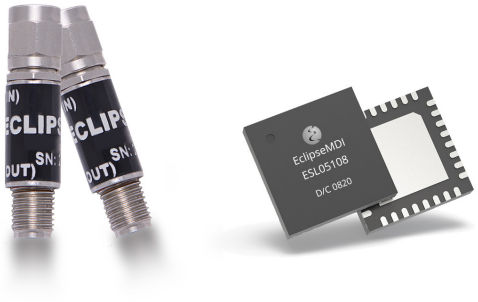
Eclipse MDI Limiters

Terms and Definitions



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Pin-Pin

- Fast Recovery Time
- Low Insertion Loss
- SMA Male and Female Connectors
- Internal DC Return
- Broadband
- Octave Band

Pin-Schottky

- Fast Recovery Time
- Internal DC Return
- Low Insertion Loss
- SMA Male and Female Connectors
- Broadband
- Octave Band
- Narrow Band

RoHS Compliant

High Reliability

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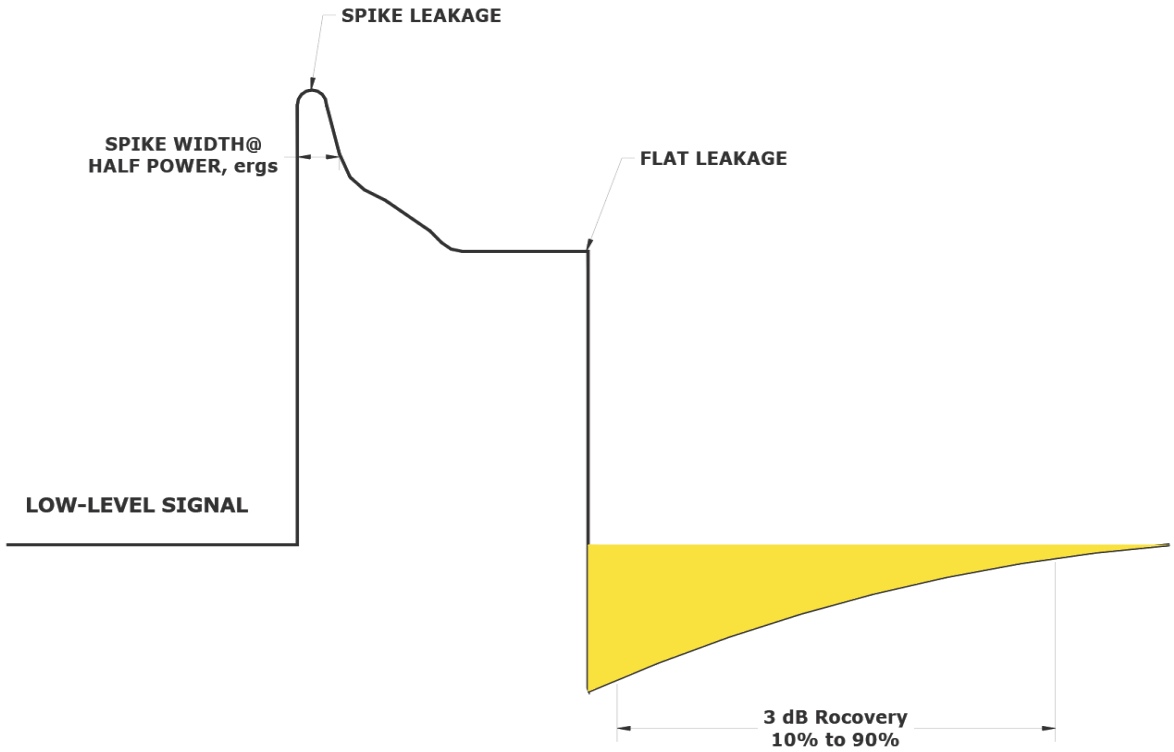
Eclipse MDI Limiters

Terms and Definitions

Eclipse MDI offers two basic limiter designs, EPL Series and ESL Series. These limiters are passive and broadband devices mainly used for receiver protection, input limiting, and leveling circuit to eliminate high RF spike levels. The limiters are constructed in hermetic modules. Flat rectangular modules are used in stripline applications while the cylindrical version accommodates SMA coaxial connectors. Other RF coaxial connectors are available as specials.

