

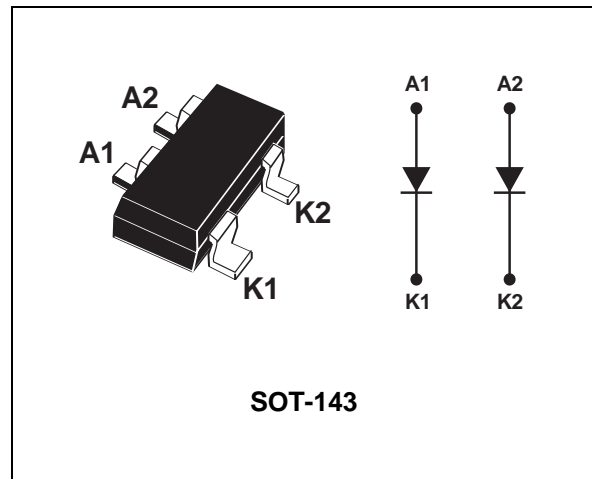
SMALL SIGNAL SCHOTTKY DIODE

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	°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.

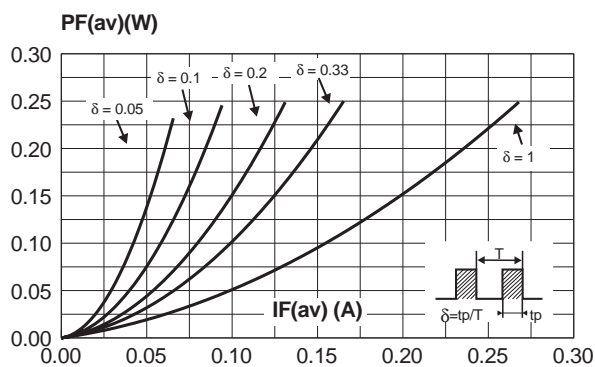


Fig.2 : Average forward current versus ambient temperature ($\delta = 0.33$).

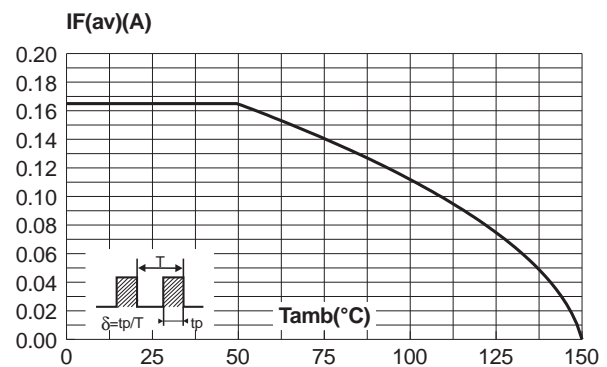


Fig.3 : Non repetitive surge peak forward current versus overload duration (maximum values).

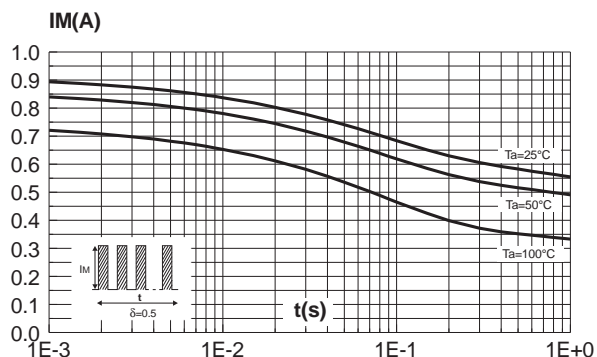


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration (alumine substrate 10mm x 8mm x 0.5mm).

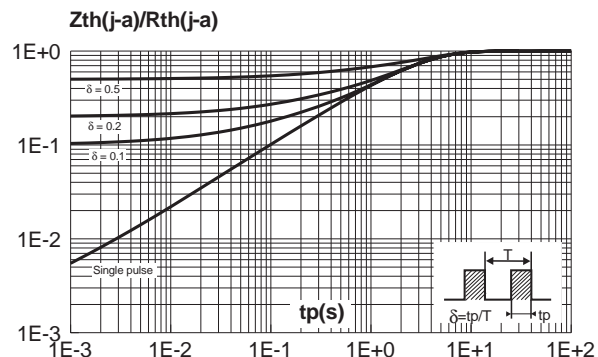


Fig.5 : Reverse leakage current versus reverse voltage applied (typical values).

