

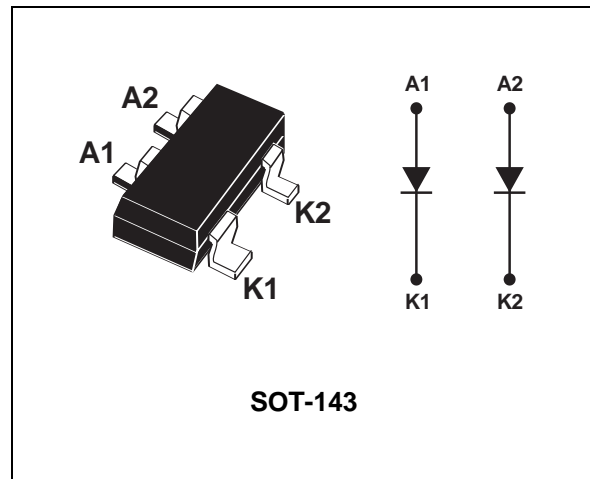
SMALL SIGNAL SCHOTTKY DIODE

FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- EXTREMELY FAST SWITCHING
- SURFACE MOUNT DEVICE

DESCRIPTION

Two separate Schottky barrier diodes encapsulated in a SOT-143 small SMD package.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive peak reverse voltage	30	V
I_{FRM}	Repetitive peak forward current $\delta = 0.33$	0.5	A
I_{FSM}	Surge non repetitive forward current ($t_p=10ms$ sinusoidal)	1	A
P_{tot}	Power Dissipation (note 1) $T_{amb} = 50^\circ C$	250	mW
T_{stg}	Maximum 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

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

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THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to Ambient (*)	400	$^{\circ}\text{C/W}$

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

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameters	Tests conditions	Min.	Typ.	Max.	Unit	
V_F^*	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 0.1 \text{ mA}$			240	mV
			$I_F = 1 \text{ mA}$			320	
			$I_F = 10 \text{ mA}$			400	
			$I_F = 30 \text{ mA}$			500	
			$I_F = 100 \text{ mA}$			900	
I_R^{**}	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = 30 \text{ V}$			1	μA
		$T_j = 100^{\circ}\text{C}$				100	

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	$T_j = 25^{\circ}\text{C}$ $V_R = 1 \text{ V}$ $F = 1 \text{ MHz}$			10	pF
t_{rr}	Reverse Recovery Time	$I_F = 10 \text{ mA}$ $I_R = 10 \text{ mA}$ $T_j = 25^{\circ}\text{C}$ $I_{rr} = 1 \text{ mA}$ $R_L = 100 \Omega$			5	ns

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

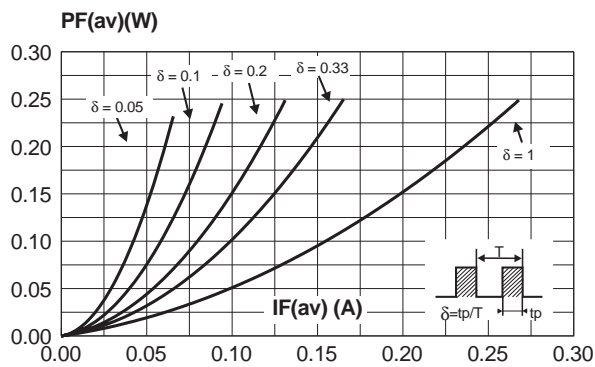


Fig.2 : Average forward current versus ambient temperature ($\delta = 0.33$).

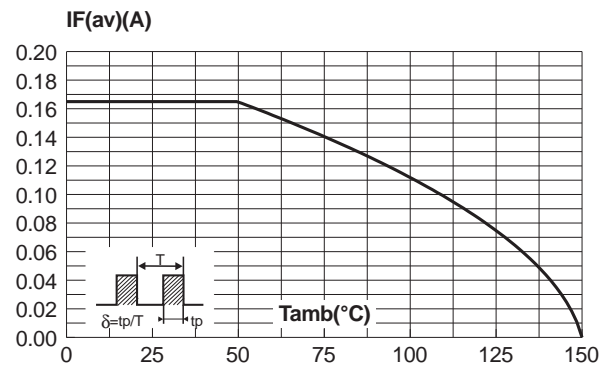


Fig.3 : Non repetitive surge peak forward current versus overload duration (maximum values).

