SIEMENS
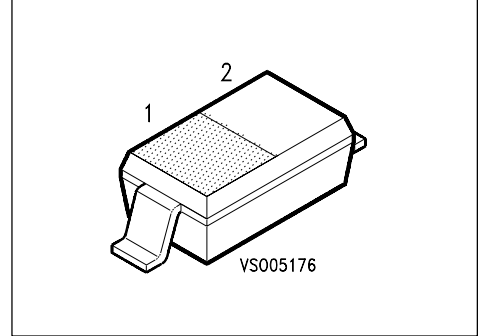
Silicon Schottky Diode

BAT 14-098

Preliminary Data

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

VS005176

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

Type	Marking	Ordering Code (tape and reel)	Pin Configuration	Package[1]
BAT 14-098	white A	Q62702-A0960	1 ○———◁├———○ 2 EHA07001	SOD-123

Maximum Ratings

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

Thermal Resistance

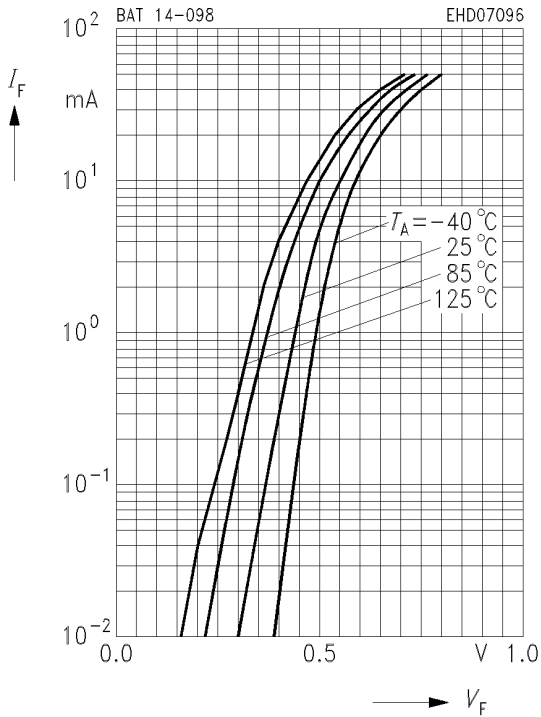|	Symbol	Values	Unit
Junction – ambient[2]	$R_{th\ JA}$	≤ 770	K/W
Junction – soldering point	$R_{th\ JS}$	≤ 690	

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

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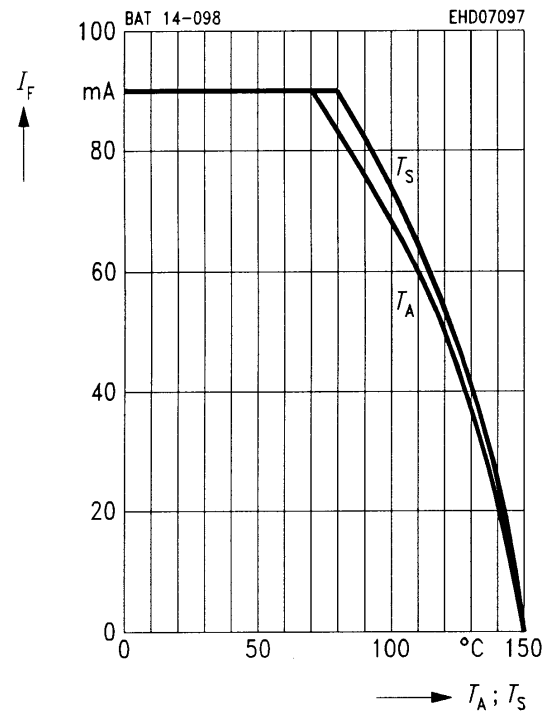at T_A = 25 °C, unless otherwise specified.

