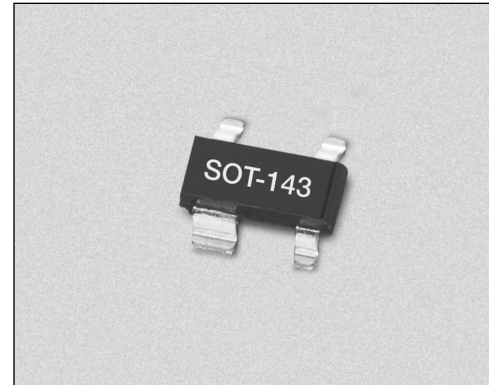


# Surface Mount Schottky Quad Mixer Diodes



## Features

- Tight Parameter Distribution
- Available as Ring Quads, Crossover Quads, Bridge Quads and Octoquads
- 100% DC Tested
- Designed for High Volume Commercial Applications
- Available in Tape and Reel Packaging





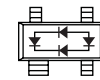

## Description

Alpha Industries offers a series of low cost devices in a SOT-143 package. They cover low, medium and high barrier junctions as ring quads, crossover quads and bridge quads. An octoquad ring is also offered for high dynamic range applications. These devices are constructed utilizing Alpha's monolithic chip technology, assuring uniformity of electrical characteristics for each junction. The low capacitance of Alpha's ring and crossover quads are designed for double balanced mixer applications covering wireless frequencies into C-band. The bridge quads are designated for modulators and frequency multiplier applications. These diodes are 100% DC tested and deliver tight parameter distribution, minimizing performance variability. They compliment Alpha's product line of Schottky singles and pairs available in SC-70, SC-79, SOD-323, SOT-23 and SOT-143 packages. Available in tape and reel for pick and place manufacturing.

## Absolute Maximum Ratings

Characteristic	Value
Reverse Voltage ( $V_R$ )	Rated $V_B$
Forward Current - Steady State ( $I_F$ )	50 mA
Power Dissipation ( $P_D$ )	75 mW
Storage Temperature ( $T_{ST}$ )	-65°C to +150°C
Operating Temperature ( $T_{OP}$ )	-65°C to +150°C
Junction Temperature ( $T_J$ )	150°C
Soldering Temperature	260°C for 5 Seconds
ESD Human Body Model	Class 1B

## Electrical Specifications at 25°C (Per Junction)

Barrier	$V_B$ @ 10 $\mu$ A (V)	$C_J$ @ 0 V (pF)	$V_F$ @ 1 mA (mV)	$\Delta V_F$ @ 1 mA (mV)	$R_T^1$ @ 10 mA ( $\Omega$ )				
	Min.		Max.	Max.	Ring Quad	Crossover Quad	Bridge Quad	Octoquad	
Low	2	0.3-0.5	200-270	10	8	SOT-143			
						♦ SMS3926-022 Marking: SE4	♦ SMS3926-023 Marking: SE5	♦ SMS3929-021 Marking: SQE	
Medium	3	0.3-0.5	310-370	10	8		♦ SMS3927-023 Marking: SJ5	♦ SMS3930-021 Marking: SRE	
							♦ SMS3928-023 Marking: SK5	♦ SMS3931-021 Marking: SSE	♦ SMS3940-026 Marking: STG
High	4	0.3-0.5	520-580	10	8				

♦ Available through distribution.

1.  $R_T$  is the slope resistance.

All parameters are based upon a single junction.

### SPICE Model Parameters (Per Junction)

Parameter	Unit	SMS3926 SMS3929	SMS3927 SMS3930	SMS3928 SMS3931 SMS3940
IS	A	2.5E-07	1.3E-09	9E-13
RS	Ω	4	4	4
N		1.04	1.04	1.04
TT	S	1E-11	1E-11	1E-11
CJO	pF	0.42	0.39	0.39
M		0.32	0.37	0.42
EG	eV	0.69	0.69	0.69
XTI		2	2	2
FC		0.5	0.5	0.5
BV	V	2	3	4
IBV	A	1.00E-05	1.00E-05	1.00E-05
VJ	V	0.495	0.595	0.800

All parameters are based upon a single junction.

### Typical Forward Voltage Characteristics at 25°C

Part Number	V <sub>F</sub> @ 0.01 mA (mV)	V <sub>F</sub> @ 0.10 mA (mV)	V <sub>F</sub> @ 1.0 mA (mV)	V <sub>F</sub> @ 10.0 mA (mV)
	Typ.	Typ.	Typ.	Typ.
SMS3926	100	165	232	324
SMS3927	206	271	338	428
SMS3928	423	488	555	641

### SOT-143

