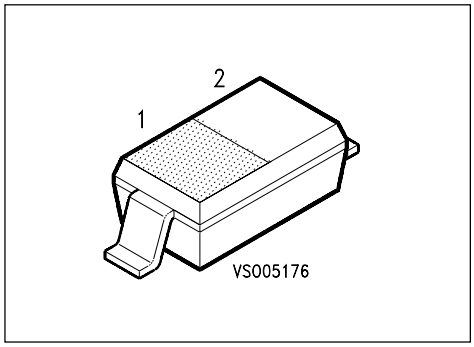
SIEMENS

Silicon Schottky Diode — BAT 14-098

Preliminary Data

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



ESD: Electro**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		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 … + 150	°C
Operating temperature range	T_{op}	– 55 … + 150	

Thermal Resistance

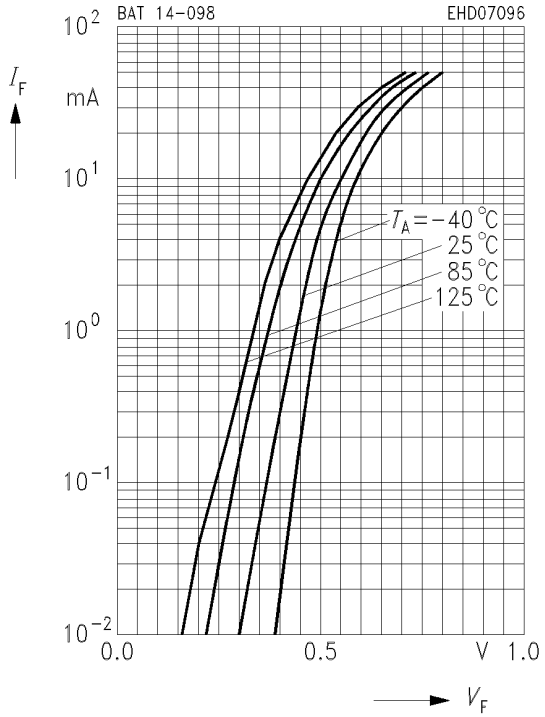
Junction – ambient[2)]	$R_{th\ JA}$	≤ 770	K/W
Junction – soldering point	$R_{th\ JS}$	≤ 690	

1) For detailed information see chapter Package Outlines.
2) Package mounted on alumina 15 mm × 16.7 mm × 0.7 mm.

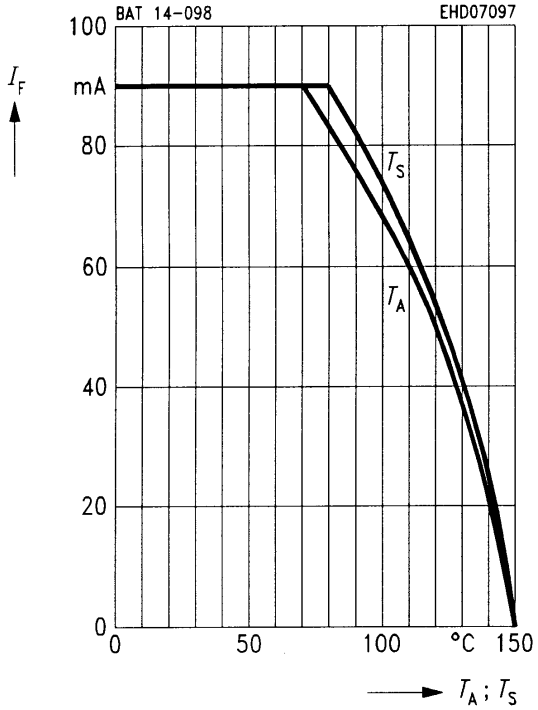
Electrical Characteristics per Diode
at T_A = 25 °C, unless otherwise specified.