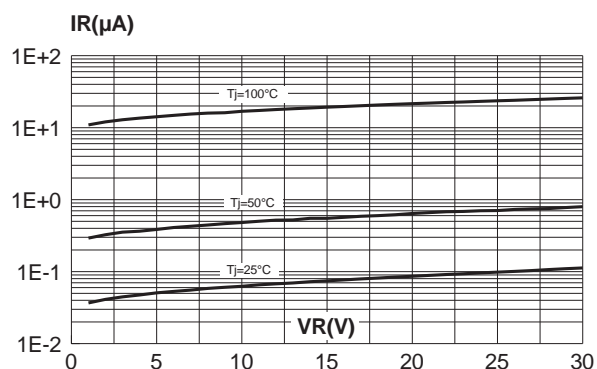


Fig.6 : Junction capacitance versus reverse voltage applied.

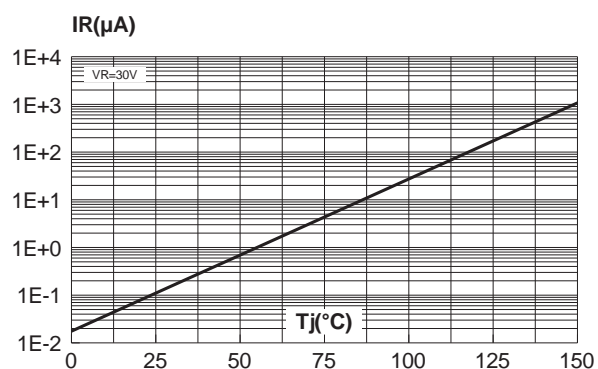


Fig.7 : Junction capacitance versus reverse voltage applied (typical values).

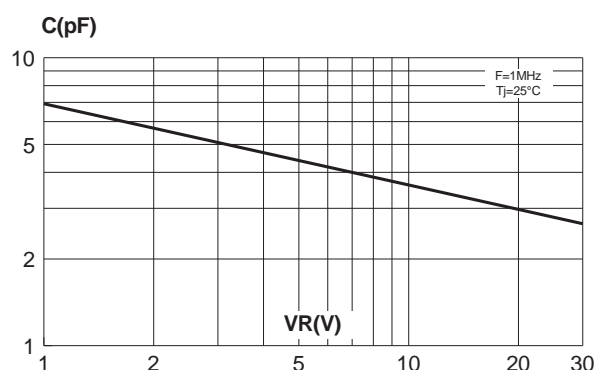
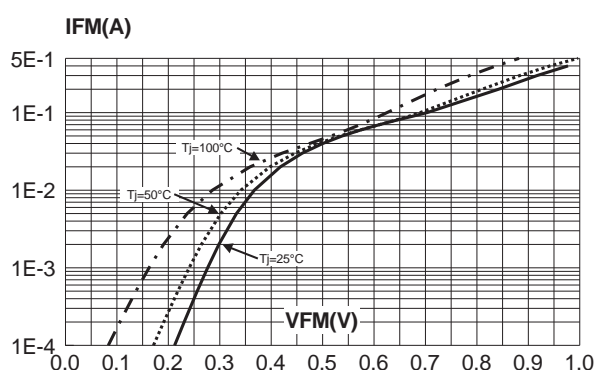


Fig.8 : Forward voltage drop versus forward current (typical values).



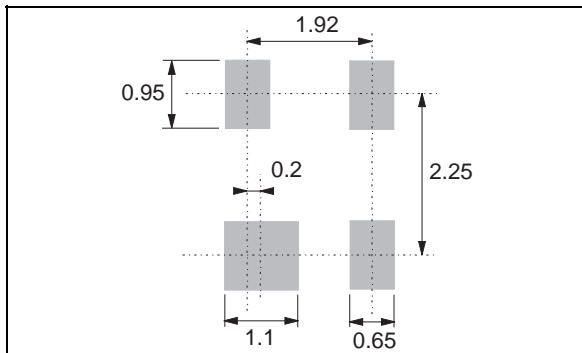
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PACKAGE MECHANICAL DATA SOT-143

REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.89		1.12	0.350		0.441
A1	0.013		0.1	0.005		0.039
B	0.76		0.94	0.299		0.370
B1	0.37		0.51	0.146		0.201
C	0.085		0.18	0.033		0.071
D	2.8		3.04	1.102		1.197
E	1.2		1.4	0.472		0.551
e1	1.92 BSC			0.756 BSC		
e2	0.2 BSC			0.0787 BSC		
H	2.1		2.64	0.827		1.039
S	0.55 ref			0.217 ref		

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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