

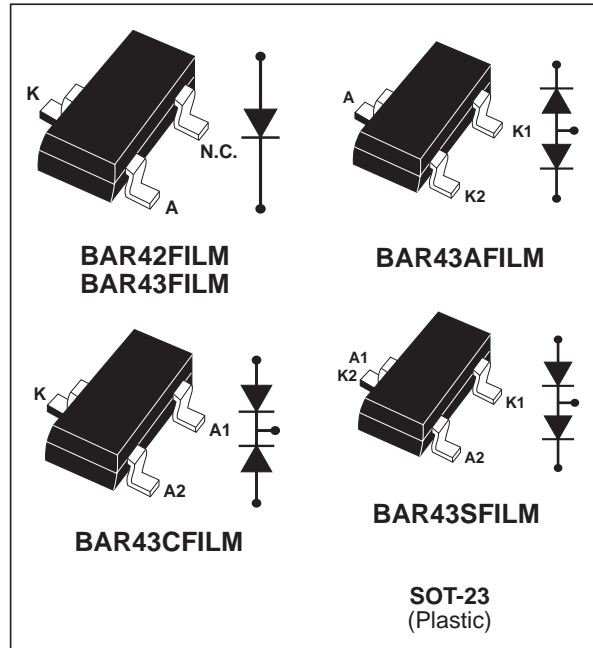


BAR42FILM BAR43/A/C/SFILM

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.

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

THERMAL RESISTANCE

Symbol	Test conditions	Value	Unit
R _{th(j-a)}	Junction-ambient *	500	°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	
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}	$T_j = 25^\circ\text{C}$ $I_{rr} = 1\text{mA}$	$I_F = 10\text{ mA}$ $R_L = 100\ \Omega$			5	ns
η^*	$T_j = 25^\circ\text{C}$ $F = 45\text{Mhz}$	$R_L = 50\ \text{K}\Omega$ $V_i = 2\text{V}$	80			%

* Detection efficiency

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

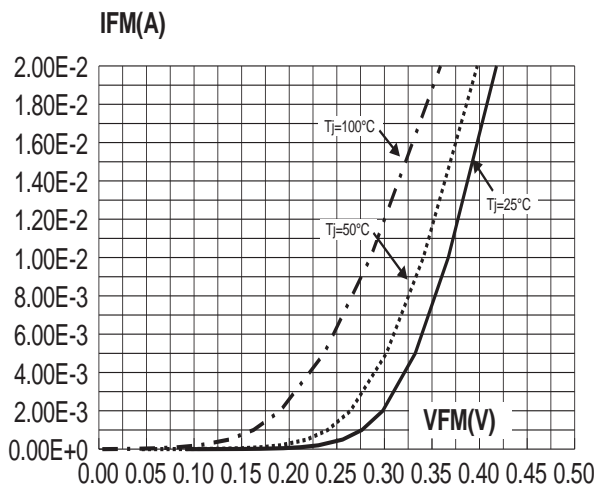


Fig. 1-2: Forward voltage drop versus forward current (typical values, high level).

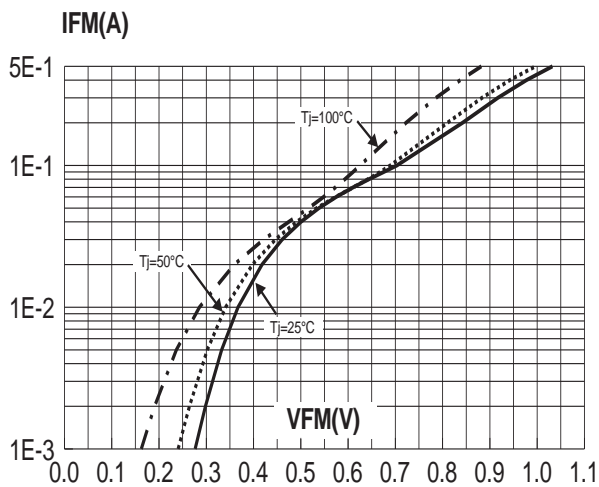


Fig. 2: Reverse leakage current versus reverse voltage applied (typical values).

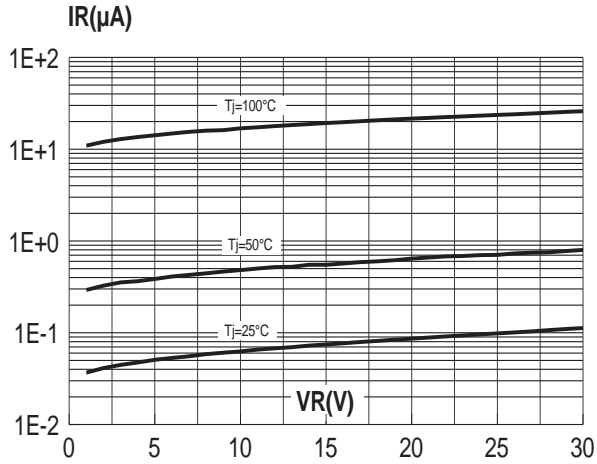


Fig. 4: Junction capacitance versus reverse voltage applied (typical values).

