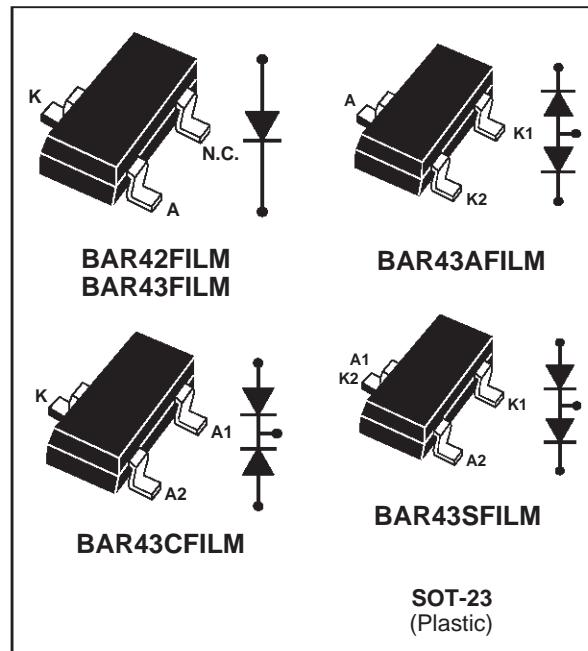


## SMALL SIGNAL SCHOTTKY DIODES

### 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 $t_p=10\text{ms}$ sinusoidal	750	mA
$P_{tot}$	Power dissipation (note 1) $T_{amb} = 25^\circ\text{C}$	250	mW
$T_{stg}$	Maximum storage temperature range	- 65 to +150	$^\circ\text{C}$
$T_j$	Maximum operating junction temperature *	150	$^\circ\text{C}$
$T_L$	Maximum temperature for soldering during 10s	260	$^\circ\text{C}$

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

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

### THERMAL RESISTANCE

Symbol	Test conditions	Value	Unit
$R_{th(j-a)}$	Junction-ambient *	500	$^\circ\text{C/W}$

\* Mounted on epoxy board with recommended pad layout.

## BAR42FILM BAR43/A/C/SFILM

### 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 42FILM	$I_F = 10 \text{ mA}$		0.35	0.4	V
			$I_F = 50 \text{ mA}$		0.5	0.65	
		BAR 43FILM	$I_F = 2 \text{ mA}$	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	$\mu\text{A}$		

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

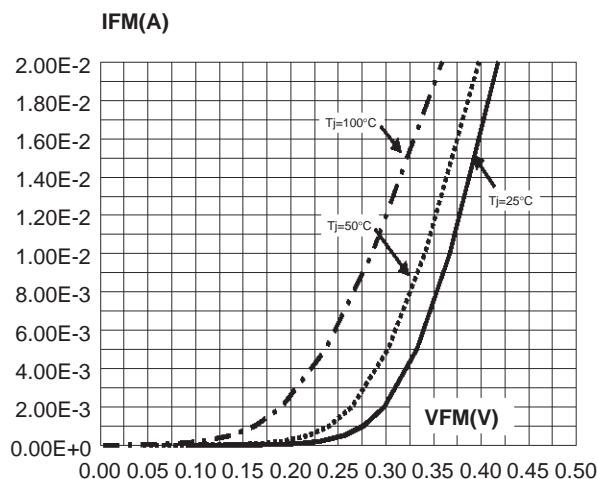
\*\*  $t_p = 5 \text{ ms}, \delta < 2\%$

#### DYNAMIC CHARACTERISTICS

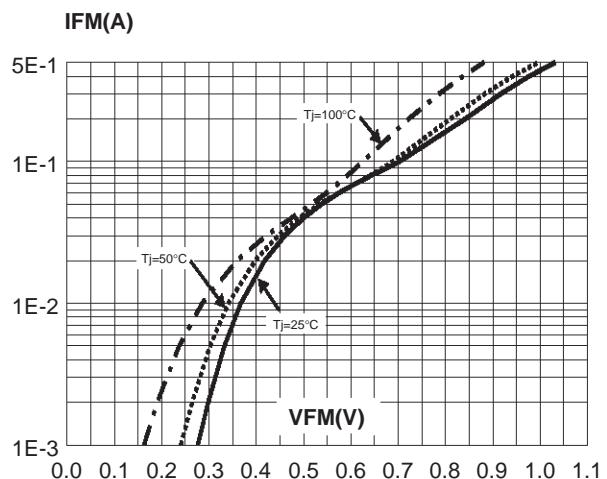
Symbol	Test Conditions			Min.	Typ.	Max.	Unit
C	$T_j = 25^\circ\text{C}$	$V_R = 1\text{V}$	$F = 1\text{MHz}$		7		pF
trr	$T_j = 25^\circ\text{C}$ $I_{rr} = 1\text{mA}$	$I_F = 10 \text{ mA}$	$I_R = 10 \text{ mA}$			5	ns
$\eta^*$	$T_j = 25^\circ\text{C}$ $F = 45\text{MHz}$	$R_L = 50 \text{ K}\Omega$ $V_i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

\* Detection efficiency

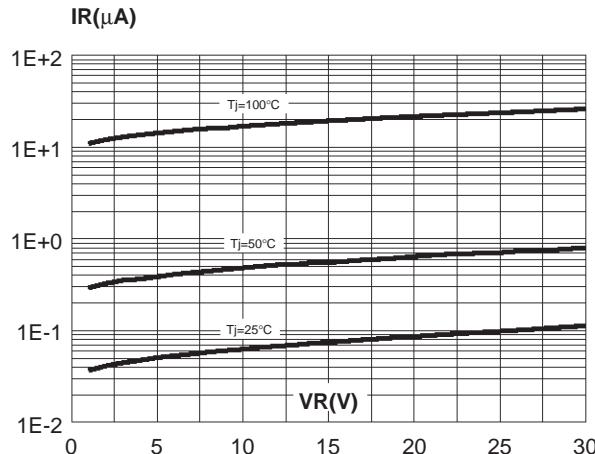
**Fig. 1-1:** Forward voltage drop versus forward current (typical values, low level).



