SIEMENS

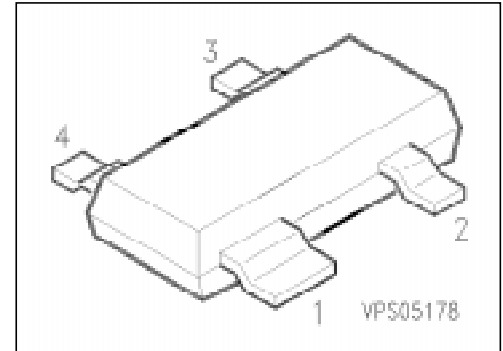## Silicon Dual Schottky Diode   BAT 14-099

● DBS mixer application to 12 GHz
● Low noise figure
● Medium barrier type

ESD: **E**lectro**s**tatic **d**ischarge sensitive device, observe handling precautions!

Type	Marking	Ordering Code (tape and reel)	Pin Configuration	Package[1]
BAT 14-099	S9	Q62702-A3461		SOT-143

Maximum Ratings per Diode

Parameter	Symbol	Values	Unit
Reverse voltage	V_R	4	V
Forward current	I_F	90	mA
Power dissipation, $T_S \leq 55\ ^\circ C$	P_{tot}	100	mW
Storage temperature range	T_{stg}	$-55 \ldots +150$	$^\circ C$
Operating temperature range	T_{op}	$-55 \ldots +150$	

Thermal Resistance

|	Symbol	Values	Unit
Junction – ambient[2]	$R_{th\ JA}$	≤ 1090	K/W
Junction – soldering point	$R_{th\ JS}$	≤ 930	

---

[1] For detailed information see chapter Package Outlines.
[2] Package mounted on alumina 15 mm $\times$ 16.7 mm to 0.7 mm.

Electrical Characteristics per Diode
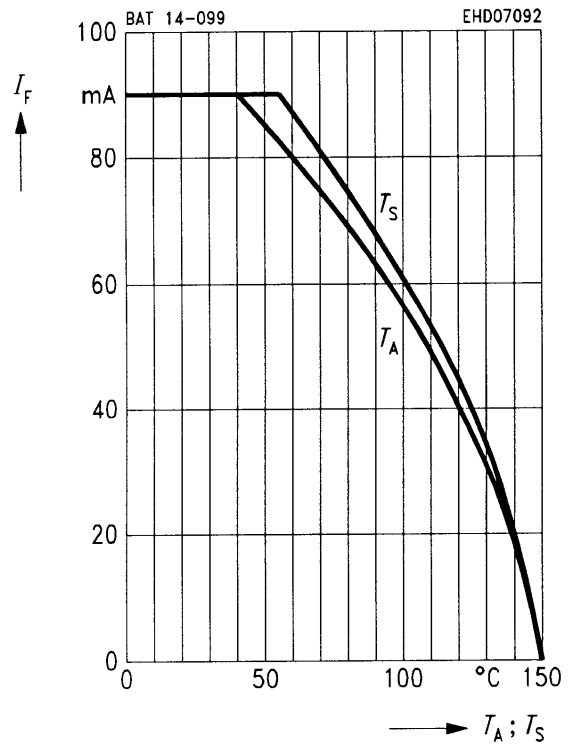at T_A = 25 °C, unless otherwise specified.

