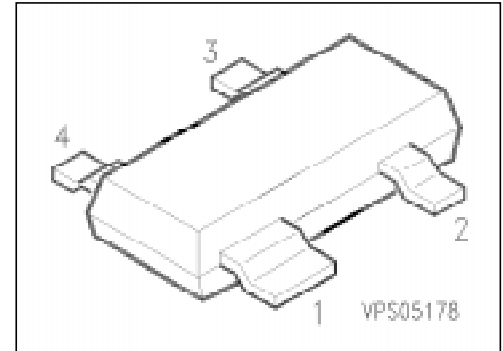


## Silicon Dual Schottky Diode

BAT 14-099

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



**ESD:** Electrostatic discharge sensitive device, observe handling precautions!

Type	Marking	Ordering Code (tape and reel)	Pin Configuration	Package <sup>1)</sup>
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, $T_s \leq 55\text{ °C}$	$P_{tot}$	100	mW
Storage temperature range	$T_{stg}$	- 55 ... + 150	°C
Operating temperature range	$T_{op}$	- 55 ... + 150	

### Thermal Resistance

Junction – ambient <sup>2)</sup>	$R_{th\ JA}$	≤ 1090	K/W
Junction – soldering point	$R_{th\ JS}$	≤ 930	

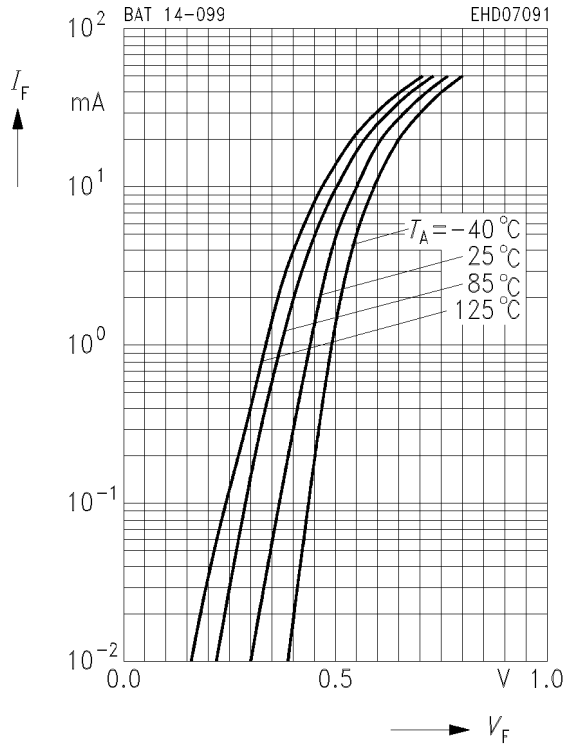
<sup>1)</sup> For detailed information see chapter Package Outlines.

<sup>2)</sup> Package mounted on alumina 15 mm × 16.7 mm to 0.7 mm.

**Electrical Characteristics per Diode**  
 at  $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise specified.

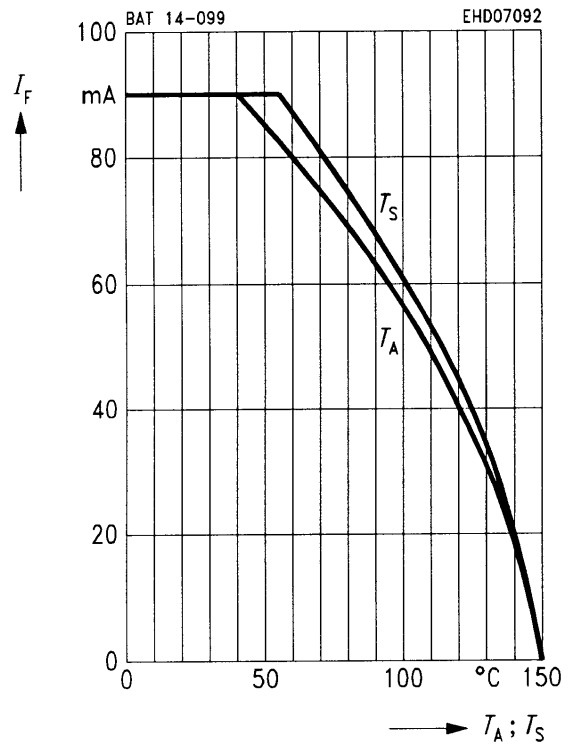
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Breakdown voltage $I_R = 5\text{ }\mu\text{A}$	$V_{BR}$	4	–	–	V
Forward voltage $I_F = 1\text{ mA}$ $I_F = 10\text{ mA}$	$V_F$	– –	0.43 0.55	– –	
Forward voltage matching $I_F = 10\text{ mA}$	$\Delta V_F$	–	–	10	mV
Diode capacitance $V_R = 0, f = 1\text{ MHz}$	$C_T$	–	–	0.35	pF
Forward resistance $I_F = 10\text{ mA} / 50\text{ mA}$	$R_F$	–	5.5	–	$\Omega$

