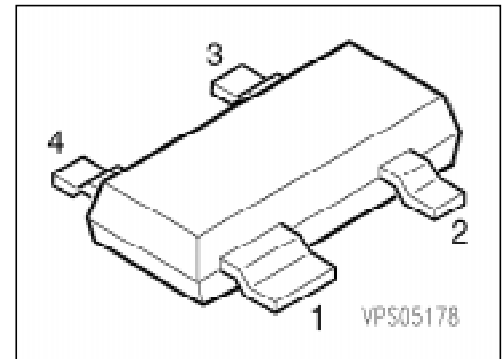


### Preliminary Data

#### Features

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



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

Type	Marking	Ordering Code (tape and reel)	Pin Configuration	Package <sup>1)</sup>
BAT 15-099	S5	Q62702-A66		P-SOT-143-4-6

#### Maximum Ratings

Parameter	Symbol	Values	Unit
Reverse voltage	$V_R$	4	V
Forward current	$I_F$	110	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>	$R_{th\ JA}$	$\leq 1090$	K/W
Junction - soldering point	$R_{th\ JS}$	$\leq 930$	

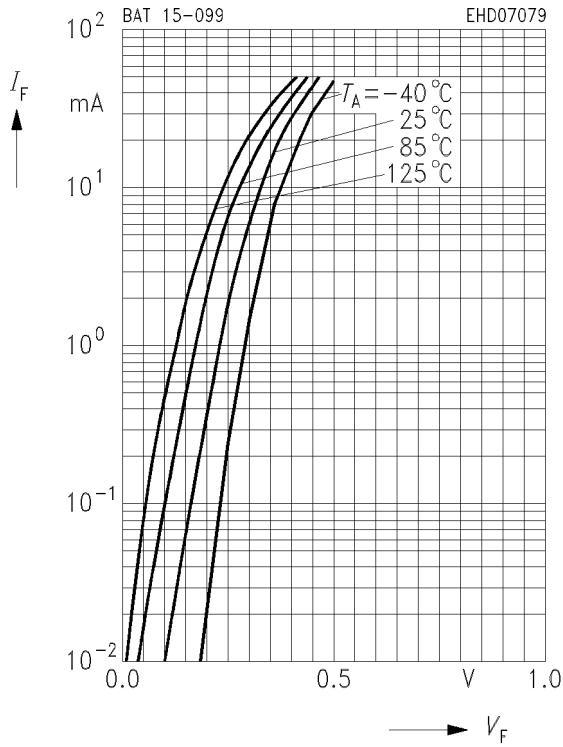
<sup>1)</sup> For detailed information see chapter Package Outlines.

<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.

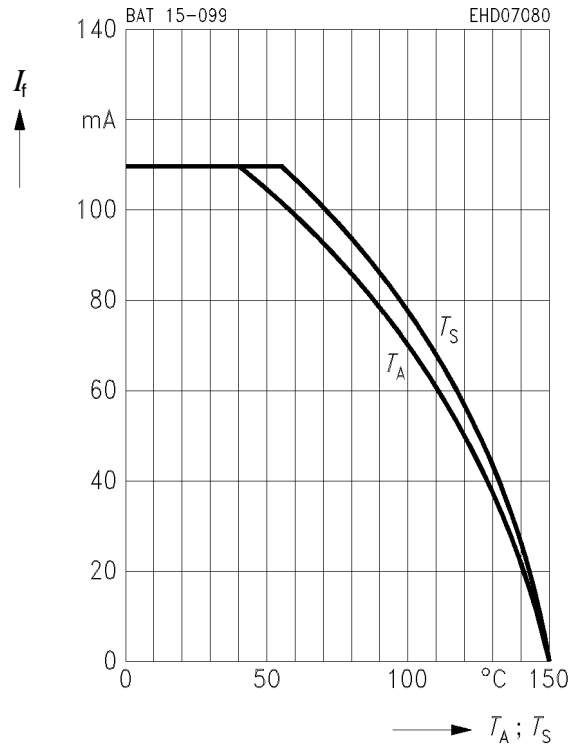
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Breakdown voltage $I_R = 5\text{ }\mu\text{A}$	$V_{(BR)}$	4	–	–	V
Forward voltage $I_F = 1\text{ mA}$ $I_F = 10\text{ mA}$	$V_F$	– –	0.23 0.32	– –	
Forward voltage matching $I_F = 10\text{ mA}$	$\Delta V_F$	–	–	20	mV
Diode capacitance $V_R = 0, f = 1\text{ MHz}$	$C_T$	–	–	0.35	pF
Forward resistance $I_F = 10\text{ mA}/50\text{ mA}$	$R_F$	–	5.5	–	$\Omega$