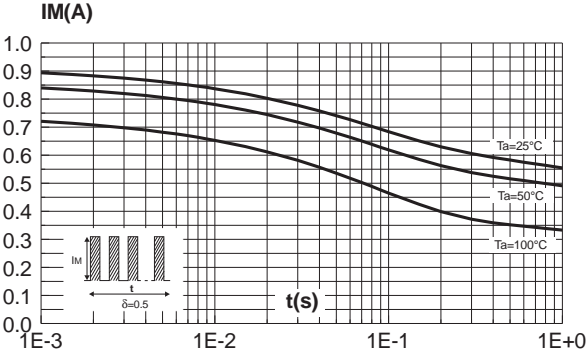


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration (alumine substrate 10mm x 8mm x 0.5mm).

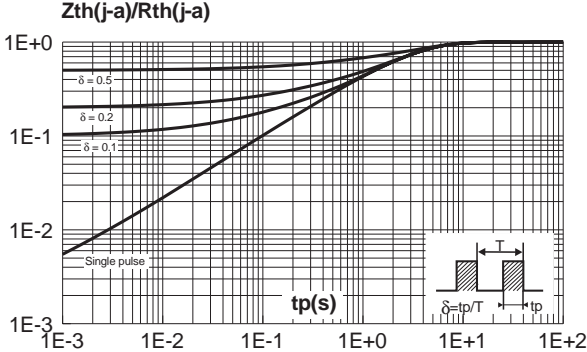


Fig.5 : Reverse leakage current versus reverse voltage applied (typical values).

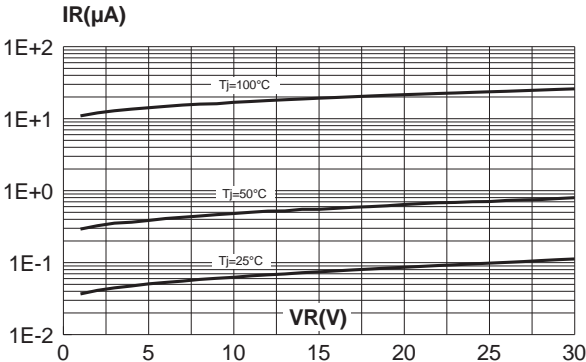


Fig.6 : Junction capacitance versus reverse voltage applied.

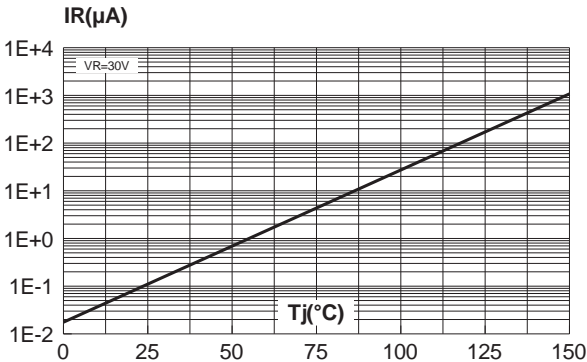


Fig.7 : Junction capacitance versus reverse voltage applied (typical values).

