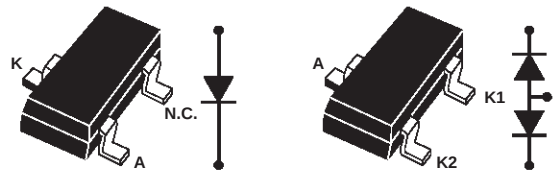
BAR 42
BAR 43, A, C, S

SMALL SIGNAL SCHOTTKY DIODES



SOT-23
(Plastic)

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
Tj	Maximum operating junction temperature *		150	°C
T_L	Maximum temperature for soldering during 10s		260	°C

Note 1: for double diodes, Ptot is the total power dissipation of both diodes.

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ 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.

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

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

Pulse test: * tp = 380µs, δ < 2%
** tp = 5 ms, δ <2%

DYNAMIC CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
C	Tj = 25°C	V_R = 1V	F = 1MHz		7		pF
trr	Tj = 25°C I_{rr} = 1mA	I_F = 10 mA R_L = 100 Ω	I_R = 10 mA			5	ns
η*	Tj = 25°C F = 45Mhz	R_L = 50 KΩ V_i = 2V	C_L = 300 pF for BAR 43	80			%

* Detection efficiency.

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

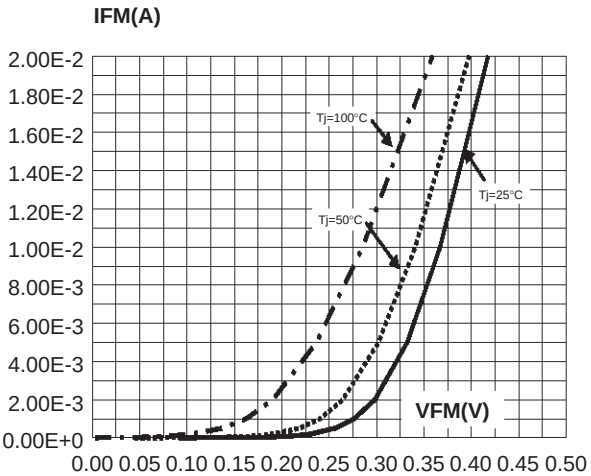


Fig. 1-2: Forward voltage drop versus forward current (typical values, high level).

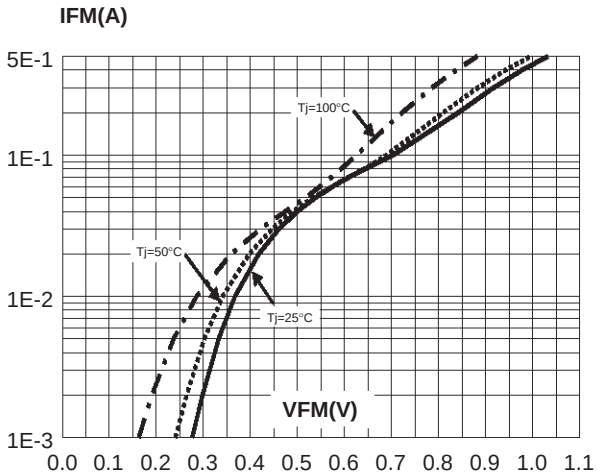


Fig. 2: Reverse leakage current versus reverse voltage applied (typical values).

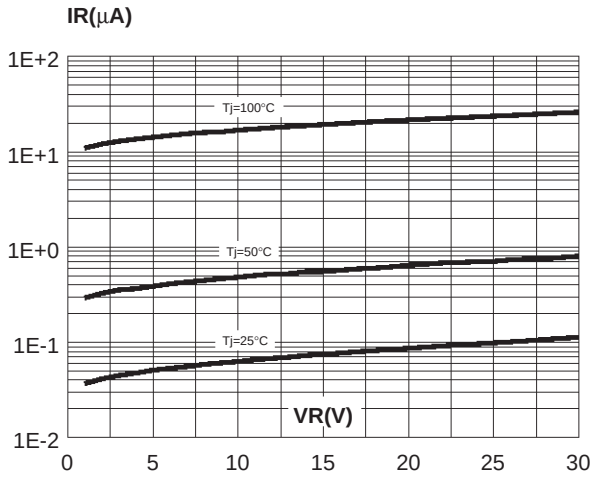


Fig. 3: Reverse leakage current versus junction temperature.

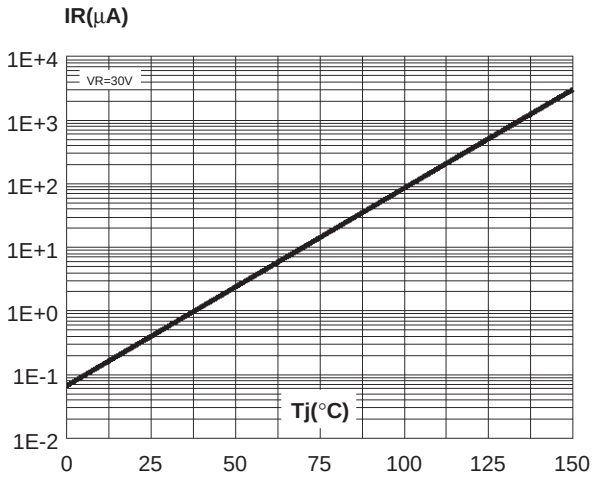


Fig. 4: Junction capacitance versus reverse voltage applied (typical values).