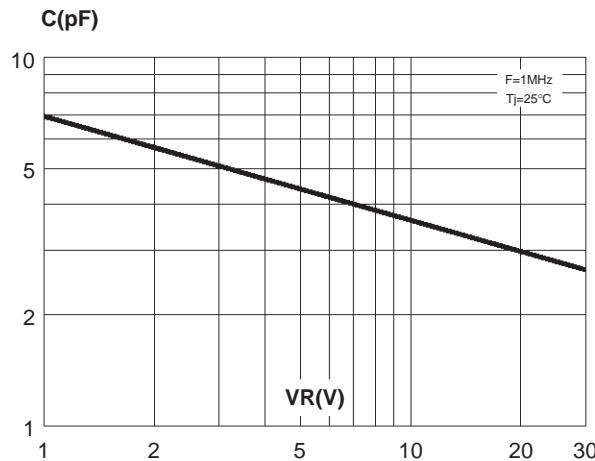
**Fig. 1-2:** Forward voltage drop versus forward current (typical values, high level).



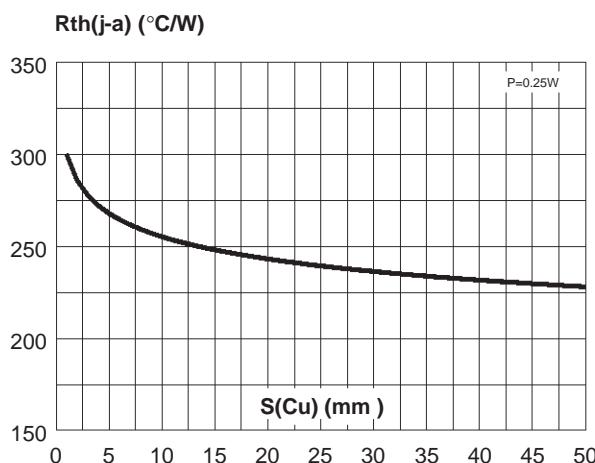
**Fig. 2:** Reverse leakage current versus reverse voltage applied (typical values).



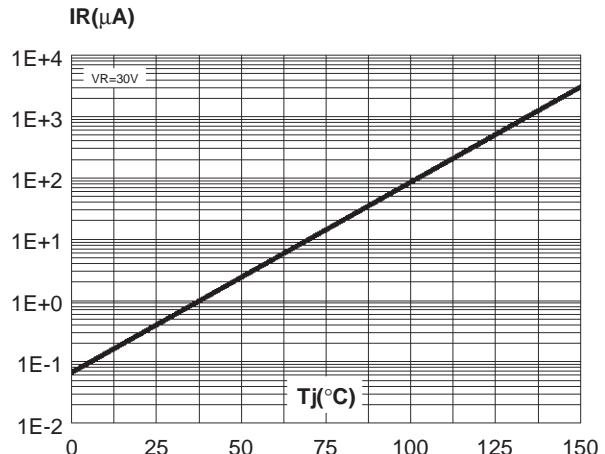
**Fig. 4:** Junction capacitance versus reverse voltage applied (typical values).



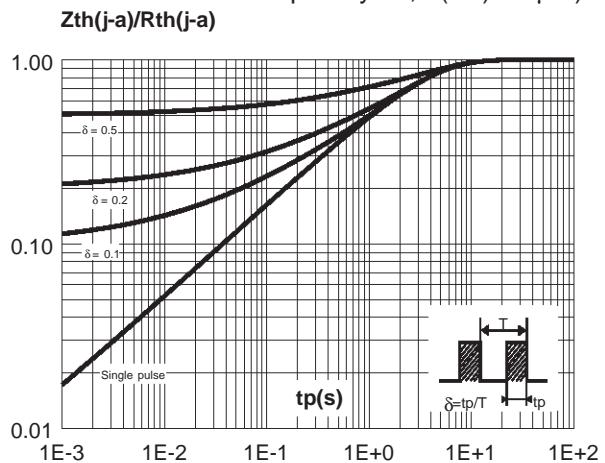
**Fig. 6:** Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness:  $35\mu\text{m}$ ).



**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,  $e(\text{Cu})=35\mu\text{m}$ ).

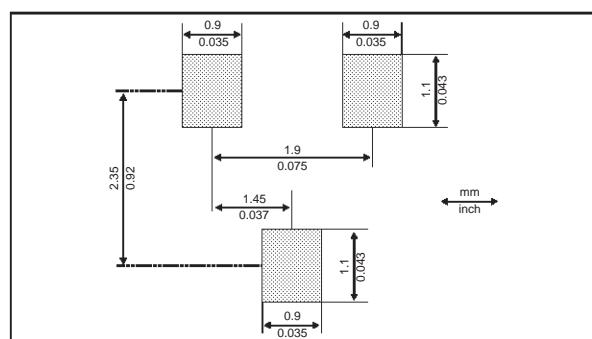


## BAR42FILM BAR43/A/C/SFILM

### 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
BAR42FILM	D94	SOT-23	0.01g	3000	Tape & reel
BAR43FILM	D95	SOT-23	0.01g	3000	Tape & reel
BAR43AFILM	DB1	SOT-23	0.01g	3000	Tape & reel
BAR43CFILM	DB2	SOT-23	0.01g	3000	Tape & reel
BAR43SFILM	DA5	SOT-23	0.01g	3000	Tape & reel

Epoxy meets UL94,V0

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