

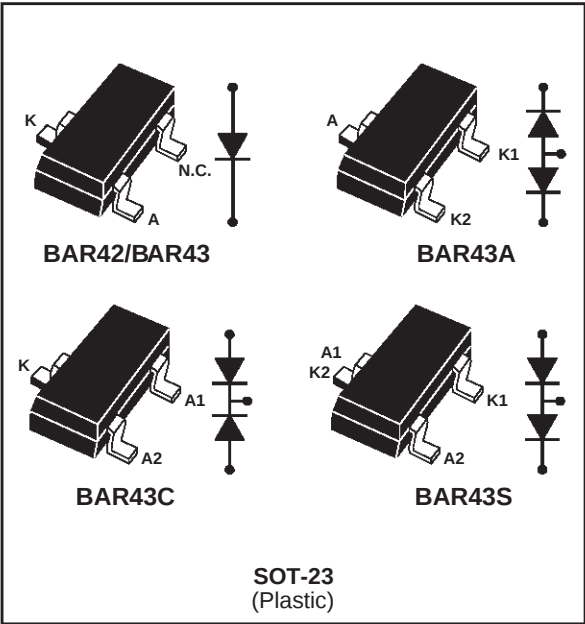


BAR 42
BAR 43, A, C, S

SMALL SIGNAL SCHOTTKY DIODES

DESCRIPTION

General purpose metal to silicon diodes featuring very low turn-on voltage and fast switching.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V _{RRM}	Repetitive peak reverse voltage		30	V
I _F	Continuous forward current		100	mA
I _{FSM}	Surge non repetitive forward current	tp=10ms sinusoidal	750	mA
P _{tot}	Power dissipation (note 1)	T _{amb} = 25°C	250	mW
T _{stg}	Maximum storage temperature range		- 65 to +150	°C
T _j	Maximum operating junction temperature *		150	°C
T _L	Maximum temperature for soldering during 10s		260	°C

Note 1: for double diodes, P_{tot} is the total power dissipation of both diodes.

* : $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$ thermal runaway condition for a diode on its own heatsink

THERMAL RESISTANCE

Symbol	Test conditions	Value	Unit
R _{th(j-a)}	Junction-ambient *	500	°C/W

* Mounted on epoxy board with recommended pad layout.

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ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
V_{BR}	$T_j = 25^\circ\text{C}$	$I_R = 100\mu\text{A}$		30			V
V_F^*	$T_j = 25^\circ\text{C}$	BAR 42	$I_F = 10\text{ mA}$		0.35	0.4	V
			$I_F = 50\text{ mA}$		0.5	0.65	
		BAR 43	$I_F = 2\text{ mA}$	0.26		0.33	
			$I_F = 15\text{ mA}$			0.45	
		All	$I_F = 100\text{ mA}$			1	
I_R^{**}	$T_j = 25^\circ\text{C}$	$V_R = 25\text{V}$				500	nA
	$T_j = 100^\circ\text{C}$					100	μA

Pulse test: * $t_p = 380\mu\text{s}$, $\delta < 2\%$

** $t_p = 5\text{ ms}$, $\delta < 2\%$

DYNAMIC CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
C	$T_j = 25^\circ\text{C}$	$V_R = 1\text{V}$	$F = 1\text{MHz}$		7		pF
t_{rr}	$T_j = 25^\circ\text{C}$ $I_{rr} = 1\text{mA}$	$I_F = 10\text{ mA}$ $R_L = 100\ \Omega$	$I_R = 10\text{ mA}$			5	ns
η^*	$T_j = 25^\circ\text{C}$ $F = 45\text{MHz}$	$R_L = 50\text{ K}\Omega$ $V_i = 2\text{V}$	$C_L = 300\text{ pF}$ for BAR 43	80			%

* Detection efficiency.

Fig. 1-1: Forward voltage drop versus forward current (typical values, low level).

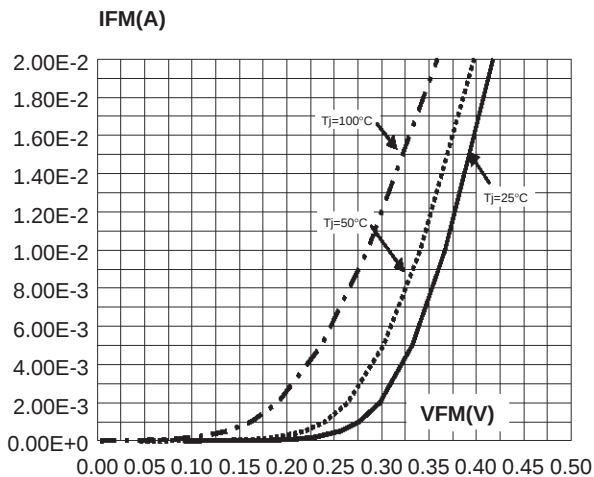


Fig. 1-2: Forward voltage drop versus forward current (typical values, high level).

