

## SMALL SIGNAL SCHOTTKY DIODE

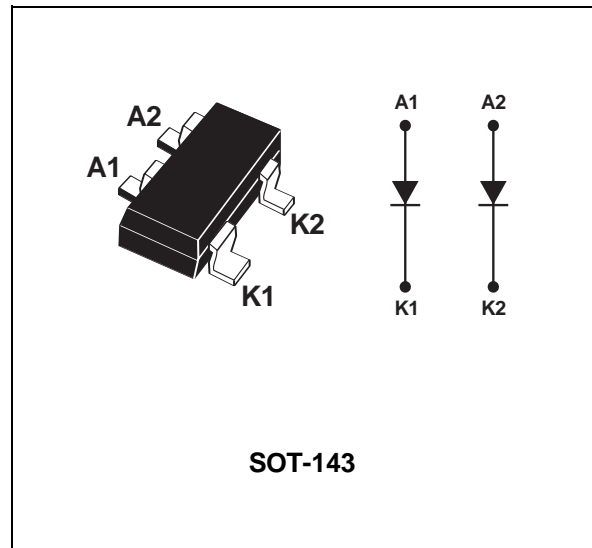
### FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- LOW THERMAL RESISTANCE
- EXTREMELY FAST SWITCHING
- SURFACE MOUNTED DEVICE

### DESCRIPTION

Low turn-on and high breakdown voltage diodes intended for

ultrafast switching and UHF detectors in hybrid micro circuits. Packaged in SOT-143, this device is intended for surface mounting. Its dual independent diodes configuration makes it very interesting for applications where high integration is searched.



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage		70	V
$I_F$	Continuous forward current		15	mA
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10ms$	1	A
$P_{tot}$	Power Dissipation (note 1)	$T_{amb} = 25^\circ C$	310	mW
$T_{stg}$	Storage temperature range		- 65 to +150	$^\circ C$
$T_j$	Maximum operating junction temperature *		150	$^\circ C$
TL	Maximum temperature for soldering during 10s		260	$^\circ C$

**Note 1:**  $P_{tot}$  is the total 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	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient (*)	400	$^\circ C/W$

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

# BAS70-07

## STATIC ELECTRICAL CHARACTERISTICS

Symbol	Tests Conditions	Tests Conditions	Min.	Typ.	Max.	Unit	
$V_F^*$	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 1\text{ mA}$			410	mV
			$I_F = 10\text{ mA}$			750	mV
			$I_F = 15\text{ mA}$			1	V
$V_{BR}$	Breakdown voltage	$T_j = 25^\circ\text{C}$	$I_R = 10\ \mu\text{A}$	70		V	
$I_R^{**}$	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = 50\text{ V}$			200	nA
			$V_R = 70\text{ V}$			10	$\mu\text{A}$

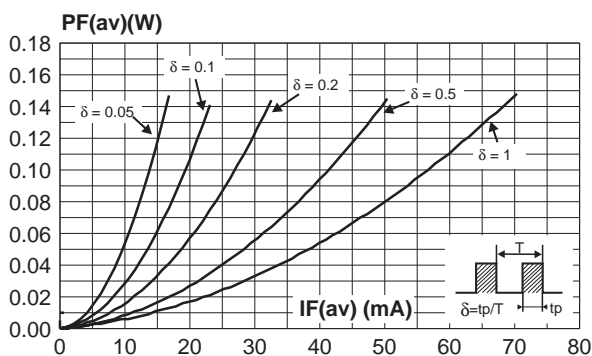
Pulse test: \*  $t_p = 380\ \mu\text{s}$ ,  $\delta < 2\%$

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

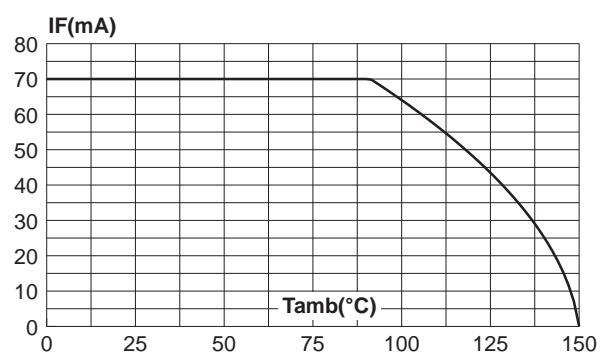
## DYNAMIC CHARACTERISTICS ( $T_j = 25^\circ\text{C}$ )

Symbol	Parameters	Tests Conditions	Min.	Typ.	Max.	Unit
C	Junction capacitance	$V_R = 1\text{ V}$ $F = 1\text{ MHz}$			2	pF
$t_{rr}$	Reverse recovery time	$I_F = 10\text{ mA}$ $I_{rr} = 1\text{ mA}$ $I_R = 10\text{ mA}$ $R_L = 100\ \Omega$			5	ns
$\tau$	Effective carrier lifetime	$I_F = 5\text{ mA}$ Krakauer method			100	ps

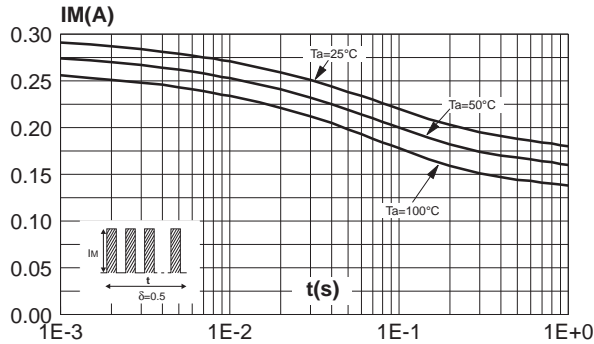
**Fig.1** : Average forward power dissipation versus average forward current.