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

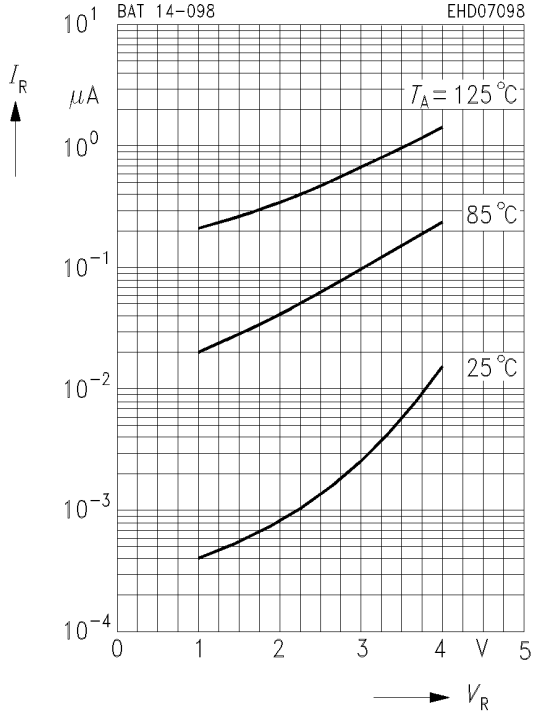
Forward current $I_F = f(V_F)$



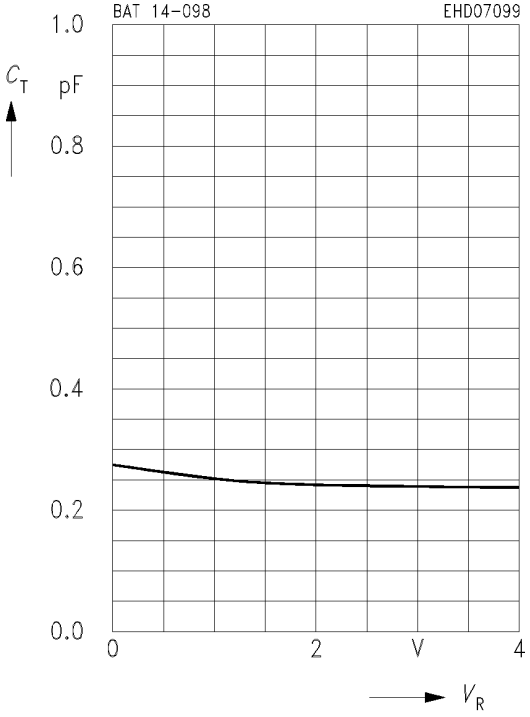
Forward current $I_F = f(T_S; T_A^*)$
*Package mounted on alumina



Reverse current $I_R = f(V_R)$



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

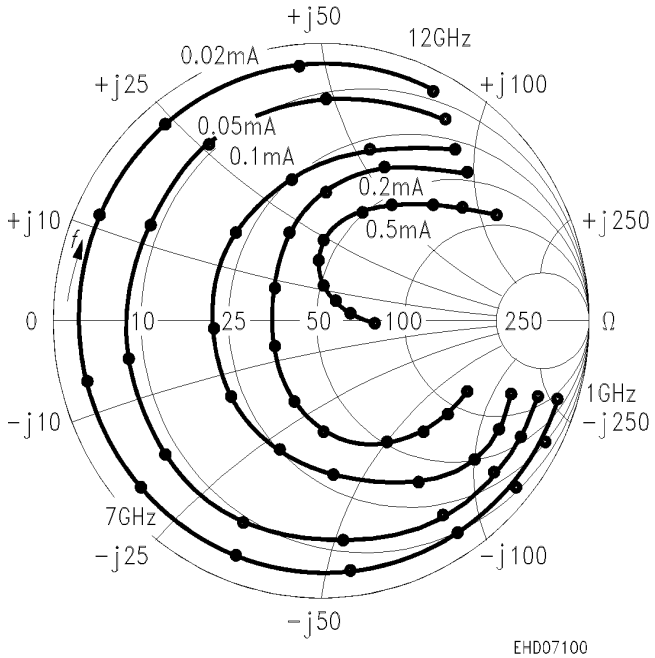


S_{11}-Parameters

Typical impedance characteristics (with external bias I and Z_0 = Ω)

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

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



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