

# Pin Diode Limiters

0.5 to 18 GHz

## Features

### P SERIES

- Low insertion loss
- 1 watt CW and 100 Watt peak (1  $\mu$ sec) power handling capability
- Fast response and short recovery time (10 to 20 nsec typical)
- Built-in DC return
- Hermetically sealed module
- Moderate cost

### Y SERIES

- Low limiting threshold (+6 dBm typ.)
- Low leakage level (+13 dBm typ.)
- 1 Watt CW and 200 Watts peak (1  $\mu$ sec) power handling capability
- Built-in DC block both ends
- Hermetically sealed module
- Typical recovery time is less than 10  $\mu$ sec

## Specifications

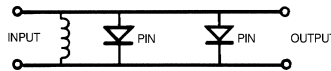
Operating temperature ..... -55°C to +125°C  
 Storage temperature ..... -55°C to +150°C  
 Shock ..... 50G, 11msec  
 Vibration ..... 20G, 100 to 2000Hz

Insertion Loss and VSWR tested @ -10dBm  
 Minimum power handling capability: 1watt CW or 100 watts peak (1 $\mu$ sec, 0.1% duty) derated to 20% @+125°C.  
 Standard outline in "1F" style. Add Suffix "D" or "2F" to the model number for optional outlines.  
 Package style: (inches)

## MIDISCO

limiters are passive (series P) or detector activated (series Y), broadband integrated module devices that are designed for power leveling and receiver protection. In ECM, radar and communications systems, these limiters can protect transistor, tunnel diode or FET amplifiers, detectors and mixers. The limiting threshold is the incident power at which the low level insertion loss increases by one dB and the limiter begins its protective role. In series Y the detector provides a bias to the PIN diode which allows the diode to attenuate at a lower level providing harder limiting than it could achieve on its own.

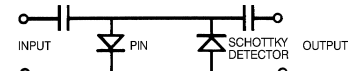
The 50 ohm hermetically sealed modules provide high reliability in severe environments. Both types are available in module form (Pkg D) or in SMA connector packages (1F or 2F).



Passive Pin Diode, Type P series @25°C

Model	Frequency Range (GHz)	Maximum Insertion Loss (dB)	VSWR (max)	Max Leak @1W CW Input (dBm)
MDC1527P-1	0.5-1	0.5	1.4:1	+20
MDC1527P-2	0.5-2	0.7	1.4:1	+20
MDC1527P-3	1-2	0.5	1.4:1	+19
MDC1527P-4	2-4	0.8	1.4:1	+19
MDC1527P-5	2-8	1.5	1.5:1	+19
MDC1527P-6	2-18	2.2	2.2:1	+20
MDC1527P-7	4-8	1.4	1.5:1	+19
MDC1527P-8	7-12	1.8	1.7:1	+19
MDC1527P-9	8-16	2.0	1.8:1	+19
MDC1527P-10	11-18	2.2	2.0:1	+19

Limiting threshold +9dBm (typ.)

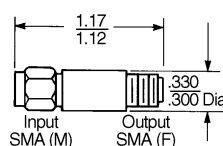


Detector Activated Type, Y series @25°C

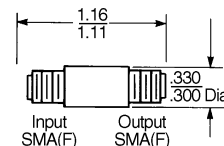
Model	Frequency Range (GHz)	Maximum Insertion Loss (dB)	VSWR (max)	Max Leak @1W CW Input (dBm)
MDC1527Y-1	0.5-1	0.7	1.4:1	+14
MDC1527Y-2	0.5-2	0.7	1.4:1	+14
MDC1527Y-3	1-2	0.7	1.4:1	+14
MDC1527Y-4	2-4	0.8	1.4:1	+14
MDC1527Y-5	2-8	1.4	1.6:1	+14
MDC1527Y-6	2-18	2.5	2.5:1	+14
MDC1527Y-7	4-8	1.4	1.5:1	+13
MDC1527Y-8	7-12	1.8	1.6:1	+13
MDC1527Y-9	8-16	2.2	2.0:1	+13
MDC1527Y-10	11-18	2.5	2.2:1	+13

Limiting threshold +6dBm (typ.)

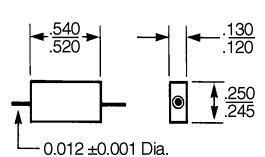
Package Style 1F



Package Style 2F



Package Style D



# Tunnel (Back) Diode Detectors

For Stripline/Microstrip Assemblies — 0.01 to 18 GHz

## Features

- Drop-in miniature construction
- Very low output resistance
- Broadband, flat frequency response
- Excellent temperature stability
- Very low 1/f noise

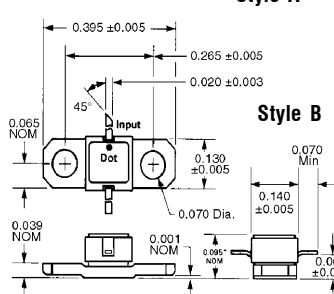
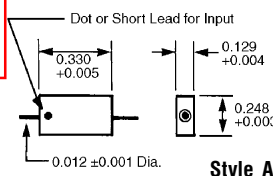
## Maximum Ratings

Input power ..... + 17 dBm  
 Operating temp ..... -65°C to +115°C  
 Storage temp ..... -65°C to +125°C  
 Soldering temp ..... 230°C, 5 secs

Negative output polarity standard. Add R to end of model number for positive output polarity. TSS based on 2 MHz video band width and 2 dB amplifier NF. Add "A" or "B" to the end of the model number for package style desired. Also available with SMA connectors. Consult factory.

## MIDISCO

drop-in tunnel diode detectors are narrow or broadband matched without resistive loading. They provide excellent sensitivity and flat response with optimum input VSWR and tangential sensitivity. The performance of these modules, in wideband video systems requiring fast pulse rise times, is impressive and the square law performance is essentially unaffected by changes in microwave power levels at small signals of less than -23dBm. Application notes are available.



Specifications (@+25°C, up to -20dBm power input)

Model	Freq. Range (GHz)	Min. Sensitivity K(mV/mW)	Typical TSS (dBm)	Max. Flatness (±dB)	Typical VSWR	Nominal Output Cap (RF)	Nominal Output Res (ohm)
MDC1528-1	0.1-2	1000	-51	±0.3	1.5:1	150	250
MDC1528-2	0.1-4	900	-50	±0.5	2:1	150	250
MDC1528-3	0.1-0.5	1000	-51	±0.75	2:1	150	150
MDC1528-4	0.1-1	800	-50	±0.75	2:1	150	130
MDC1528-5	0.5-2	800	-50	±0.7	3:1	50	130
MDC1528-6	2-6	800	-50	±0.7	4:1	10	130
MDC1528-7	2-8	750	-50	±1.0	4:1	10	130
MDC1528-8	2-12	700	-50	±1.2	4:1	10	130
MDC1528-9	6-18	600	-49	±1.0	3:1	10	130
MDC1528-10	2-18	600	-49	±1.5	4:1	10	130