**Forward current  $I_F = f(V_F)$**

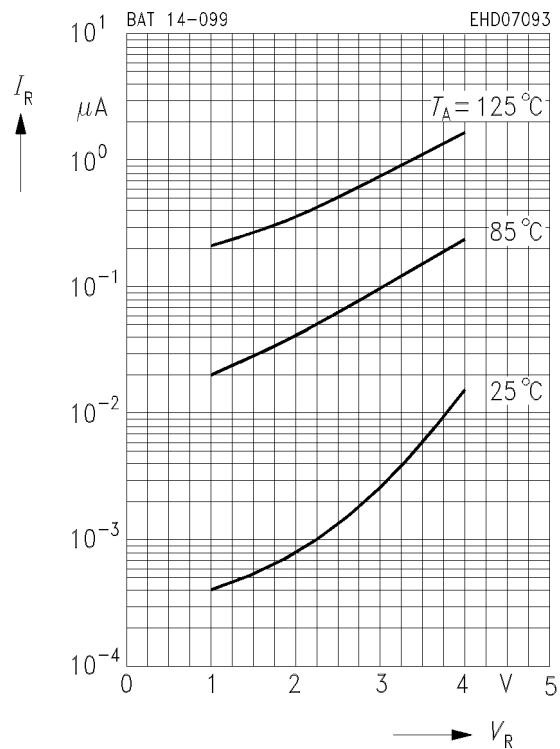


**Forward current  $I_F = f(T_S; T_A^*)$**

\*Package mounted on alumina

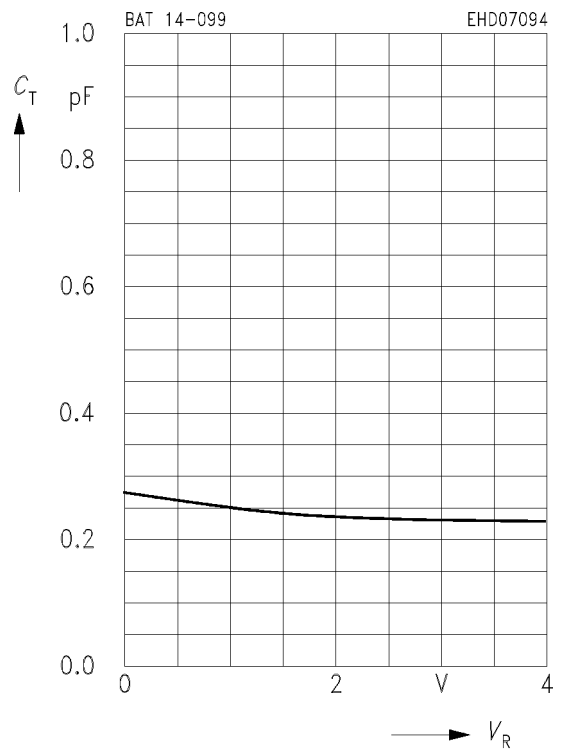


**Reverse current  $I_R = f(V_R)$**



**Diode capacitance  $C_T = f(V_R)$**

$f = 1 \text{ MHz}$

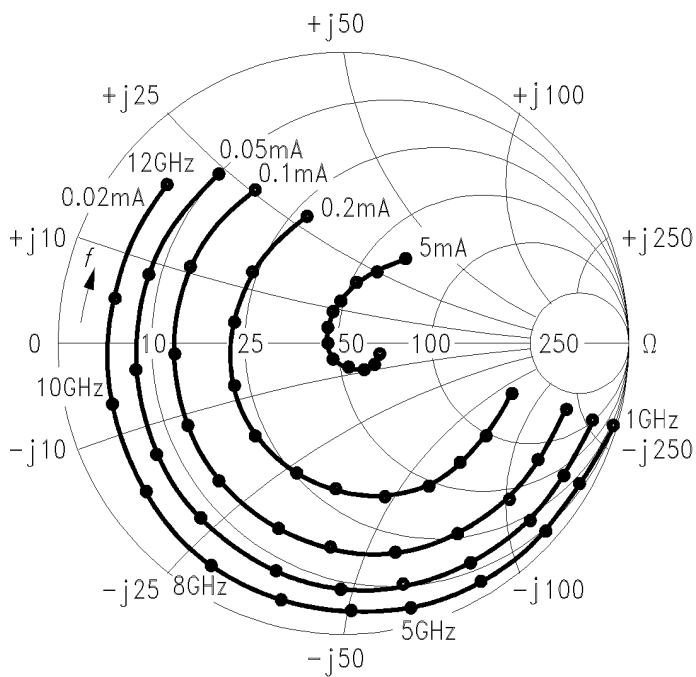


**S<sub>11</sub>-Parameters**

Typical impedance characteristics (with external bias *I* and *Z*<sub>0</sub> = Ω)

<i>f</i> GHz	<i>I</i> = 0.02 mA		<i>I</i> = 0.05 mA		<i>I</i> = 0.1 mA		<i>I</i> = 0.2 mA		<i>I</i> = 0.5 mA	
	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