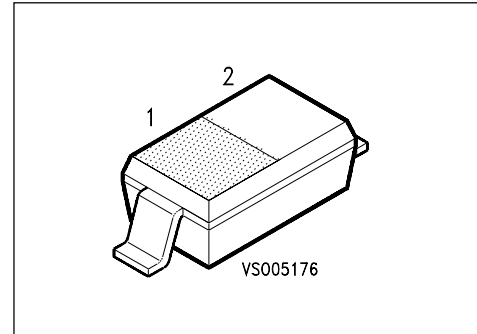


## Silicon Schottky Diode

**BAT 14-098**

### Preliminary Data

- 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 14-098	white A	Q62702-A0960		SOD-123

### Maximum Ratings

Parameter	Symbol	Values	Unit
Reverse voltage	$V_R$	4	V
Forward current	$I_F$	90	mA
Power dissipation, $T_s \leq 80 \text{ }^\circ\text{C}$	$P_{tot}$	100	mW
Storage temperature range	$T_{stg}$	- 55 ... + 150	$^\circ\text{C}$
Operating temperature range	$T_{op}$	- 55 ... + 150	

### Thermal Resistance

Junction – ambient <sup>2)</sup>	$R_{th JA}$	$\leq 770$	K/W
Junction – soldering point	$R_{th JS}$	$\leq 690$	

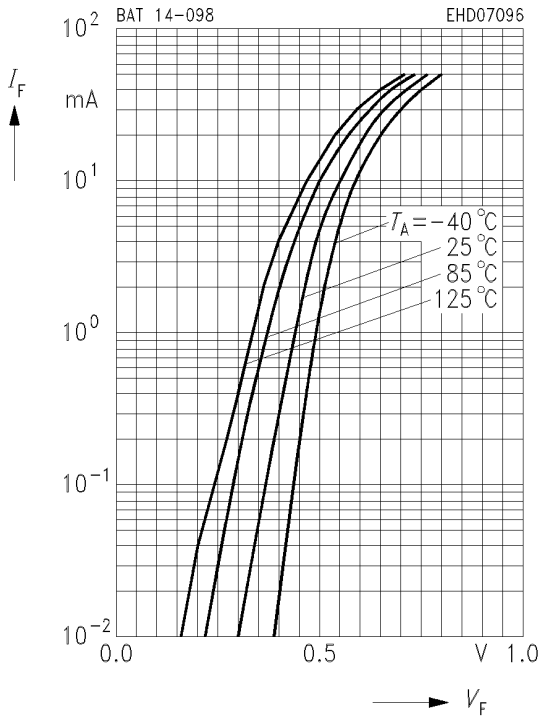
<sup>1)</sup> For detailed information see chapter Package Outlines.

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

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

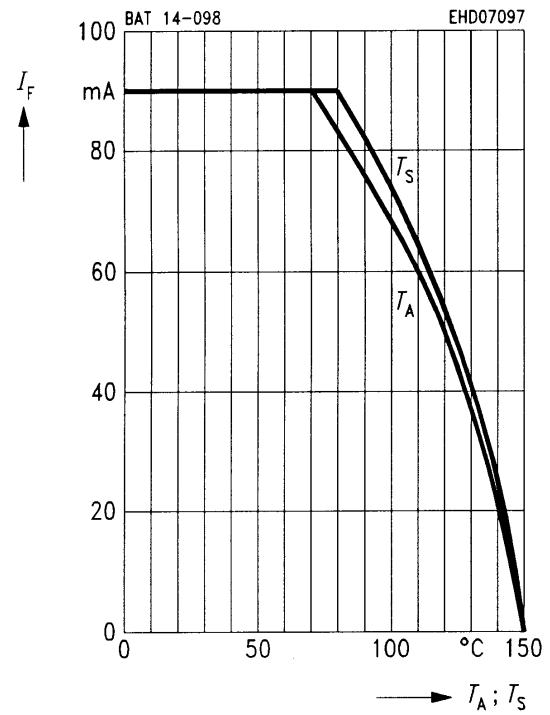
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Breakdown voltage $I_R = 5\text{ }\mu\text{A}$	$V_{BR}$	4	–	–	V
Forward voltage $I_F = 1\text{ mA}$ $I_F = 10\text{ mA}$	$V_F$	– –	0.43 0.55	– –	
Forward voltage matching $I_F = 10\text{ mA}$	$\Delta V_F$	–	–	10	mV
Diode capacitance $V_R = 0, f = 1\text{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