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

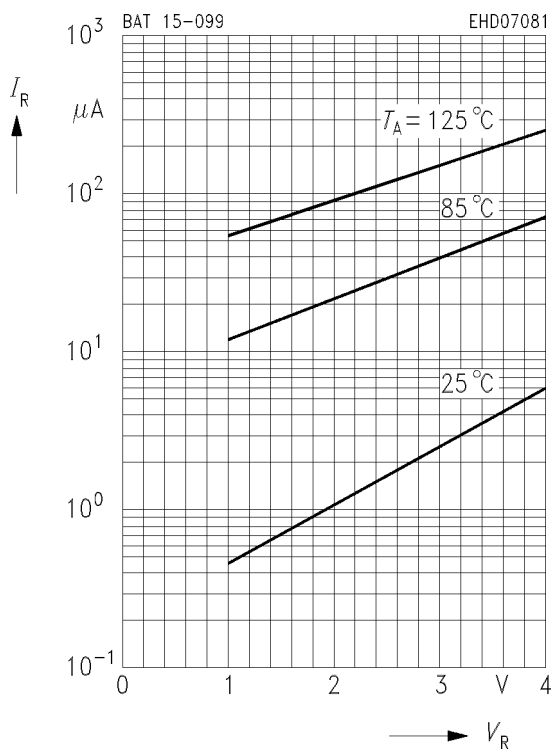


**Forward current  $I_F = f(T_S; T_A^*)$**

\*Package mounted on alumina

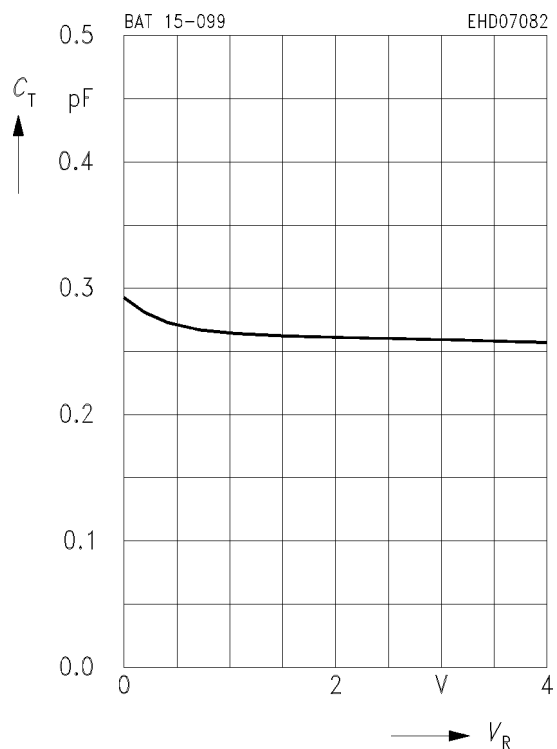


**Reverse current  $I_R = f(V_R)$**



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

$f = 1 \text{ MHz}$

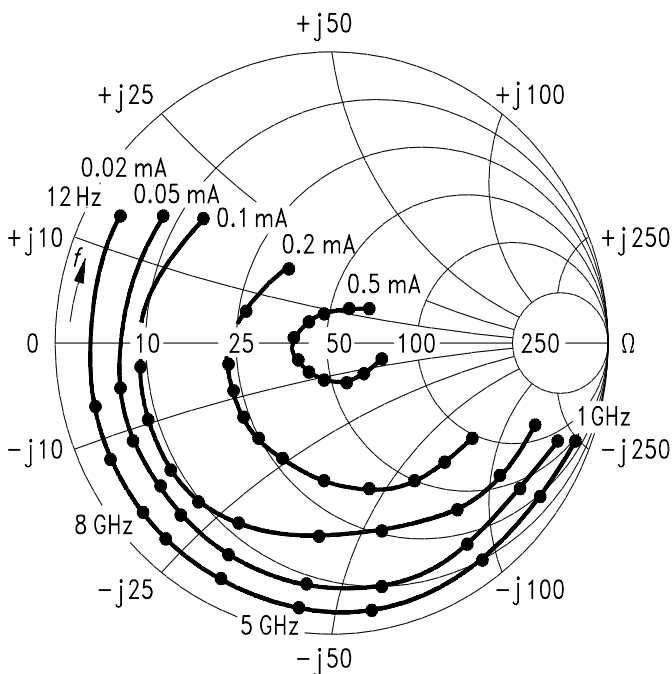


**S<sub>11</sub>-Parameters**

Typical impedance characteristics (with external bias *I* and *Z*<sub>0</sub> = 50 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	0.94	- 16.4	0.87	- 16.6	0.77	- 16.4	0.59	- 17.2	0.19	- 16.7
2	0.93	- 33.8	0.88	- 33.8	0.77	- 34.5	0.58	- 35.2	0.15	- 36.1
3	0.92	- 53.8	0.86	- 54.5	0.75	- 54.1	0.58	- 56.1	0.13	- 64.8
4	0.91	- 74.3	0.84	- 75.3	0.72	- 76.4	0.51	- 78.4	0.11	- 104.8
5	0.91	- 96.6	0.84	- 97.6	0.72	- 99.1	0.53	- 102.3	0.15	- 135.7
6	0.91	- 115.4	0.84	- 116.7	0.73	- 118.7	0.53	- 122.9	0.18	- 160.9
7	0.91	- 131.0	0.84	- 132.3	0.73	- 134.1	0.54	- 138.1	0.20	- 168.8
8	0.91	- 143.0	0.84	- 144.5	0.73	- 146.8	0.55	- 150.5	0.81	+ 179.4
9	0.91	- 155.6	0.83	- 150.2	0.71	- 159.7	0.53	- 163.9	0.18	+ 179.4
10	0.90	- 167.3	0.83	- 169.7	0.71	- 178.8	0.51	- 175.8	0.14	+ 151.2
11	0.89	+ 175.5	0.80	+ 172.6	0.70	+ 170.0	0.45	+ 164.9	0.09	+ 105.5
12	0.88	+ 175.5	0.76	+ 146.5	0.62	+ 142.8	0.39	+ 134.2	0.14	+ 43.6

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



EHD07083