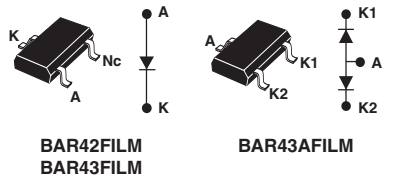
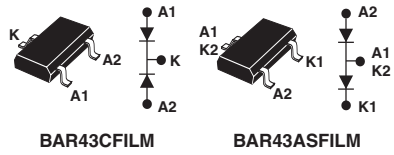
BAR42FILM
BAR43FILM

SMALL SIGNAL SCHOTTKY DIODE

Table 1: Main Product Characteristics

$I_{F(AV)}$	0.1 A
V_{RRM}	30 V
T_j	150°C
V_F(max)	0.33 and 0.40 V





SOT23-3L

FEATURES AND BENEFITS

- Very small conduction losses
- Negligible switching losses
- Low forward voltage drop
- Surface mount device

DESCRIPTION

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

Table 2: Order Codes

Part Number	Marking
BAR42FILM	D94
BAR43FILM	D95
BAR43AFILM	DB1
BAR43CFILM	DB2
BAR43SFILM	DA5

Table 3: Absolute Ratings (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		30	V
$I_{F(AV)}$	Continuous forward current		0.1	A
I_{FSM}	Surge non repetitive forward current	t_p = 10ms sinusoidal	0.75	A
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 dissipation of both diodes.

* : $\frac{dPtot}{dTj} > \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

Table 4: Thermal Resistance

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient (*)	500	°C/W

(*) Mounted on epoxy board with recommended pad layout.

Table 5: Static Electrical Characteristics

Symbol	Parameter	Tests conditions			Min.	Typ	Max.	Unit
V_{BR}	Breakdown voltage	T_j = 25°C		I_R = 100µA	30			V
I_R *	Reverse leakage current	T_j = 25°C		$V_R = V_{RRM}$			500	nA
		T_j = 100°C					100	µA
V_F **	Forward voltage drop	T_j = 25°C	BAR42	I_F = 10mA		0.35	0.40	V
				I_F = 50mA		0.50	0.65	
			BAR43	I_F = 2mA	0.26		0.33	
				I_F = 15mA			0.45	
			ALL	I_F = 100mA			1	

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

Table 6: Dynamic Characteristics (T_j = 25°C)

Symbol	Parameter	Tests conditions	Min.	Typ.	Max.	Unit
C	Junction capacitance	T_j = 25°C V_R = 1V F = 1 MHz		7		pF
t_{rr}	Reverse recovery time	I_F = 10 mA I_R = 10 mA T_j = 25°C I_{rr} = 1 mA R_L = 100 Ω			5	ns
η	Detection efficiency	C_L = 300 pF F = 45 MHz T_j = 25°C V_i = 2 V R_L = 50 Ω	80			%

Figure 1: Forward voltage drop versus forward current (typical values, low level)

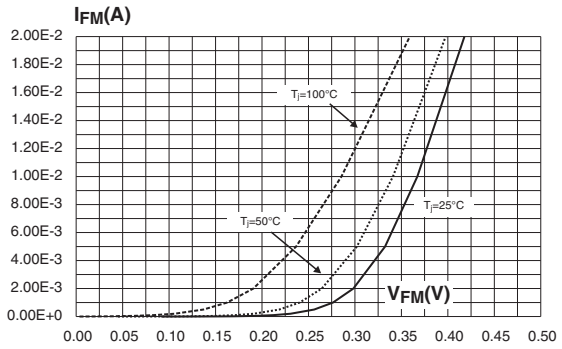


Figure 2: Forward voltage drop versus forward current (typical values, high level)

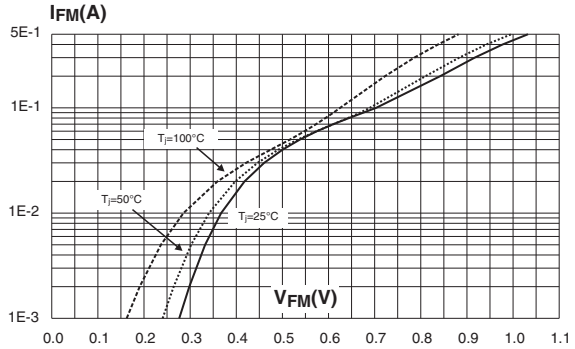


Figure 3: Reverse leakage current versus reverse voltage applied (typical values)

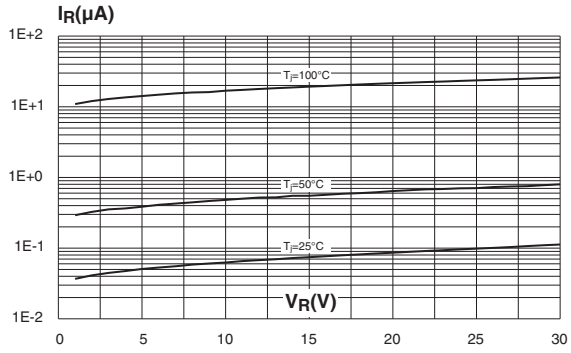


Figure 4: Reverse leakage current versus junction temperature

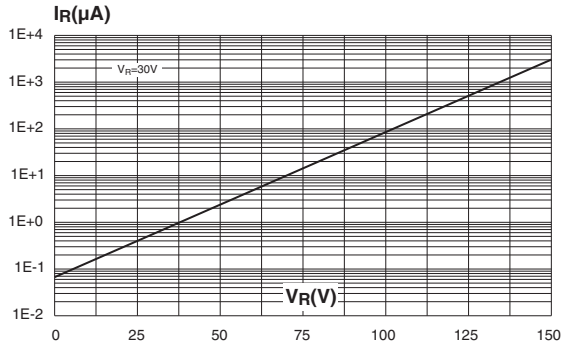


Figure 5: Junction capacitance versus reverse voltage applied (typical values)

