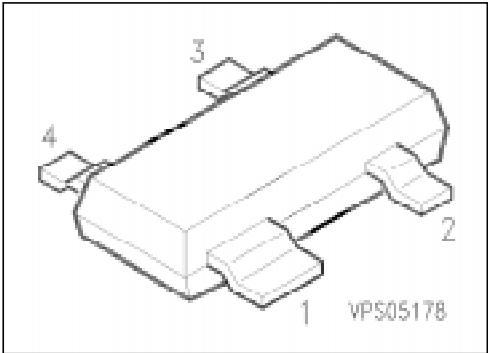


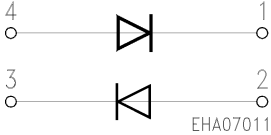
Silicon Dual Schottky Diode

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 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, $T_s \leq 55\text{ }^\circ\text{C}$	P_{tot}	100	mW
Storage temperature range	T_{stg}	$-55 \dots +150$	$^\circ\text{C}$
Operating temperature range	T_{op}	$-55 \dots +150$	

Thermal Resistance

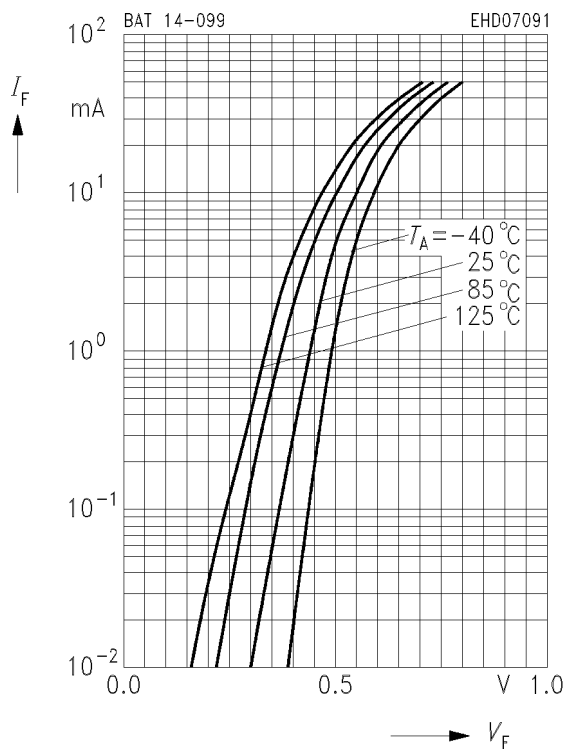
Junction – ambient ²⁾	$R_{th JA}$	≤ 1090	K/W
Junction – soldering point	$R_{th JS}$	≤ 930	

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

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

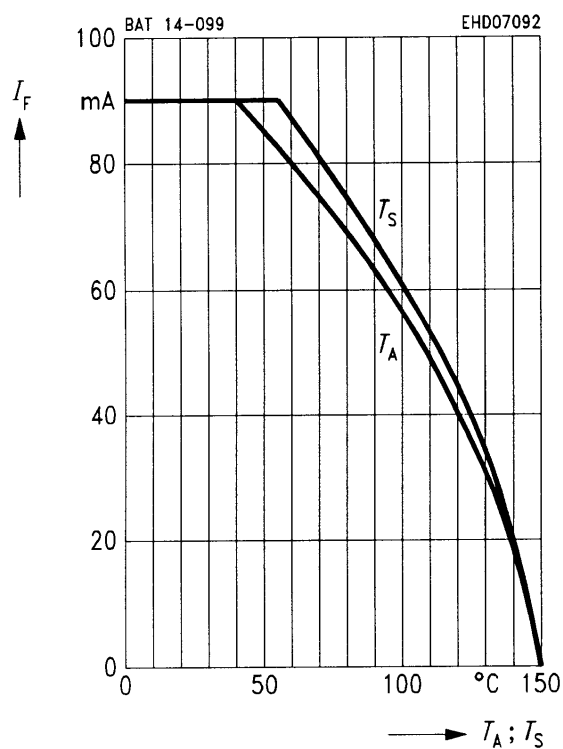
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Breakdown voltage $I_R = 5\text{ }\mu\text{A}$	V_{BR}	4	—	—	V
Forward voltage $I_F = 1\text{ mA}$ $I_F = 10\text{ mA}$	V_F	— —	0.43 0.55	— —	
Forward voltage matching $I_F = 10\text{ mA}$	ΔV_F	—	—	10	mV
Diode capacitance $V_R = 0$, $f = 1\text{ MHz}$	C_T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