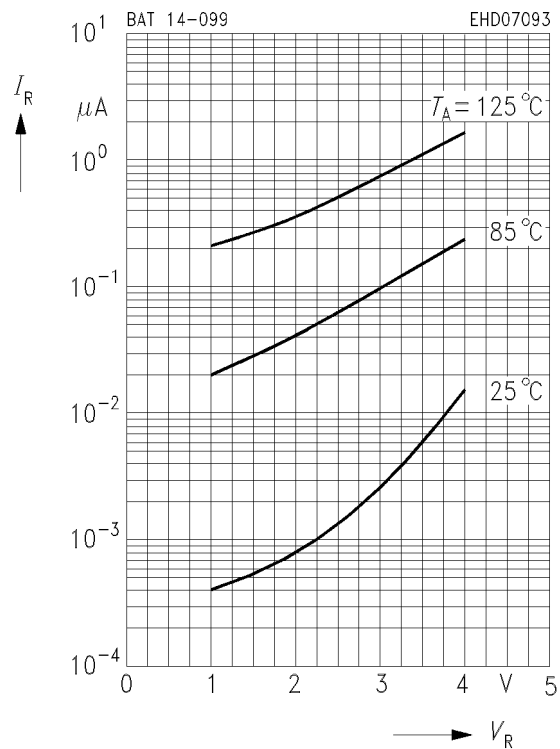| Parameter	Symbol	Values			Unit
		min.	**typ.**	**max.**	
Breakdown voltage I_R = 5 µA	V_{BR}	4	–	–	V
Forward voltage I_F = 1 mA I_F = 10 mA	V_F	 – –	 0.43 0.55	 – –	
Forward voltage matching I_F = 10 mA	ΔV_F	–	–	10	mV
Diode capacitance V_R = 0, f = 1 MHz	C_T	–	–	0.35	pF
Forward resistance I_F = 10 mA / 50 mA	R_F	–	5.5	–	Ω

Forward current $I_F = f(V_F)$
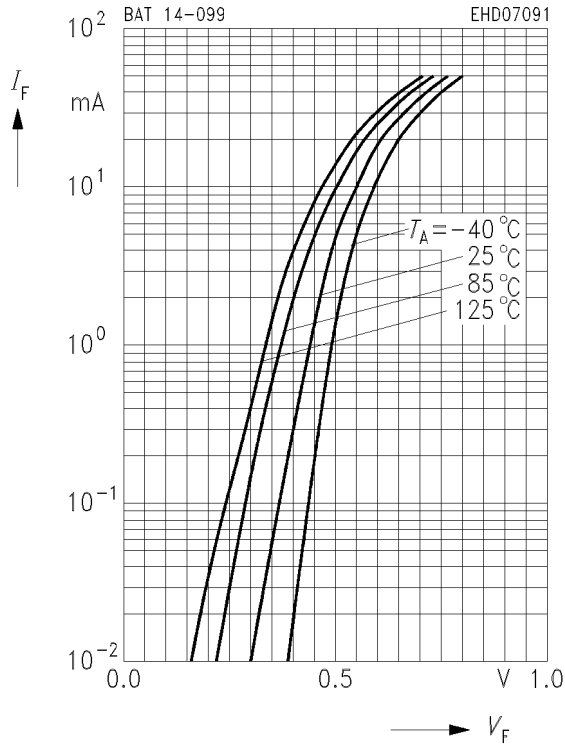
Forward current $I_F = f(T_S; T_A*)$
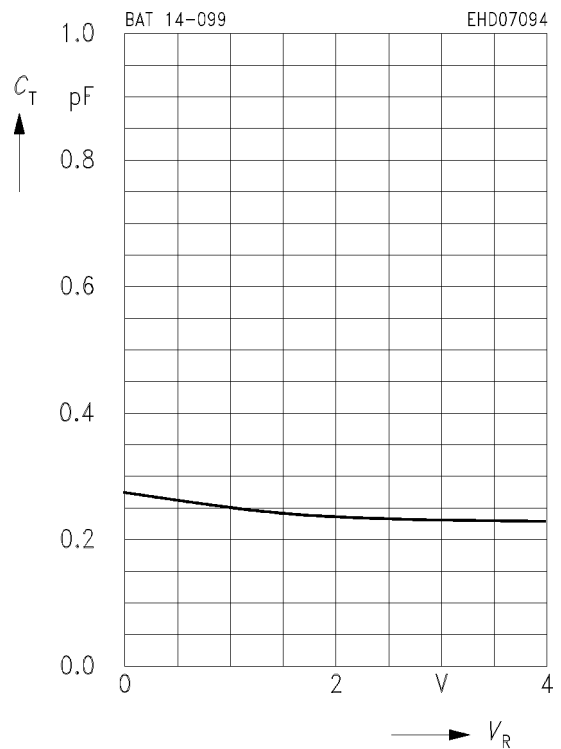*Package mounted on alumina