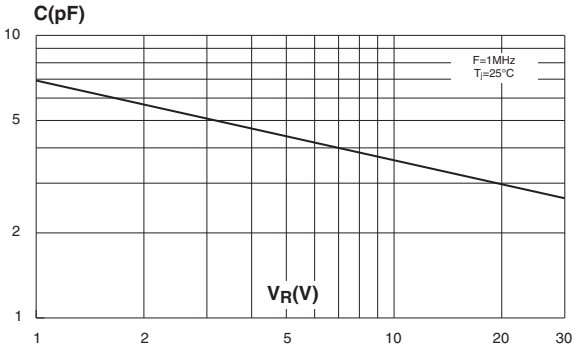


Figure 6: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy FR4 with recommended pad layout, e(Cu)=35µm)

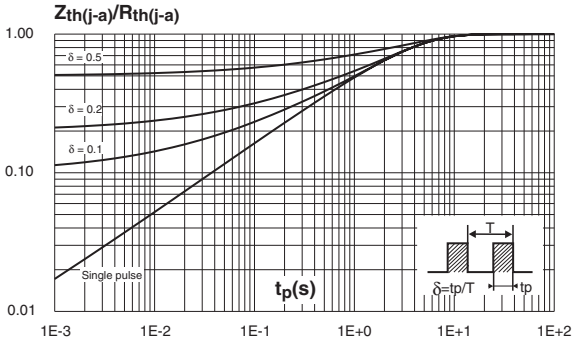


Figure 7: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35µm)

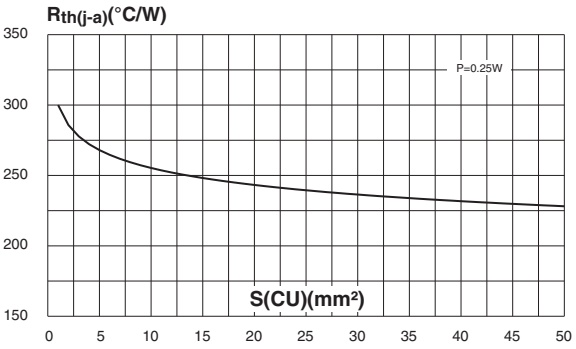
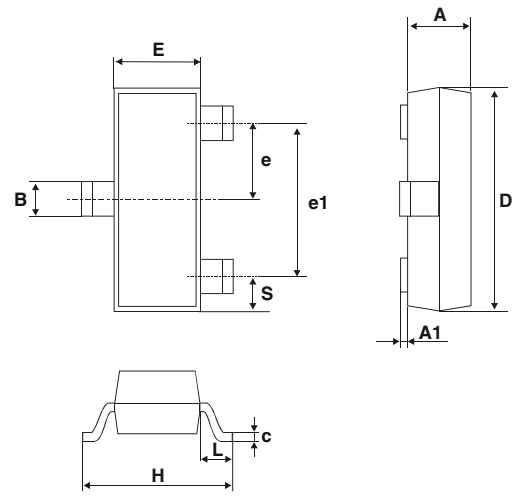


Figure 8: SOT23-3L Package Mechanical Data



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

Figure 9: Foot Print Dimensions (in millimeters)

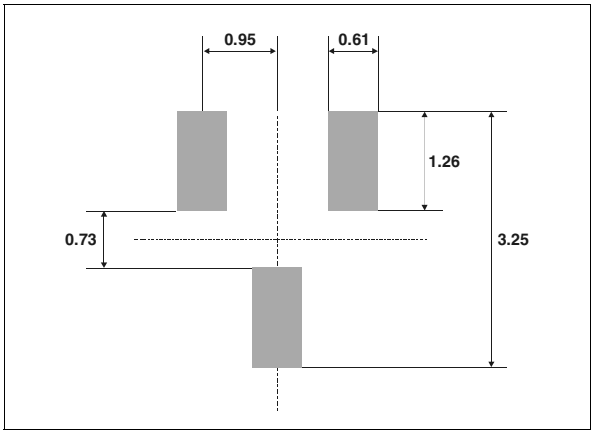


Table 7: Ordering Information

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
BAR42FILM	D94	SOT23-3L	0.01 g	3000	Tape & reel
BAR43FILM	D95				
BAR43AFILM	DB1				
BAR43CFILM	DB2				
BAR43SFILM	DA5				

- Epoxy meets UL94, V0

Table 8: Revision History

Date	Revision	Description of Changes
Aug-2001	2B	Last update.
16-Apr-2005	3	Layout update. No content change.