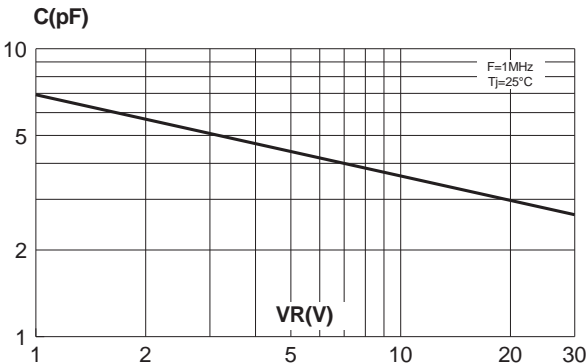
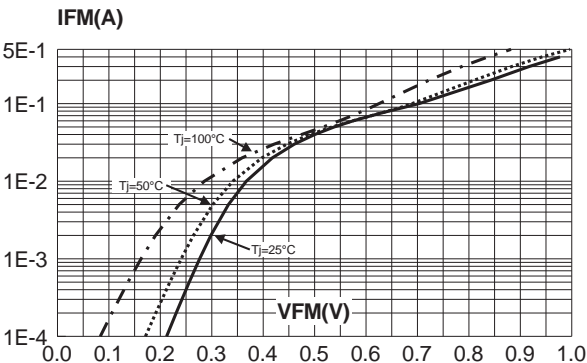
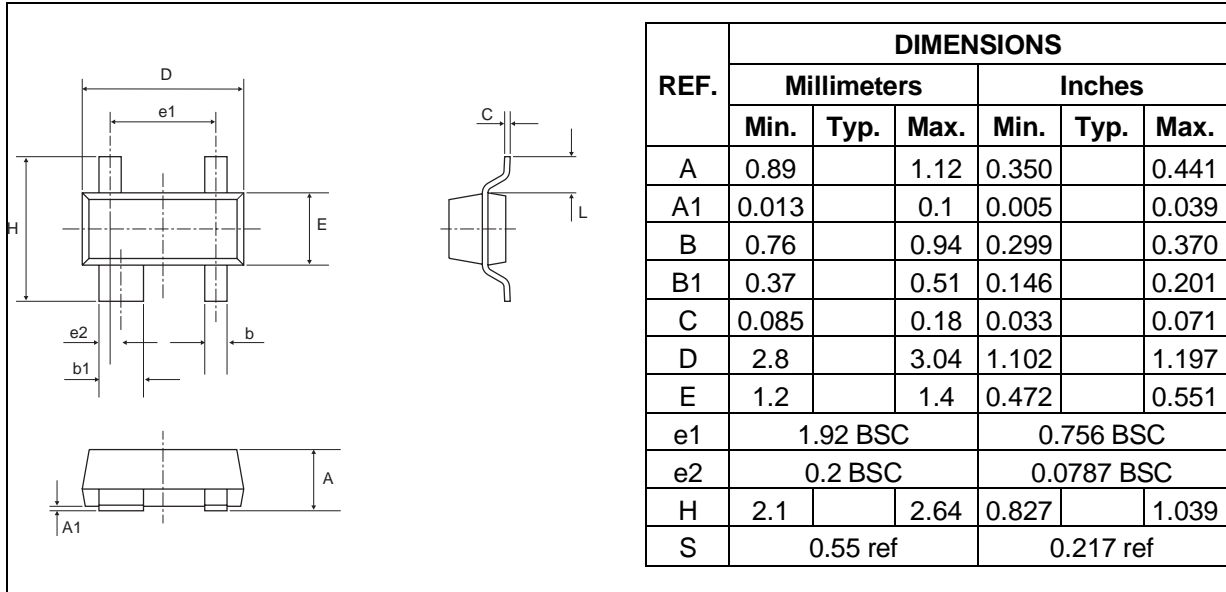


Fig.8 : Forward voltage drop versus forward current (typical values).



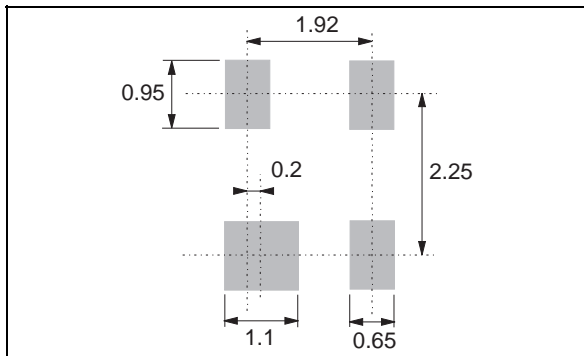
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PACKAGE MECHANICAL DATA SOT-143



FOOTPRINT DIMENSIONS

(in millimeters)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
BAT74	D89	SOT-143	0.01g	3000	Tape & reel

■ Epoxy meets UL94,V0

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