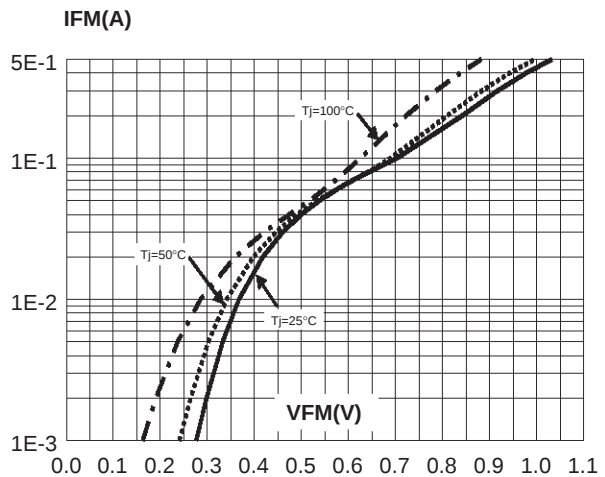


Fig. 2: Reverse leakage current versus reverse voltage applied (typical values).

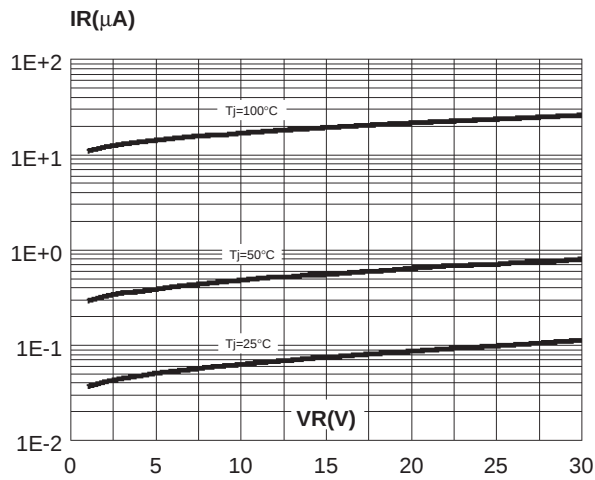


Fig. 4: Junction capacitance versus reverse voltage applied (typical values).

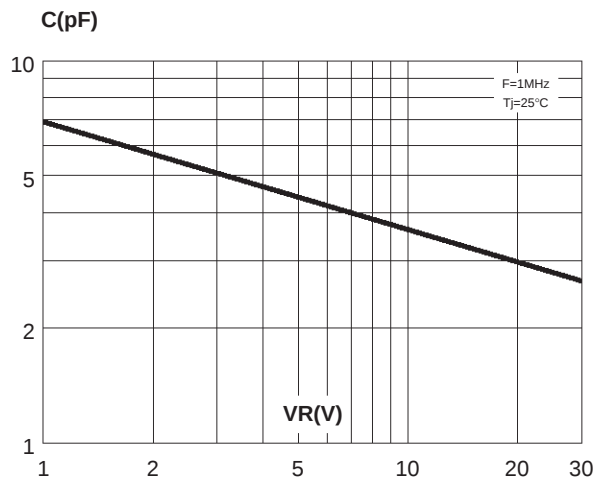


Fig. 6: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: $35\mu m$).

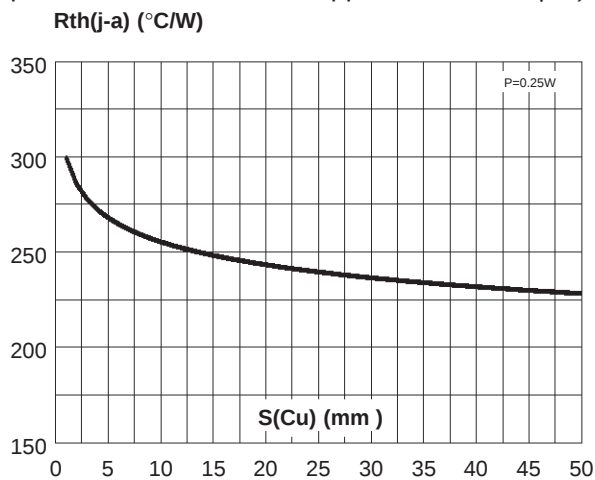


Fig. 3: Reverse leakage current versus junction temperature.