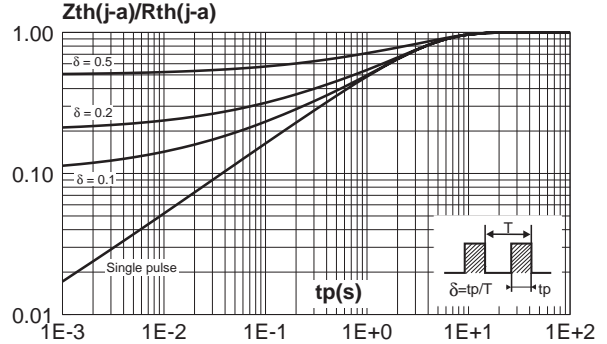
**Fig.2** : Continuous forward current versus ambient temperature.



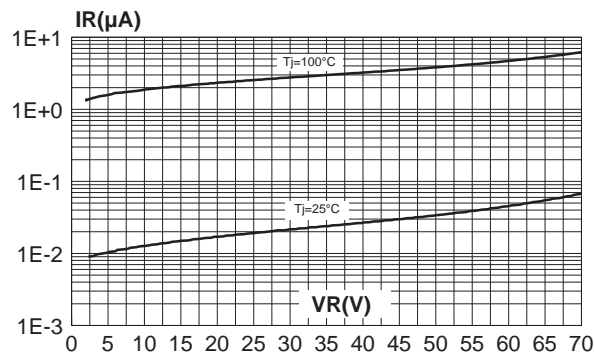
**Fig.3** : Non repetitive surge peak forward current versus overload duration (maximum values).



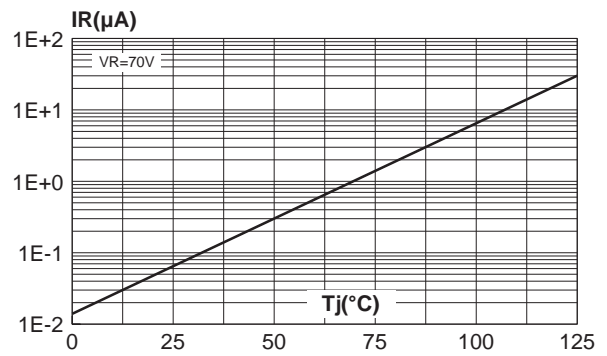
**Fig.4** : Relative variation of thermal impedance junction to ambient versus pulse duration (alumine substrate 10mm x 8mm x 0.5mm).



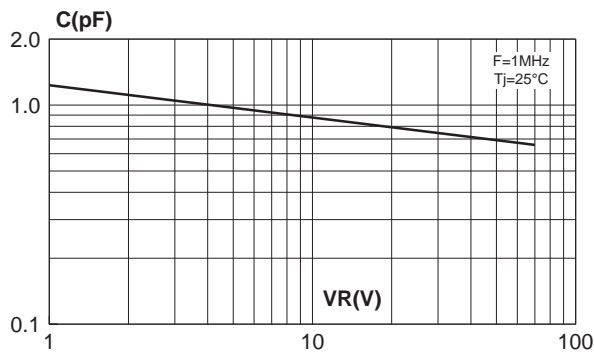
**Fig.5** : Reverse leakage current versus reverse voltage applied (typical values).



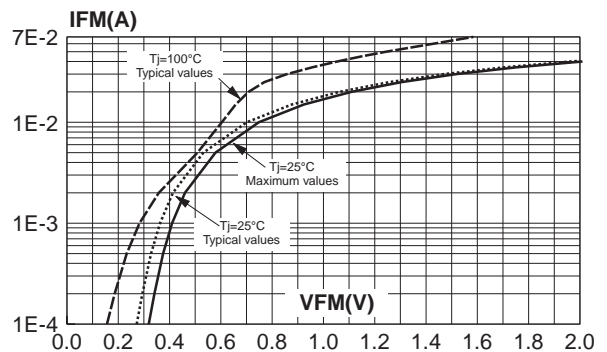
**Fig.6** : Reverse leakage current versus junction temperature (typical values).



**Fig.7** : Junction capacitance versus reverse voltage applied (typical values).



**Fig.8** : Forward voltage drop versus forward current.

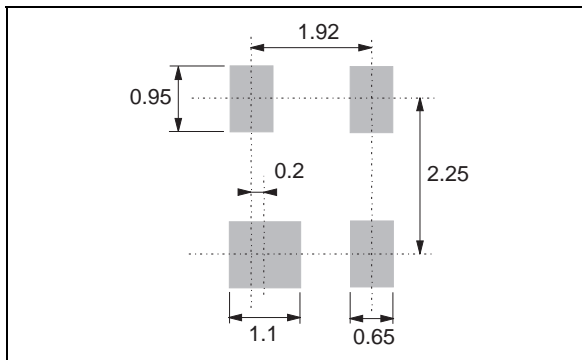


## BAS70-07

### PACKAGE MECHANICAL DATA SOT-143

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.8	1.2	0.0314	0.0472
A1	0.01	0.127	0.0004	0.005
b	0.35	0.6	0.014	0.024
b1	0.55	0.95	0.022	0.037
C	0.085	0.2	0.003	0.008
D	2.8	3.04	0.11	0.12
E	1.2	1.4	0.047	0.055
e1	1.90 Typ.		0.075 Typ.	
e2	0.2 Typ.		0.008 Typ.	
H	2.1	2.64	0.083	0.103
L	0.55 Typ.		0.022 Typ.	

### FOOTPRINT DIMENSIONS (millimeters)



### MARKING

Type	Marking	Package	Weight	Base qty	Delivery mode
BAS70-07	D99	SOT-143	0.01g.	3000	Tape & reel

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