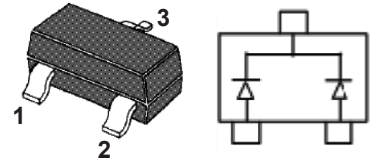


RoHS  
Compliant



SOT-23



1. Base
2. Emitter
3. Collector

## Features

- General-purpose switching
- High switching speed:  $t_{rr} \leq 4\text{ns}$
- Low leakage current
- Small SMD plastic packages
- Low capacitance:  $C_d \leq 1.5\text{pF}$
- Reverse voltage:  $V_R \leq 100\text{V}$
- AEC-Q101 qualified

Characteristic	Conditions	Symbol	Min.	Typ.	Max.	Units
Forward Voltage	$I_F = 1\text{mA}^{(1)}$	$V_F$	-	-	715	mV
	$I_F = 10\text{mA}^{(1)}$		-	-	855	mV
	$I_F = 50\text{mA}^{(1)}$		-	-	1	V
	$I_F = 150\text{mA}^{(1)}$		-	-	1.25	V
Reverse Current	$V_R = 25\text{V}$	$I_R$	-	-	30	nA
	$V_R = 80\text{V}$		-	-	0.5	$\mu\text{A}$
	$V_R = 25\text{V}; T_J = 150^\circ\text{C}$		-	-	30	$\mu\text{A}$
	$V_R = 80\text{V}; T_J = 150^\circ\text{C}$		-	-	100	$\mu\text{A}$
Diode Capacitance	$V_R = 0\text{V}; f = 1\text{MHz}$	$C_d$	-	-	1.5	pF
Reverse Recovery Time	-(2)	$t_{rr}$	-	-	4	ns
Forward Recovery Voltage	-(3)	$V_{FR}$	-	-	1.75	V

### Note:

(1) Pulse test:  $t_p \leq 300\mu\text{s}; \delta \leq 0.02$ .

(2) When switched from  $I_F = 10\text{mA}$  to  $I_R = 10\text{mA}$ ;  $R_L = 100\Omega$ ; measured at  $I_R = 1\text{mA}$ .

(3) When switched from  $I_F = 10\text{mA}$ ;  $t_r = 20\text{ns}$ .

## Quick reference data

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Units
Reverse Current	$V_R = 80\text{V}$	$I_R$	-	-	0.5	$\mu\text{A}$
Reverse Voltage	-	$V_R$	-	-	100	V
Reverse Recovery Time	-(1)	$t_{rr}$	-	-	4	ns

### Note:

(1) When switched from  $I_F = 10\text{mA}$  to  $I_R = 10\text{mA}$ ;  $R_L = 100\Omega$ ; measured at  $I_R = 1\text{mA}$ .

## Absolute Maximum Rating

Parameter	Conditions	Symbol	Min.	Max.	Units
Repetitive Peak Reverse Voltage	-	VRRM	-	100	V
Reverse Voltage	-	VR	-	100	
Forward Current	Tamb ≤ 25°C	IF	-	215	mA
Repetitive Peak Forward Current	-	IFRM	-	450	
Non-Repetitive Peak Forward Current	Square Wave <sup>(1)</sup> tp = 1μs	IFSM	-	4	A
	tp = 1ms		-	1	
	tp = 1s		-	0.5	
Total Power Dissipation	Tamb ≤ 25°C	Ptot	-	250	mW
Forward Current	Tamb ≤ 25°C	IF	-	125	mA
Junction Temperature	-	TJ	-	+150	°C
Ambient Temperature	-	Tamb	-65	+150	
Storage Temperature	-	TSTG	-65	+150	

### Notes:

- [1] T<sub>J</sub> = 25°C prior to surge.
- [2] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.
- [3] Reflow soldering is the only recommended soldering method.

