

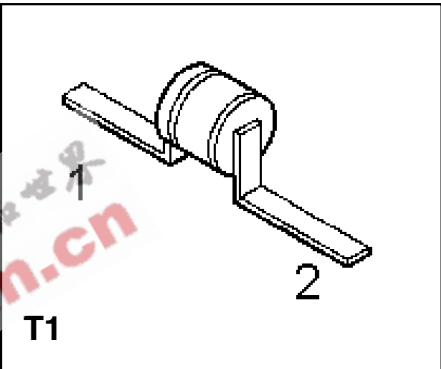
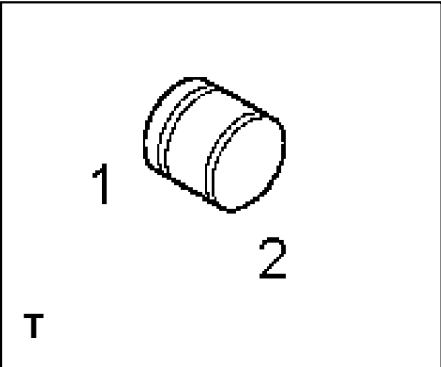
HiRel Silicon Schottky Diode

BAT 14

Features

- **HiRel Discrete and Microwave Semiconductor**
- Medium barrier diodes for detector and mixer applications
- Hermetically sealed microwave package
-  **ESA** qualified
- ESA/SCC Detail Spec. No.: 5106/014

ESD: **E**lectro**S**tatic discharge sensitive device,
 observe handling precautions!



Type	Marking	Ordering Code	Pin Configuration	Package
BAT 14-013 (ql)	–	see below		T
BAT 14-014 (ql)	–	see below	see BAT14-013	T1
BAT 14-033 (ql)	–	see below	see BAT14-013	T
BAT 14-034 (ql)	–	see below	see BAT14-013	T1
BAT 14-043 (ql)	–	see below	see BAT14-013	T
BAT 14-044 (ql)	–	see below	see BAT14-013	T1
BAT 14-063 (ql)	–	see below	see BAT14-013	T
BAT 14-064 (ql)	–	see below	see BAT14-013	T1
BAT 14-073 (ql)	–	see below	see BAT14-013	T
BAT 14-074 (ql)	–	see below	see BAT14-013	T1
BAT 14-093 (ql)	–	see below	see BAT14-013	T
BAT 14-094 (ql)	–	see below	see BAT14-013	T1
BAT 14-103 (ql)	–	see below	see BAT14-013	T
BAT 14-104 (ql)	–	see below	see BAT14-013	T1
BAT 14-113 (ql)	–	see below	see BAT14-013	T
BAT 14-114 (ql)	–	see below	see BAT14-013	T1
BAT 14-123 (ql)	–	see below	see BAT14-013	T
BAT 14-124 (ql)	–	see below	see BAT14-013	T1

(ql) Quality Level:

P: Professional Quality,
H: High Rel Quality,
S: Space Quality,
ES: ESA Space Quality,

Ordering Code: Q62702D1346
Ordering Code: on request
Ordering Code: on request
Ordering Code: Q62702D1345

(see **Chapter Order Instructions** for ordering example)

Table 1 **Maximum Ratings**

Parameter	Symbol	Limit Values	Unit
Reverse voltage	V_R	3	V
Forward current BAT14-013, -014, -033, -034 BAT14-043, -044, -063, -064 BAT14-073, -074, -093, -094 BAT14-103, -104, -113, -114 BAT14-123, -124	I_F	100 100 50 50 50	mA
Power dissipation BAT14-013, -014, -033, -034 BAT14-043, -044, -063, -064 BAT14-073, -074, -093, -094 BAT14-103, -104, -113, -114 BAT14-123, -124	P_{tot}	100 100 50 50 50	mW
Operating temperature range	T_{op}	– 55 to + 150	°C
Storage temperature range	T_{stg}	– 65 to + 175	°C
Soldering temperature	T_{sol}	+ 220	°C
Burn-out energy ¹⁾ BAT14-013, -014, -033, -034 BAT14-043, -044, -063, -064 BAT14-073, -074, -093, -094 BAT14-103, -104, -113, -114 BAT14-123, -124	E_B	5.0 5.0 2.0 2.0 1.0	Erg

¹⁾ Quoted for a single discharge of torry line during the first 2.4 ns current flow in the forward direction. General criterion for burn-out energy is a 3 dB increase in noise figure.