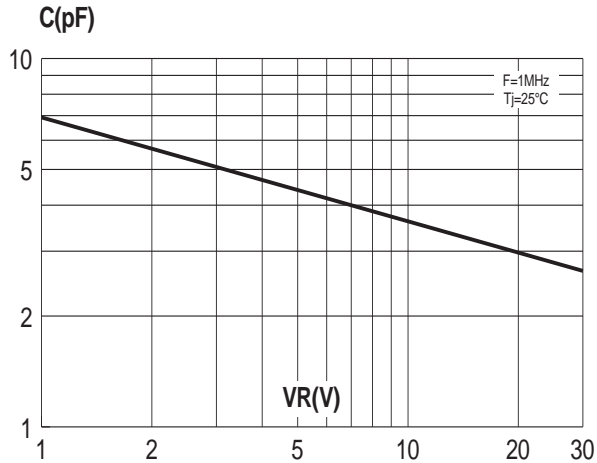


Fig. 6: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: $35\mu m$).

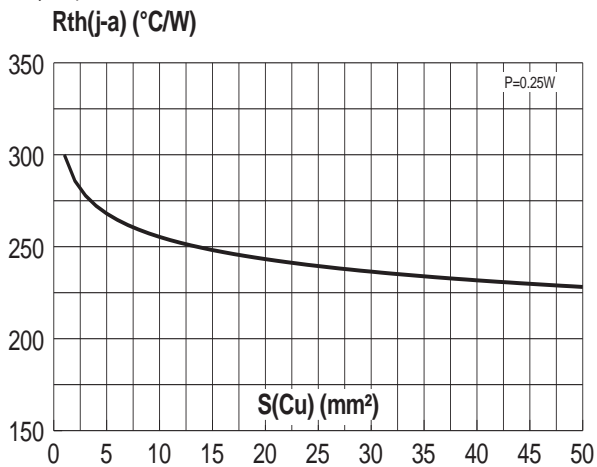


Fig. 3: Reverse leakage current versus junction temperature.

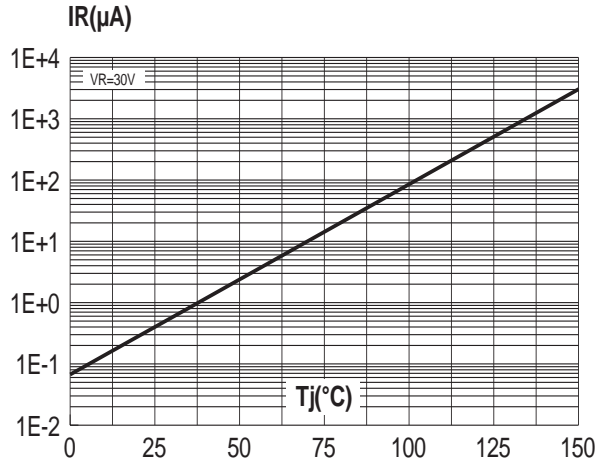
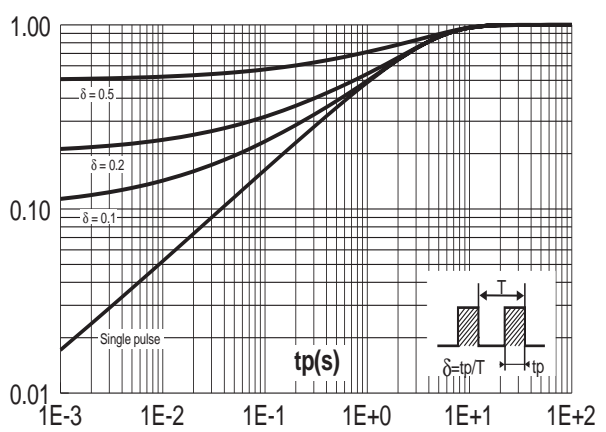


Fig. 5: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy FR4 with recommended pad layout, $e(Cu) = 35\mu m$).

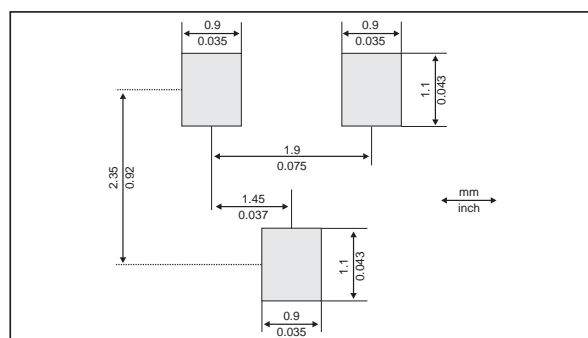


BAR42FILM BAR43/A/C/SFILM

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

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

© 2001 STMicroelectronics - Printed in Italy - All rights reserved.

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia
Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>