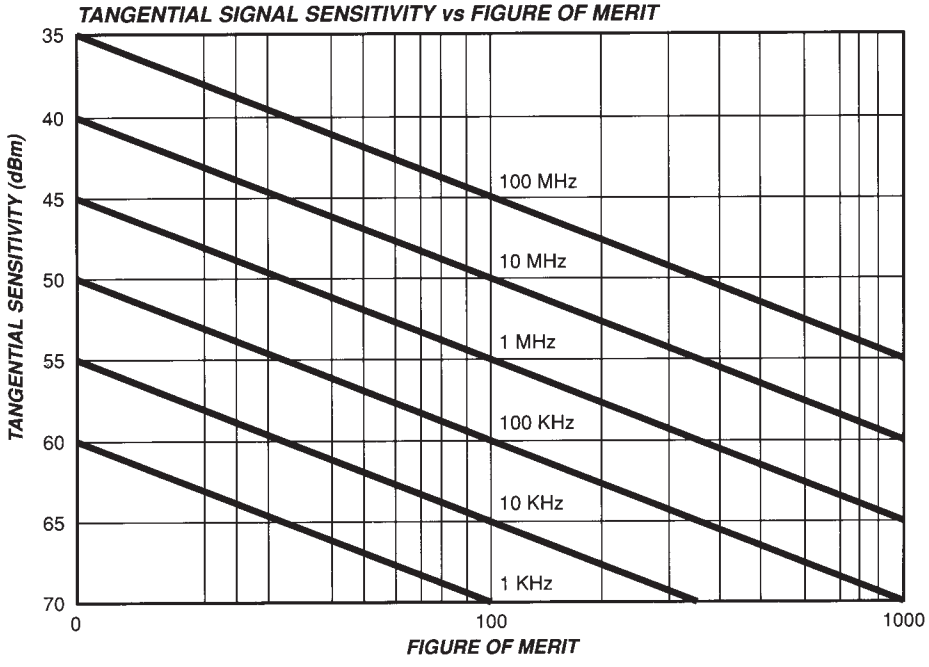
The minimum detectable signal is expressed by the relationship:

$MDS = (4kTB)^{1/2} (M)^{-1}$

MDS = Minimum Detectable Signal

K = Boltzmann's Constant
T = Absolute Temperature
B = Video Bandwidth
M = Figure of Merit at Zero Bias

All of the Point Contact Detector Diodes meet or exceed the Military Environmental Specifications of MIL-S-19500, MIL-STD-202 and methods from MIL-STD-750 that specify mechanical, electrical, thermal and environmental tests.



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POINT CONTACT DETECTOR DIODES

UHF, S, X, Kμ -BAND

FREQUENCY BAND	TYPE NUMBER POLARITY FORWARD	REVERSE	REVERSIBLE	ELECTRICAL CHARACTERISTICS TSS -dBm MIN.	FM MIN.	Z_V K OHMS MIN	MAX	TEST CONDITIONS FREQUENCY MHz	BASIC TYPE	PACKAGE OUTLINE
UHF			1N830	RECTIFICATION EFFICIENCY 65% MIN.				100	1N830	DO-7
UHF			1N830A	RECT. EFF = 65%; V_B = 5.0 V MIN.				100	1N830A	DO-7
S	1N32	1N32R		49	85	4.5	22.0	3000	1N32	DO-22
S			1N2102	49	85	4.0	22.0	3000	1N2102	DO-23
S	1N32A	1N32AR			200	4.0	17.0	3000	1N32A	DO-22
X	1N76[1]	1N76R[1]			(SEE NOTE 2)			9375	1N76	DO-37
X	1N76A[1]	1N76AR[1]			(SEE NOTE 2)			9375	1N76A	DO-37
X			1N833	40	15	4.5	18.0	9375	1N833	DO-7
X			1N833A	45	30	4.5	18.0	9375	1N833A	DO-7
X	1N31[1]	1N31R[1]		47[4]	55	6.0	23.0	9375	1N31	DO-37
X	1N31A[1]	1N31AR[1]			200	3.0	17.0	9375	1N31A	DO-37
X	1N1611	1N1611R		51[4]	130	1.7[4]	3.1[4]	9000	1N1611	DO-22
X	1N1611A	1N1611AR		53[4]	220	1.7[4]	3.1[4]	9000	1N1611A	DO-22
X	1N1611B	1N1611BR		53[4]	220	1.7[4]	3.1[4]	9000	1N1611B	DO-22
X	1N3143	1N3143R			POWER MONITOR			9375	1N3143	DO-22
X			1N3778		POWER MONITOR			9375	1N3778	DO-23
X-K	1N2926[1]			40	15	-	18.0	16000	1N2926	DO-37
X-K	1N2926A[1]			45	30	-	18.0	16000	1N2926A	DO-37

NOTES:

1. Maximum operation temperature of 70°C. All others 150°C.
2. Voltage output test.
3. Bandwidth = 10 MHz
4. With 50μA bias