Forward current  $I_F = f(V_F)$

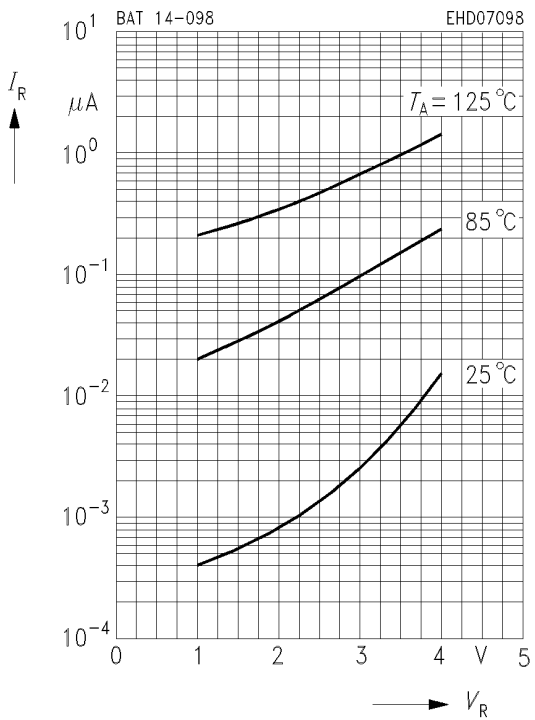


Forward current  $I_F = f(T_S; T_A^*)$

\*Package mounted on alumina

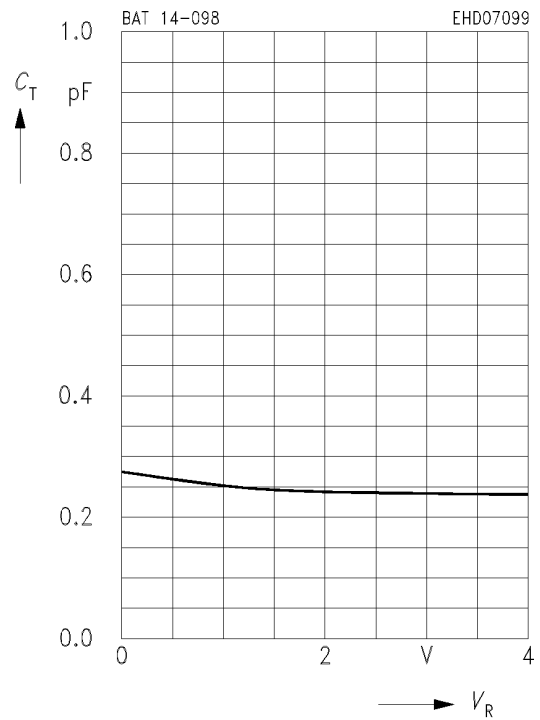


Reverse current  $I_R = f(V_R)$



Diode capacitance  $C_T = f(V_R)$

$f = 1 \text{ MHz}$

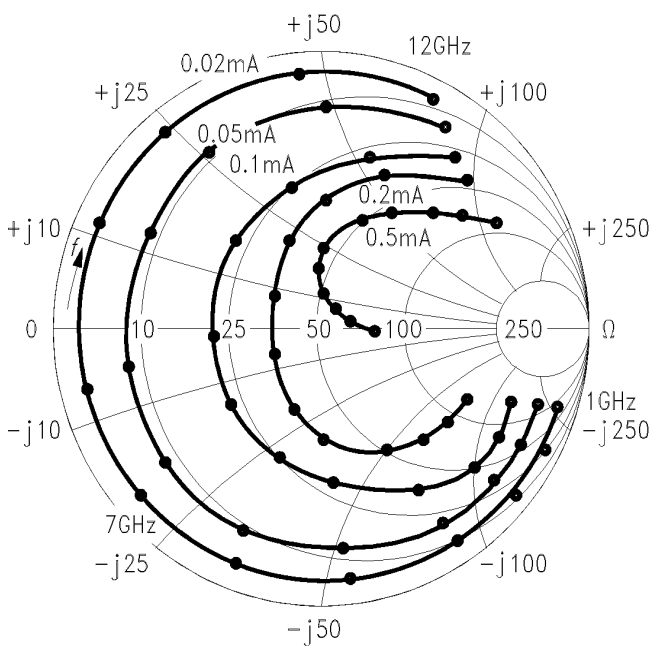


**S<sub>11</sub>-Parameters**

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	0.95	- 12.5	0.87	- 12.7	0.77	- 12.8	0.58	- 12.5	0.20	- 3.4
2	0.94	- 26.0	0.87	- 26.3	0.78	- 26.5	0.58	- 25.7	0.16	- 5.0
3	0.93	- 42.3	0.85	- 43.0	0.73	- 43.2	0.53	- 42.4	0.12	- 0.1
4	0.92	- 61.0	0.82	- 62.2	0.68	- 63.2	0.44	- 62.1	0.07	27.5
5	0.90	- 84.9	0.79	- 86.8	0.64	- 88.8	0.38	- 91.6	0.09	79.8
6	0.88	- 110.4	0.76	- 113.6	0.59	- 117.2	0.31	- 125.3	0.19	85.0
7	0.85	- 139.0	0.72	- 143.2	0.55	- 148.5	0.28	- 165.1	0.26	80.1
8	0.84	- 167.2	0.73	- 172.1	0.56	- 179.3	0.32	157.8	0.33	71.5
9	0.84	159.8	0.71	153.9	0.55	145.4	0.37	121.1	0.41	61.3
10	0.86	128.7	0.75	122.9	0.62	114.7	0.46	93.6	0.49	49.5
11	0.88	95.4	0.79	90.3	0.69	83.7	0.57	69.0	0.58	38.5
12	0.92	67.3	0.86	63.9	0.78	59.4	0.69	49.7	0.67	28.6

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



EHD07100