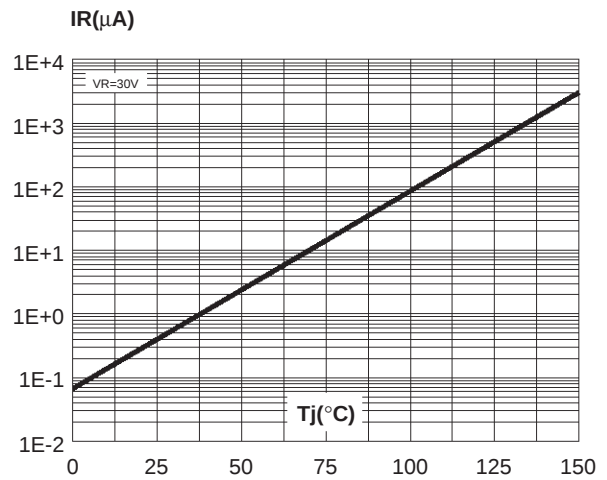
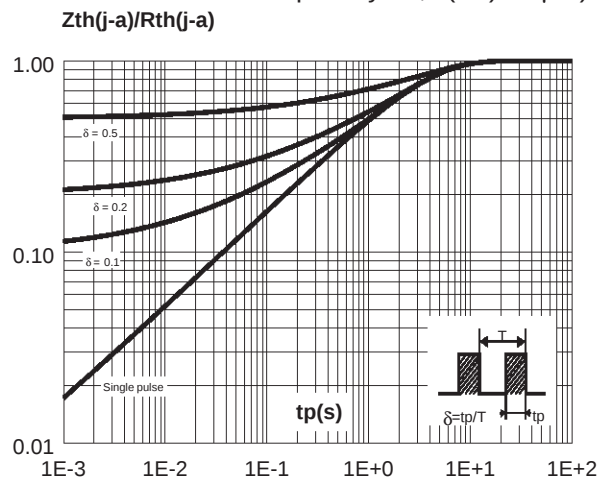


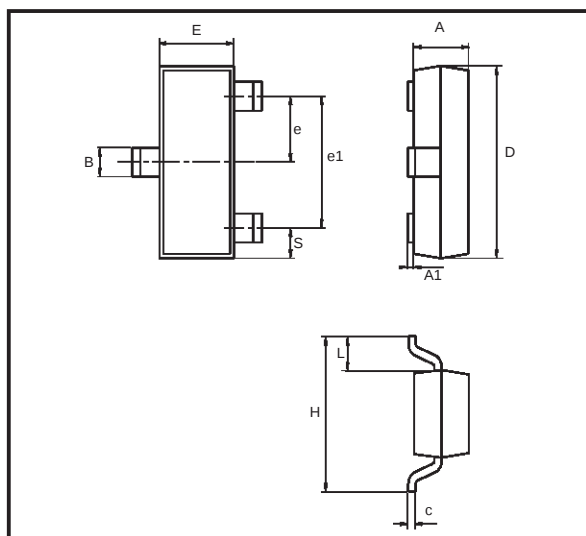
Fig. 5: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy FR4 with recommended pad layout, $e(Cu) = 35\mu m$).



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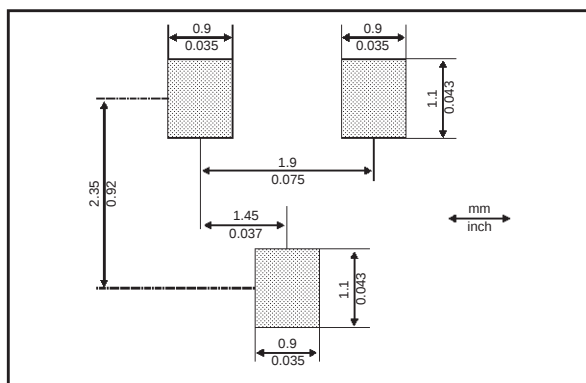
PACKAGE MECHANICAL DATA

SOT 23 (Plastic)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.89	1.4	0.035	0.055
A1	0	0.1	0	0.004
B	0.3	0.51	0.012	0.02
c	0.085	0.18	0.003	0.007
D	2.75	3.04	0.108	0.12
e	0.85	1.05	0.033	0.041
e1	1.7	2.1	0.067	0.083
E	1.2	1.6	0.047	0.063
H	2.1	2.75	0.083	0.108
L	0.6 typ.		0.024 typ.	
S	0.35	0.65	0.014	0.026

FOOT PRINT DIMENSIONS



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
BAR42	D94	SOT-23	0.01g	3000	Tape & reel
BAR43	D95	SOT-23	0.01g	3000	Tape & reel
BAR43S	DB1	SOT-23	0.01g	3000	Tape & reel
BAR43C	DB2	SOT-23	0.01g	3000	Tape & reel
BAR43S	DA5	SOT-23	0.01g	3000	Tape & reel

Epoxy meets UL94,V0

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