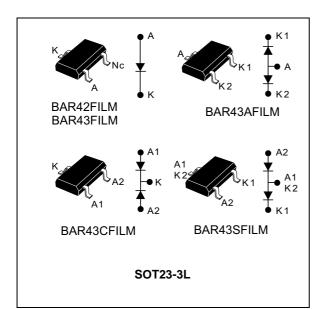
BAR42 BAR43

Small signal Schottky diode

Datasheet - production data



Description

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

Table 1. Device summary

Symbol	Value
I _{F(AV)}	0.1 A
V_{RRM}	30 V
T _j	150 °C
V _F (max)	0.33 and 0.40 V

Features

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

Characteristics BAR42, BAR43

1 Characteristics

Table 2. Absolute ratings (limiting values)

Symbol	Parameter	Value	Unit
V_{DRM}	Repetitive peak off-state voltage	30	V
I _{F(AV)}	Continuous forward current	0.1	Α
I _{FSM}	Surge non repetitive forward current	0.75	Α
P _{tot}	Power dissipation ⁽¹⁾	250	mW
T _{stg}	Maximum Storage temperature range	- 65 to + 150	ů
T _j	Maximum operating junction temperature	150	°C
T _L	Maximum temperature for soldering durin	260	°C

^{1.} For double diodes, P_{tot} is the total dissipation of both diodes

Table 3. Thermal parameter

Symbol	Parameter	Value	Unit
R _{th(j-a)}	Junction to ambient ⁽¹⁾	500	°C/W

^{1.} Mounted on epoxy board with recommended pad layout.

Table 4. Static electrical characteristics

Symbol	Parameter	Test conditions			Min.	Тур.	Max.	Unit
V _{BR}	Breakdown voltage	T _j = 25 °C		I _R = 100 μA	30			V
I _R ⁽¹⁾	Reverse leakage	$T_j = 25 ^{\circ}\text{C}$ $T_j = 100 ^{\circ}\text{C}$		$V_R = V_{RRM}$			500	nA
'R`	current						100	μΑ
		BAR42	I _F = 10 mA		0.35	0.40		
		T _i = 25 °C	$I_F = 50 \text{ mA}$		0.50	0.65		
V = \ - /	Forward voltage drop		BAR43	$I_F = 2 \text{ mA}$	0.26		0.33	V
	·			I _F = 15 mA			0.45	
			ALL	I _F =100 mA			1	

^{1.} Pulse test: t_p = 5 ms, δ < 2 %

^{2.} $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ condition to avoid thermal runaway for a diode on its own heatsink.

^{2.} Pulse test: t_p = 380 μ s, δ < 2 %

BAR42, BAR43 Characteristics

Table 5. Dynamic characteristics (Tj = 25 °C)

Symbol	Test conditions			Тур.	Max.	Unit
С	Junction capacitance	$T_j = 25 ^{\circ}\text{C}$ $V_R = 1 ^{\circ}\text{V}$ $F = 1 ^{\circ}\text{MHz}$		7		pF
С	Reverse recovery time	$I_F = 10 \text{ mA}$ $I_R = 10 \text{ mA}$ $T_j = 25 \text{ °C}$ $I_{rr} = 1 \text{ mA}$ $R_L = 100 \Omega$			5	pF
η	Detection efficiency	$C_L = 300 \text{ pF} F = 45 \text{ MHz}$ $T_j = 25 \text{ °C} V_i = 2 \text{ V} R_L = 50 \Omega$	80			ps

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

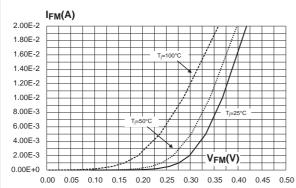


Figure 2. Forward voltage drop versus forward current (typical values, high level)

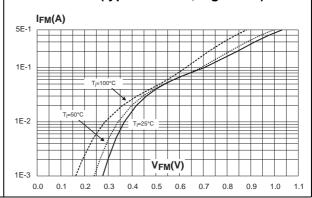


Figure 3. Reverse leakage current versus reverse voltage applied (typical values)

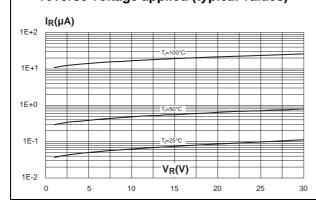
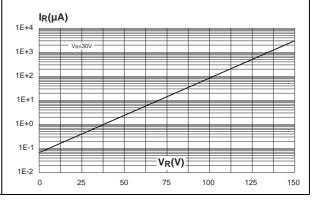


Figure 4. Reverse leakage current versus junction temperature



Characteristics BAR42, BAR43

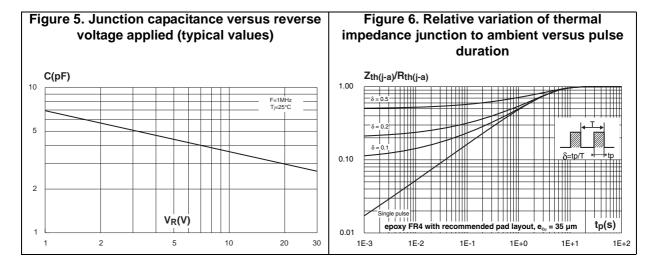
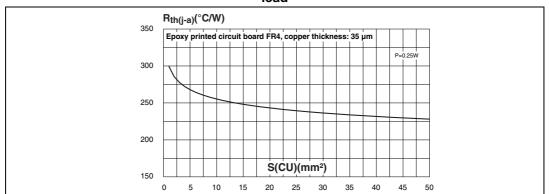


Figure 7. Thermal resistance junction to ambient versus copper surface under each lead



BAR42, BAR43 Package information

Package information 2

- Epoxy meets UL94, V0
- Lead-free packages

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK[®] is an ST trademark.

Ref. **Millimeters** Min. Α 0.89 0 Α1 В 0.3 D 0.085 D 2.75 0.85 1.7 e1 Н 2.1 L 0.6 typ. S 0.35

Table 6. SOT23-3L dimensions

Dimensions

Max.

1.4

0.1

0.51

0.18

3.04

1.05

2.1

2.75

0.65

Inches

Max.

0.055

0.004

0.02

0.007

0.12

0.041

0.083

0.063

0.108

0.026

Min.

0.035

0

0.012

0.003

0.108

0.033

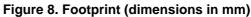
0.067

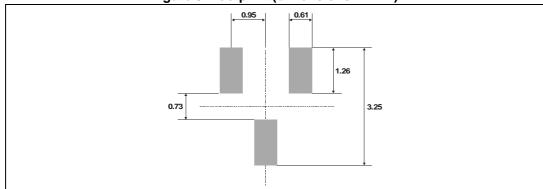
0.047

0.083

0.014

0.024 typ.





Ordering information BAR42, BAR43

3 Ordering information

Table 7. Ordering information

Order code	Marking	Package	Weight	Base Qty	Delivery mode
BAR42FILM	D94				
BAR43FILM	D95				
BAR43AFILM	DB1	SOT23-3L	0.01 g	3000	Tape and reel
BAR43CFILM	DB2				
BAR43SFILM	DA5				

4 Revision history

Table 8. Document revision history

Date	Revision	Changes
Aug-2001	2B	Last release.
16-Apr-2005	3	Layout update. No content change.
23-Apr-2014	4	Updated ECOPACK statement.
18-Jul-2017	5	Updated figure in cover page.

DocID3288 Rev 5

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