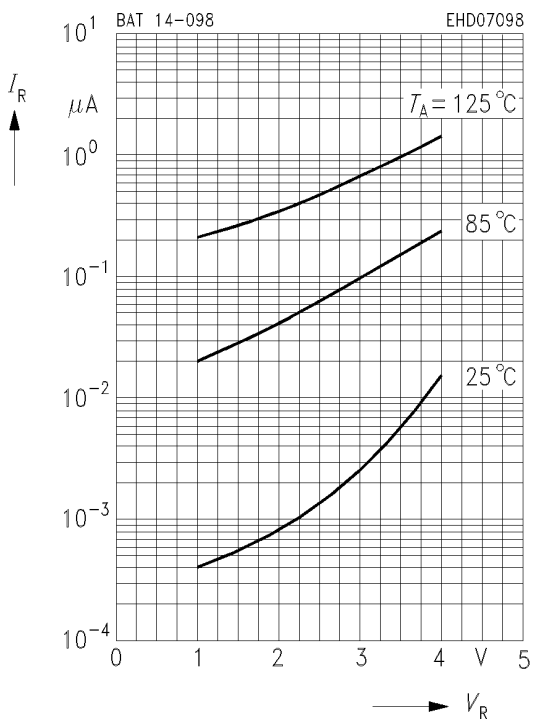| Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Breakdown voltage I_R = 5 μA	V_{BR}	4	–	–	V
Forward voltage I_F = 1 mA I_F = 10 mA	V_F	– –	0.43 0.55	– –	
Forward voltage matching I_F = 10 mA	ΔV_F	–	–	10	mV
Diode capacitance V_R = 0, f= 1 MHz	C_T	–	–	0.35	pF
Forward resistance I_F = 10 mA / 50 mA	R_F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

Forward current $I_F = f(V_F)$

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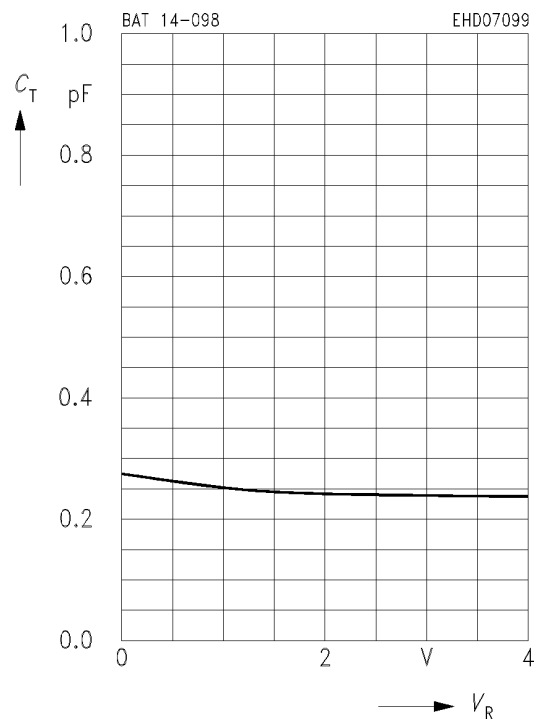*Package mounted on alumina

Reverse current $I_R = f(V_R)$
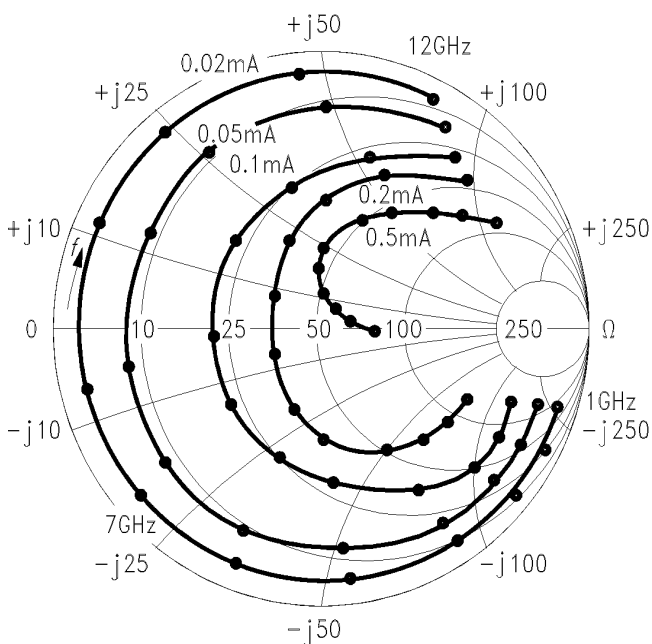

Diode capacitance $C_T = f(V_R)$
$f = 1$ MHz

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	0.95	− 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