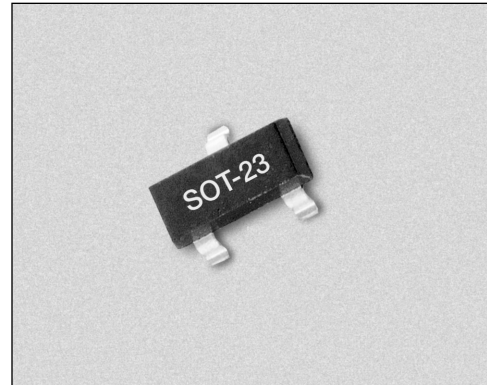



### Features

- Low Distortion Design
- Characterized Limiter Performance  
500 MHz to 2 GHz
- Low Insertion Loss
- Low Cost Plastic Package
- Available in Tape and Reel Packaging



### Description

The SMP1330 series are limiter diodes in plastic package designed for use as passive receiver protectors in wireless and other UHF systems covering 500 MHz to 2 GHz. They employ Alpha's limiter diode technology to produce a gold doped thin base limiter chip for low loss, low distortion performance and good limiter action. These devices have been characterized in limiter circuits and tightly specified to insure consistent performance.


Series Pair
Marking: PQ2
SOT-23
◆ SMP1330-005
$L_S = 1.5 \text{ nH}$

◆ Available through distribution.

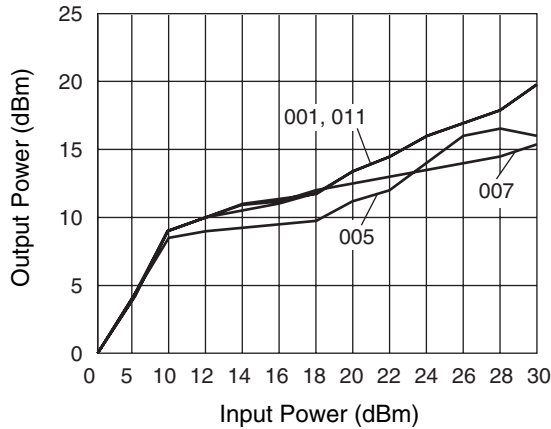
### Absolute Maximum Ratings

Characteristic	Value
Reverse Voltage ( $V_R$ )	20 V
Forward Current ( $I_F$ )	100 mA
CW Incident Power @ 25°C Lead Temperature	1 W
Peak Incident Power @ 1% Duty Factor 1 $\mu$ S Pulse	100 W
Power Dissipation @ 25°C Lead Temperature ( $P_D$ )	250 mW
Storage Temperature ( $T_{ST}$ )	-65°C to +150°C
Operating Temperature ( $T_{OP}$ )	-65°C to +150°C
ESD Human Body Model	Class 2

### Electrical Specifications at 25°C

Parameter	Condition	Min.	Typ.	Max.	Unit
Series Resistance ( $R_S$ )	10 mA, 100 MHz		1.2	1.5	$\Omega$
Capacitance ( $C_T$ )	0 V, 1 MHz		0.7	1.0	pF
Capacitance ( $C_T$ )	0 V, 1 GHz		0.7		pF
Conductance (G)	0 V, 1 GHz		50.0		$\mu$ S
Carrier Lifetime (TI)	$I_F = 10 \text{ mA}$		4.0		nS
I Region Width			3.0		$\mu$ m
Breakdown Voltage ( $V_{BR}$ )	$I_R = 10 \text{ }\mu$ A	20	35.0	50.0	V

### Typical Performance Data



Typical 1 GHz Limiter Performance

### Packages

The SMP1330 series is available in one package configuration utilizing industry standard SOT-23.

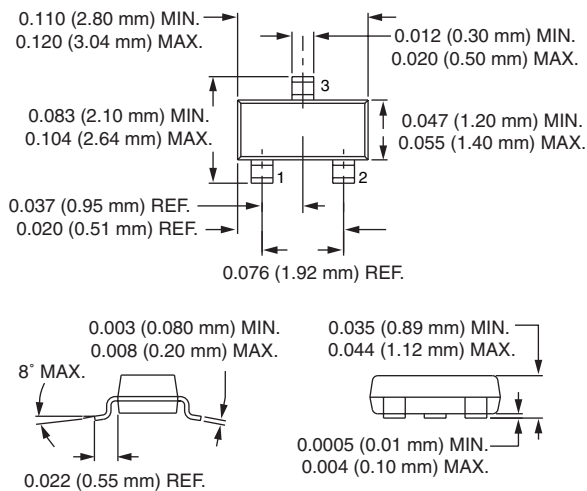


SMP1330-005

### SMP1330-005 Series Pair SOT-23

This series pair is designed for use as anti-parallel limiter diodes by externally connecting pins 1 and 2 of the SOT-23 package. In a limiter circuit, no DC return is needed and limiting action is improved because inductance is reduced to approximately 0.8 nH. A small increase in loss occurs from the higher capacitance and conductance.

### SOT-23



### Typical 1 GHz Limiter Performance

SMP1330	Condition	-005
Connection		Parallel
Insertion Loss	P = -20 dBm	0.3 dB
IP3	P = < 0 dBm	30.0 dBm
1 dB Compression		10.0 dBm
Attenuation at +20 dBm		8.8 dB
Attenuation at +30 dBm		14.0 dB