Electrical Characteristics

Table 2 DC Characteristics at $T_A = 25\text{ °C}$ unless otherwise specified

Parameter	Symbol	Limit Values			Unit
		min.	typ.	max.	
Breakdown voltage $I_R = 10\text{ }\mu\text{A}$	$V_{(BR)}$	3	–	–	V
Reverse current $V_R = 2\text{ V}$	I_R	–	–	1	μA
Forward voltage 1 $I_{F1} = 0.01\text{ mA}$ BAT14-013, -014, -033, -034 BAT14-043, -044, -063, -064 BAT14-073, -074, -093, -094 BAT14-103, -104, -113, -114 BAT14-123, -124	V_{F1}	– – – – –	– – – – –	0.31 0.32 0.33 0.35 0.36	V
Forward voltage 2 $I_{F2} = 1\text{ mA}$ BAT14-013, -014, -033, -034 BAT14-043, -044, -063, -064 BAT14-073, -074, -093, -094 BAT14-103, -104, -113, -114 BAT14-123, -124	V_{F2}	– – – – –	0.42 0.44 0.45 0.46 0.48	0.44 0.45 0.46 0.48 0.50	V
Series resistance ²⁾ $I_{F1} = 10\text{ mA}$, $I_{F2} = 50\text{ mA}$ BAT14-013, -014 BAT14-033, -034 BAT14-043, -044 BAT14-063, -064 BAT14-073, -074 BAT14-093, -094 BAT14-103, -104 BAT14-113, -114 BAT14-123, -124	R_F	– – – – – – – – – –	3.0 4.0 3.5 4.5 4.5 5.5 6.0 7.0 7.0 8.0	3.5 4.5 4.0 5.0 5.5 6.5 7.0 8.0 8.0 9.0	Ω

$$^2) R_F = \frac{\Delta V_F}{40 \times 10^{-3}} \Omega$$

Table 3 AC Characteristics at $T_A = 25\text{ °C}$ unless otherwise specified

Parameter	Symbol	Limit Values			Unit
		min.	typ.	max.	
Total capacitance $V_R = 0\text{ V}, f = 1\text{ MHz}$ BAT14-013, -014, -033, -034 BAT14-043, -044, -063, -064 BAT14-073, -074, -093, -094 BAT14-103, -104, -113, -114 BAT14-123, -124	C_T	–	0.35	0.60	pF
		–	0.30	0.35	
		–	0.27	0.30	
		–	0.23	0.25	
		–	0.20	0.22	
Noise figure I.F. = 30 MHz LO power = 0 dBm LO = 9.375 GHz BAT14-013, -014 BAT14-033, -034 BAT14-043, -044 BAT14-063, -064 BAT14-073, -074 BAT14-093, -094 BAT14-103, -104 BAT14-113, -114 BAT14-123, -124	NF	–	5.3	5.5	dB
		–	6.3	6.5	
		–	5.3	5.5	
		–	6.3	6.5	
		–	5.3	5.5	
		–	6.3	6.5	
		–	5.7	6.0	
		–	7.2	7.5	
		–	8.0	9.0	

Order Instructions

Full type variant including type variant and quality level must be specified by the orderer. For HiRel Discrete and Microwave Semiconductors the ordering code specifies device family and quality level only.

Ordering Form:

Ordering Code: Q...
BAT14- (x) (ql)
(x): Type Variant
(ql): Quality Level

Ordering Example:

Ordering Code: Q62702D1345
BAT14-014 ES
For BAT14-014 in T1 Package, ESA Space Quality Level

Further Information

See our WWW-Pages:

- Discrete and RF-Semiconductors (Small Signal Semiconductors)
www.siemens.de/semiconductor/products/35/35.htm
- HiRel Discrete and Microwave Semiconductors
www.siemens.de/semiconductor/products/35/353.htm

Please contact also our marketing division:

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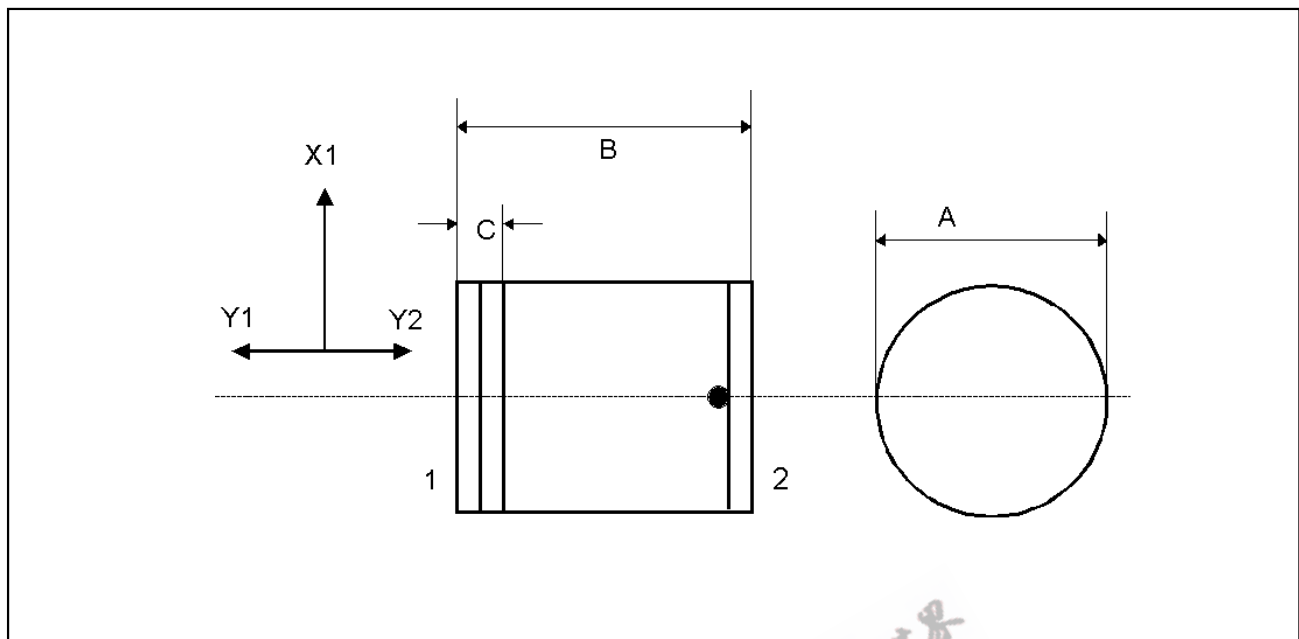


Figure 1 T Package

Symbol	Millimetre	
	min.	max.
A	1.30	1.45
B	1.15	1.35
C	–	0.4

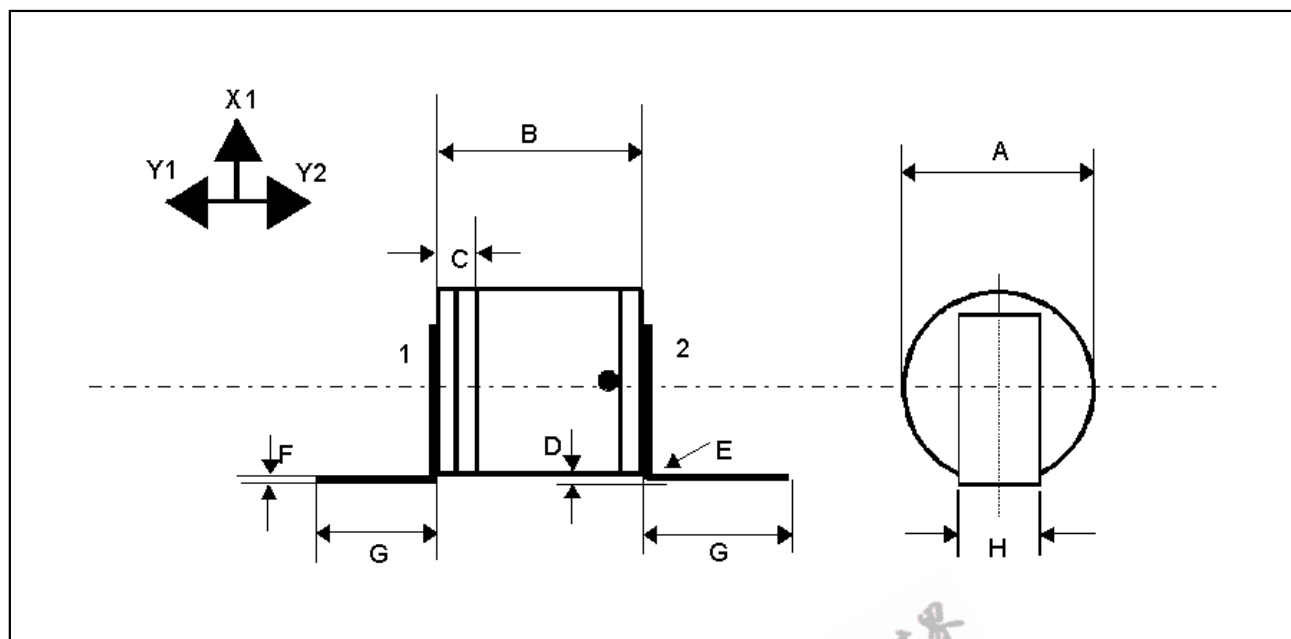


Figure 2 T1 Package

Symbol	Millimetre	
	min.	max.
A	1.30	1.45
B	1.15	1.35
C	–	0.40
D	0.10	0.50
E	–	0.30
F	0.06	0.10
G	5.50	–
H	0.40	0.60