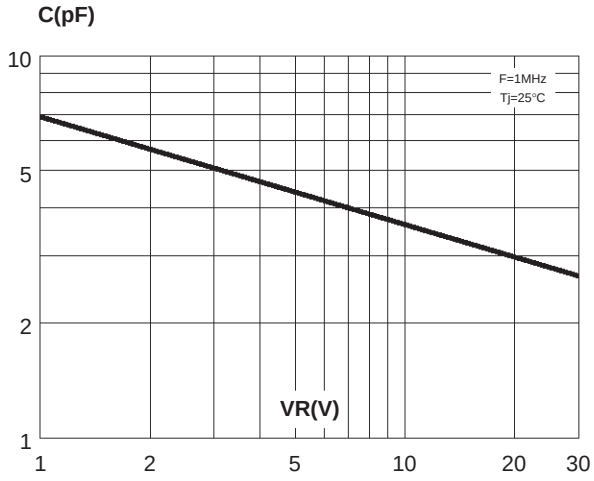


Fig. 5: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy FR4 with recommended pad layout, e(Cu)=35µm).

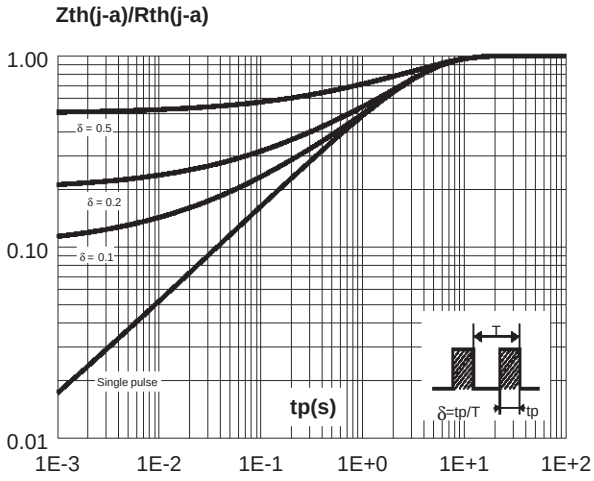
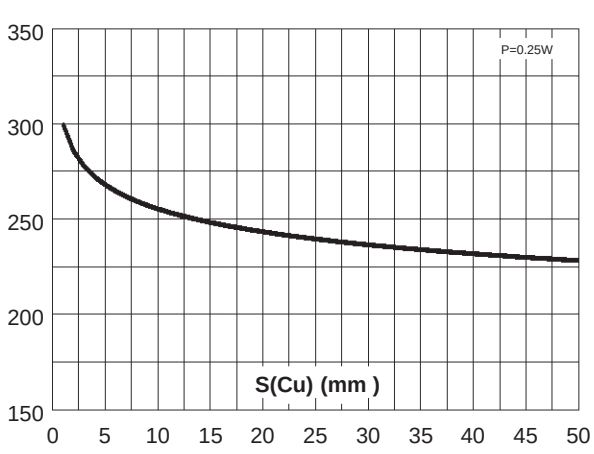
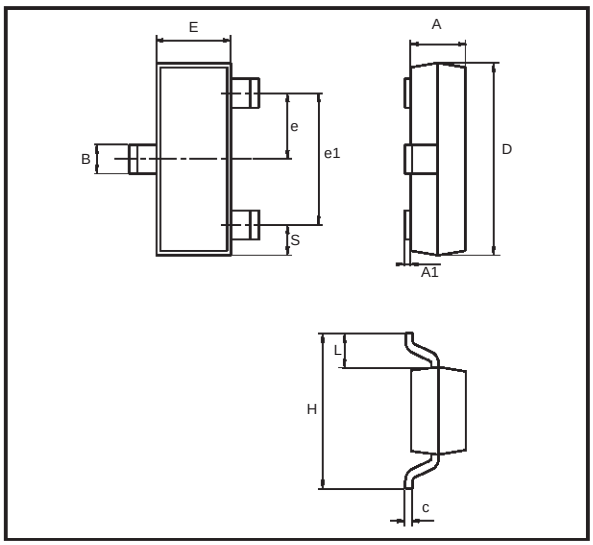


Fig. 6: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35µm).



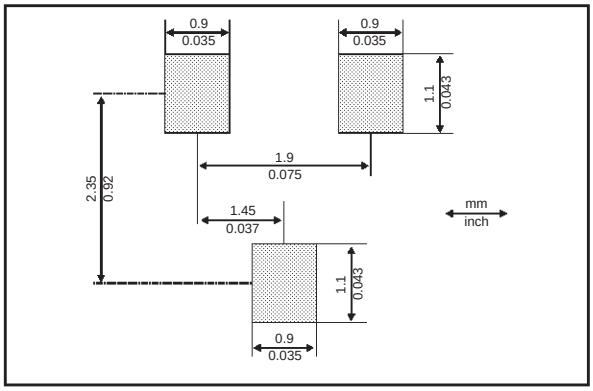
PACKAGE MECHANICAL DATA

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