## Thermal Characteristics

Parameter	Conditions	Symbol	Min.	Max.	Units
Thermal Resistance from Junction to Ambient	In Free Air <sup>[1]</sup>	R <sub>th(j-a)</sub>	-	500	K/W
Thermal Resistance from Junction to Tie-Point	-	R <sub>th(j-t)</sub>	-	360	

### Note:

- [1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

## Rating and Characteristic Curves

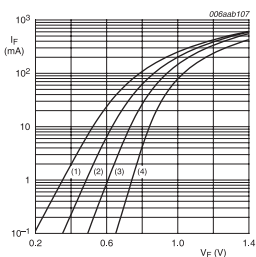


Fig. 1. Forward current as a function of forward voltage; typical values

- (1) T<sub>amb</sub> = 150 °C
- (2) T<sub>amb</sub> = 85 °C
- (3) T<sub>amb</sub> = 25 °C
- (4) T<sub>amb</sub> = 840 °C

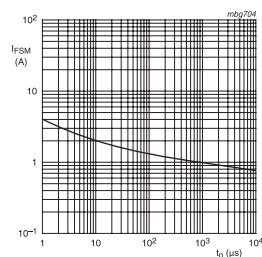


Fig. 2. Non-repetitive peak forward current as a function of pulse duration; maximum values

Based on square wave currents,  
T<sub>J</sub> = 25 °C; prior to surge

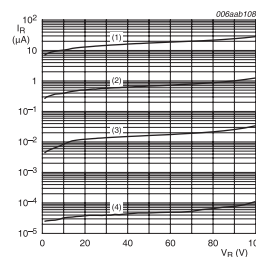


Fig. 3. Reverse current as a function of reverse voltage; typical values

- (1) T<sub>amb</sub> = 150 °C
- (2) T<sub>amb</sub> = 85 °C
- (3) T<sub>amb</sub> = 25 °C
- (4) T<sub>amb</sub> = 840 °C

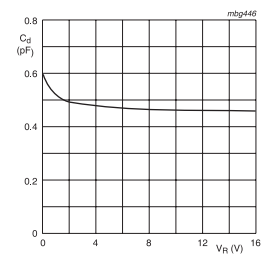
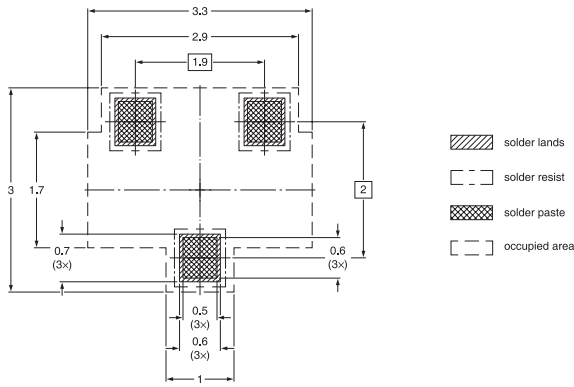


Fig. 4. Diode capacitance as a function of reverse voltage; typical values

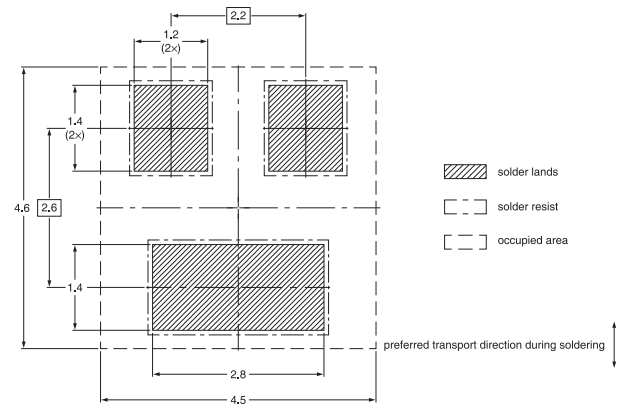
f = 1 MHz; T<sub>amb</sub> = 25 °C

## Soldering Diagram

**Reflow Soldering Footprint (SOT23/TO-236AB)**

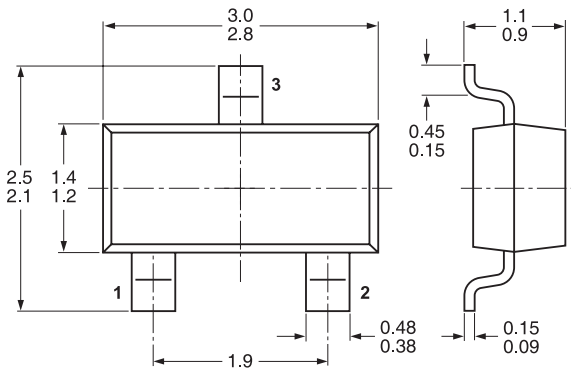


**Wave Soldering footprint (SOT23/TO-236AB)**



## Diagram

(SOT23/TO-236AB)



## Part Number Table

Description	Part Number
Surface Mount Switching Diode	BAV70

Dimensions : Millimetres

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