Limiter applications include protection of tunnel diode amplifiers, transistors and GaAs FET amplifiers, mixers, and detectors in ECM, communication, and radar equipment. A limiter at the input of an amplifier can keep the amplifier from being driven into overdrive. Thus, the unwanted harmonics and slow recovery times are eliminated.



TYPICAL LIMITER PULSE CHARACTERISTICS

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Eclipse MDI Limiters

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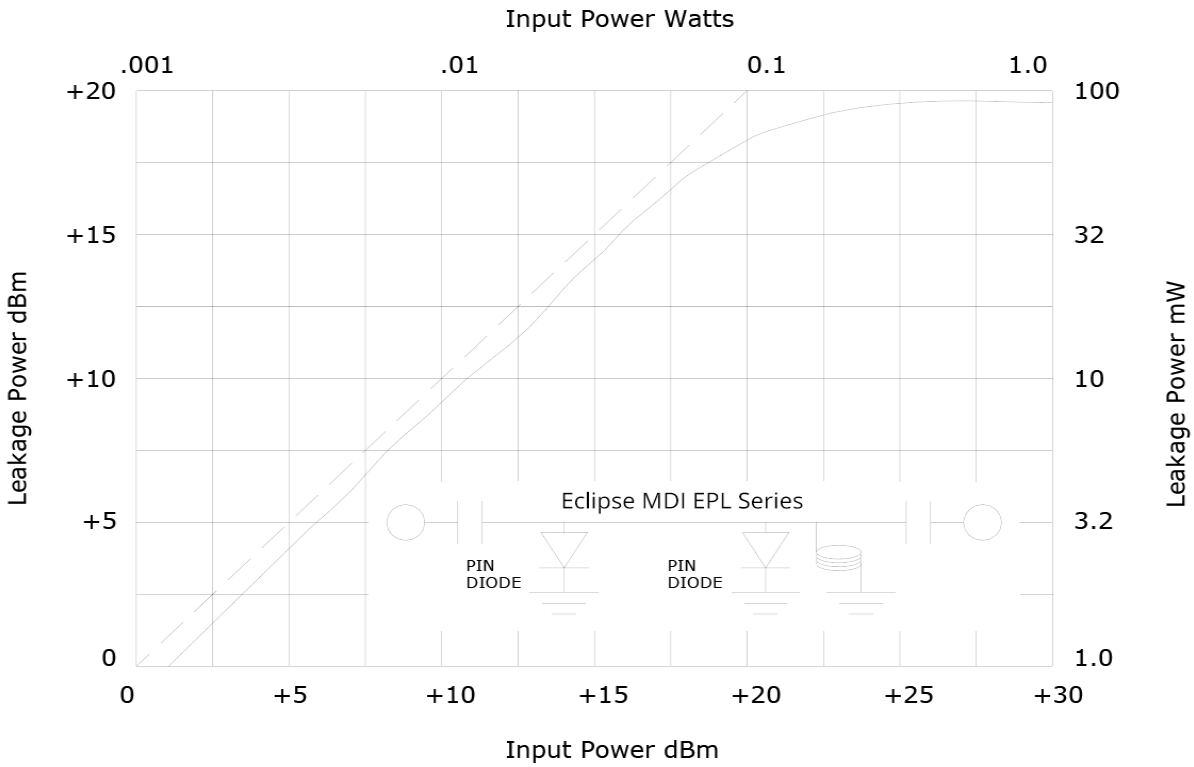
The EPL Series Limiters utilize a 2-micron, gold-doped I-layer PIN limiter chip and are assembled in a low pass filter network. The chips are spaced close to a quarter wave length apart near the high end of the frequency range. These PIN diode limiters require a DC return for proper operation. This may be supplied with internal DC return when the lower frequency is 1 GHz or higher and no more than a decade wide.

The power handling of a PIN diode limiter is 1 watt CW and pulses up to 100 watts peak with a 1 µsec pulse width and 0.1% duty cycle.