Forward current $I_F = f(V_F)$

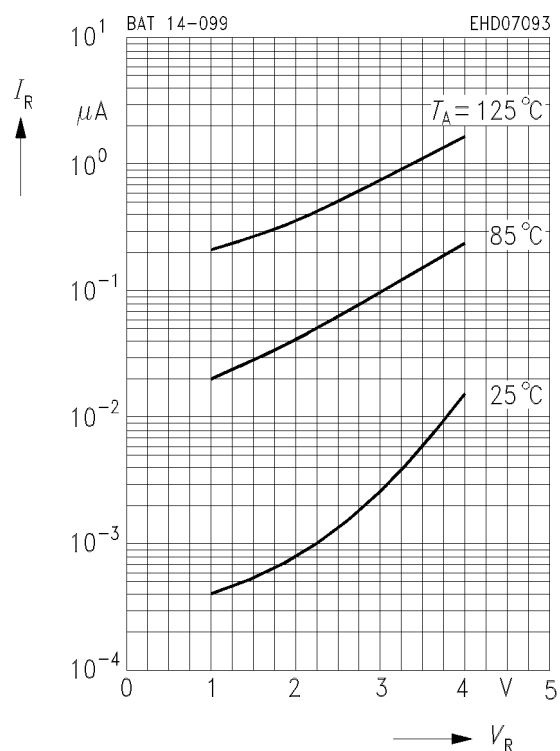


Forward current $I_F = f(T_S; T_A^*)$

*Package mounted on alumina

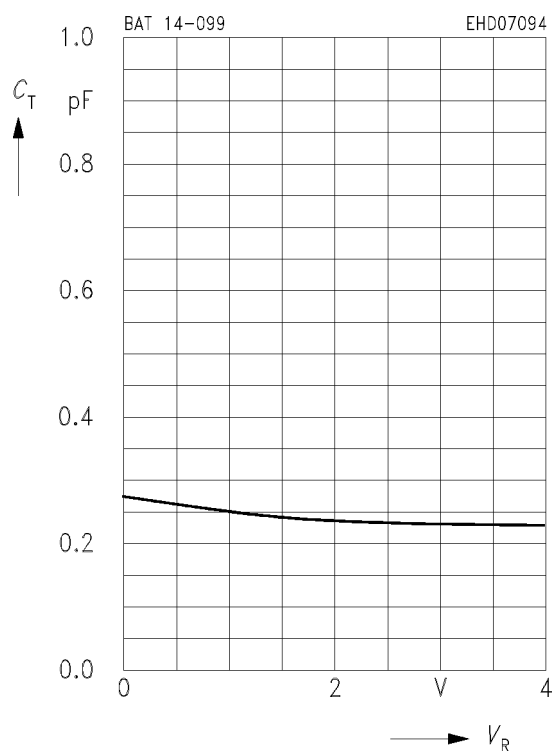


Reverse current $I_R = f(V_R)$



Diode capacitance $C_T = f(V_R)$

$f = 1 \text{ MHz}$

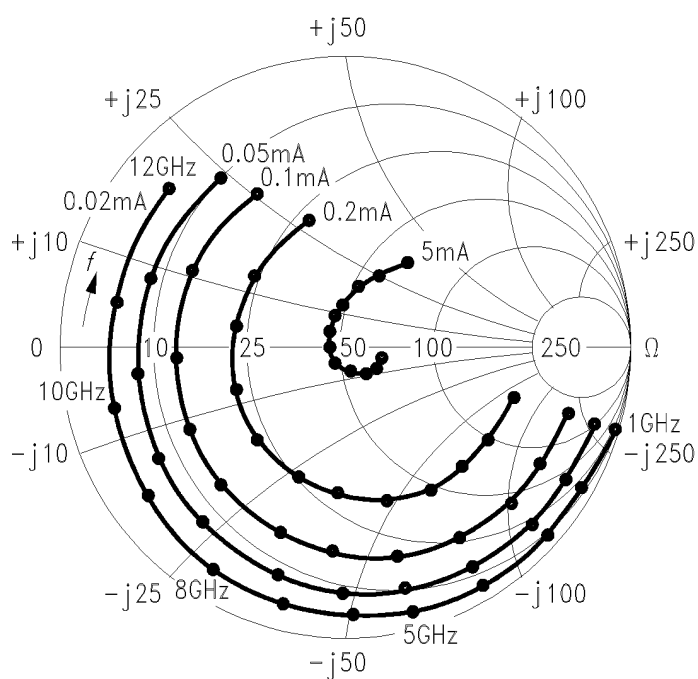


S_{11} -Parameters

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

f	$I = 0.02 \text{ mA}$		$I = 0.05 \text{ mA}$		$I = 0.1 \text{ mA}$		$I = 0.2 \text{ mA}$		$I = 0.5 \text{ mA}$	
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

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



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