Reverse current $I_R = f(V_R)$
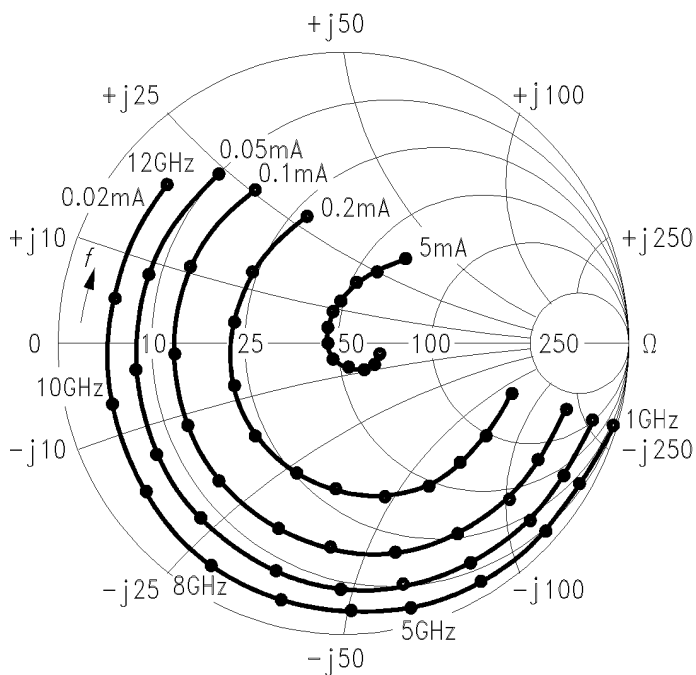

Diode capacitance $C_T = f(V_R)$
f = 1 MHz

S_{11}-**Parameters**

Typical impedance characteristics (with external bias I and $Z_0 = \Omega$)

f	I = 0.02 mA		I = 0.05 mA		I = 0.1 mA		I = 0.2 mA		I = 0.5 mA	
GHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1	0.99	− 15.89	0.91	− 16.40	0.79	− 16.40	0.57	− 16.60	0.13	− 17.30
2	0.96	− 30.40	0.88	− 30.80	0.76	− 31.09	0.56	− 30.70	0.13	− 28.40
3	0.95	− 45.30	0.87	− 46.20	0.75	− 47.30	0.55	− 47.00	0.11	− 43.99
4	0.93	− 59.60	0.86	− 61.60	0.73	− 62.40	0.53	− 62.40	0.10	− 54.40
5	0.93	− 74.80	0.85	− 77.10	0.72	− 78.70	0.51	− 78.70	0.07	− 80.70
6	0.91	− 89.50	0.83	− 93.10	0.69	− 95.70	0.48	− 95.70	0.04	− 102.30
7	0.89	− 106.60	0.80	− 110.50	0.66	− 112.70	0.45	− 114.00	0.02	158.01
8	0.88	− 123.40	0.79	− 129.40	0.64	− 132.40	0.43	− 135.40	0.06	118.40
9	0.86	− 143.20	0.76	− 150.20	0.62	− 154.20	0.40	− 161.20	0.12	96.20
10	0.83	− 166.10	0.72	− 174.10	0.58	− 179.10	0.37	171.10	0.19	72.10
11	0.82	168.10	0.71	158.10	0.59	153.80	0.39	140.80	0.25	62.60
12	0.80	138.20	0.72	127.20	0.60	121.20	0.44	108.20	0.33	49.20

$S_{11} = f(f, I)$

EHD07095