Typical EPL Curve

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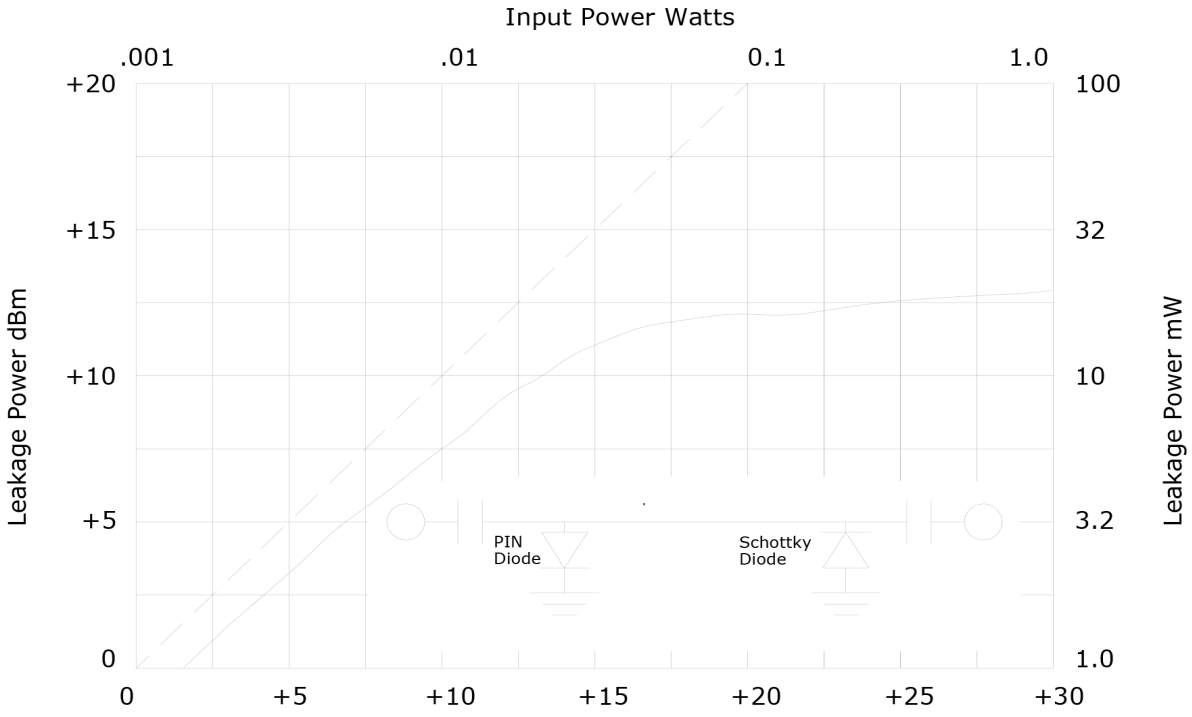
The ESL Series Limiters use a higher power 8 to 12 micron I-layer standard PIN diode chips. The limiter is detector driven from an opposite polarity Schottky chip. These limiters are capable for higher power handling and approximately 6 dB lower spike leakage than the EPL Series limiters. The ESL Series limiters require DC blocks at the input and output. These DC blocks keep the Schottky current flowing through the PIN diodes and away from external resistive loads or stubs which form DC short to ground.

The ESL series limiters are capable to handle powers of 3 to 5 watts CW and 200 to 300 watts peak for 2.5 µsec pulse width and 1% duty cycle. These higher power limiters have faster turn-on time but recovery time can be as long as 1/2 µsec.



Typical ESL Curve

The parameters are quite similar for both types of limiters, except for the limiting threshold, which the insertion loss increases by one dB and the limiting begins. Limiting threshold is typically +7 dBm and the insertion loss of a limiter is measured at -10 dBm.

About Eclipse MDI

ECLIPSE Microdevices is located in San Jose, California. ECLIPSE has been developing high performance analog semiconductors for use in wireless radio frequency (RF), microwave, and millimeter wave for commercial and industrial applications. ECLIPSE has formed a strategic alliances - with foundries that features leading state-of-the-art process technologies and with manufacturing facilities for high-volume production of innovative RFIC's.

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