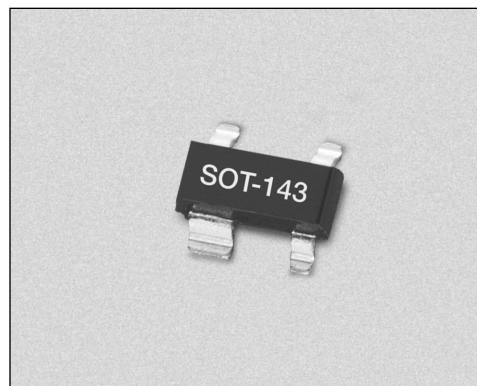


Surface Mount Schottky Quad Mixer Diodes



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



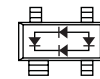
Description

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

♦ 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 _F @ 0.01 mA (mV)	V _F @ 0.10 mA (mV)	V _F @ 1.0 mA (mV)	V _F @ 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

