

Rectifier diodes schottky barrier

PBYR30100PT series

GENERAL DESCRIPTION

Dual, low leakage, platinum barrier schottky rectifier diodes in a plastic envelope featuring low forward voltage drop and absence of stored charge. These devices can withstand reverse voltage transients and have guaranteed reverse surge capability. The devices are intended for use in switched mode power supplies and high frequency circuits in general where low conduction and zero switching losses are important.

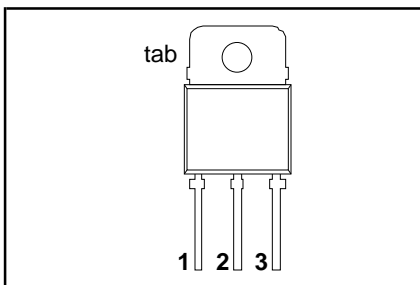
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
		60PT	80PT	100PT	
V_{RRM}	Repetitive peak reverse voltage	60	80	100	V
V_F	Forward voltage	0.7	0.7	0.7	V
$I_{O(AV)}$	Output current (both diodes conducting)	30	30	30	A

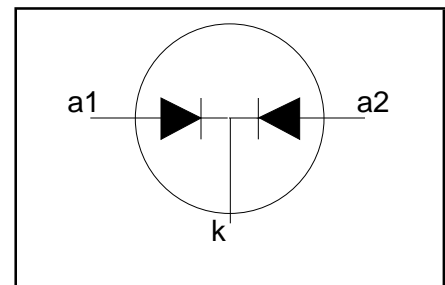
PINNING - SOT93

PIN	DESCRIPTION
1	Anode 1 (a)
2	Cathode (k)
3	Anode 2 (a)
tab	Cathode (k)

PIN CONFIGURATION



SYMBOL



LIMITING VALUES

Limiting values in accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
V_{RRM}	Repetitive peak reverse voltage		-	-60	-80	-100	V
V_{RWM}	Crest working reverse voltage		-	60	80	100	V
V_R	Continuous reverse voltage	$T_{mb} \leq 139^\circ\text{C}$	-	60	80	100	V
$I_{O(AV)}$	Output current (both diodes conducting) ¹	square wave; $\delta = 0.5$; $T_{mb} \leq 124^\circ\text{C}$	-	30			A
$I_{O(RMS)}$	RMS forward current		-	43			A
I_{FRM}	Repetitive peak forward current per diode	$t = 25\ \mu\text{s}$; $\delta = 0.5$; $T_{mb} \leq 124^\circ\text{C}$	-	30			A
I_{FSM}	Non-repetitive peak forward current per diode.	$t = 10\ \text{ms}$	-	180			A
		$t = 8.3\ \text{ms}$	-	200			A
		sinusoidal; $T_j = 125^\circ\text{C}$ prior to surge; with reapplied					
I^2t	I^2t for fusing	$V_{RWM(max)}$ $t = 10\ \text{ms}$	-	162			A ² s
I_{RRM}	Repetitive peak reverse current per diode.	$t_p = 2\ \mu\text{s}$; $\delta = 0.001$	-	1			A
I_{RSM}	Non-repetitive peak reverse current per diode.	$t_p = 100\ \mu\text{s}$	-	1			A
T_{stg}	Storage temperature		-65	175			°C
T_j	Operating junction temperature		-	150			°C

¹ For output currents in excess of 20 A connection should be made to the exposed metal mounting base.

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THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base	per diode	-	-	1.4	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	both diodes in free air.	-	-	1.0	K/W
			-	45	-	K/W

STATIC CHARACTERISTICS

$T_j = 25\text{ °C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	Forward voltage (per diode)	$I_F = 15\text{ A}; T_j = 125\text{ °C}$	-	0.61	0.70	V
		$I_F = 30\text{ A}; T_j = 125\text{ °C}$	-	0.74	0.85	V
		$I_F = 15\text{ A}; T_j = 25\text{ °C}$	-	0.77	0.85	V
I_R	Reverse current (per diode)	$V_R = V_{RWM}; T_j = 25\text{ °C}$	-	5.0	150	μA
		$V_R = V_{RWM}; T_j = 125\text{ °C}$	-	5.0	15	mA
C_d	Junction capacitance (per diode)	$f = 1\text{ MHz}; V_R = 5\text{ V}; T_j = 25\text{ °C to }125\text{ °C}$	-	600	-	pF

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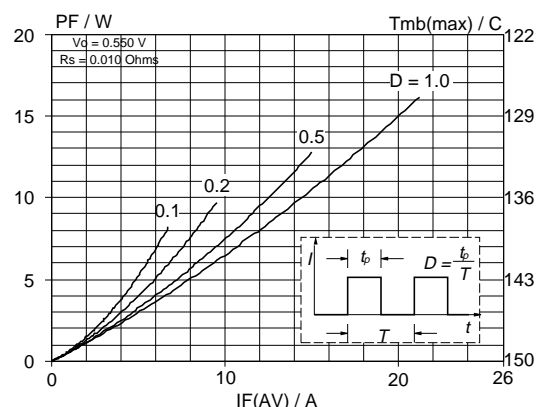


Fig.1. Maximum forward dissipation $P_F = f(I_{F(AV)})$ per diode; square current waveform where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.

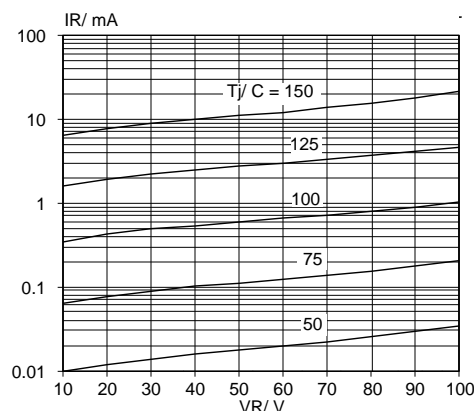


Fig.4. Typical reverse leakage current per diode; $I_R = f(V_R)$; parameter T_j

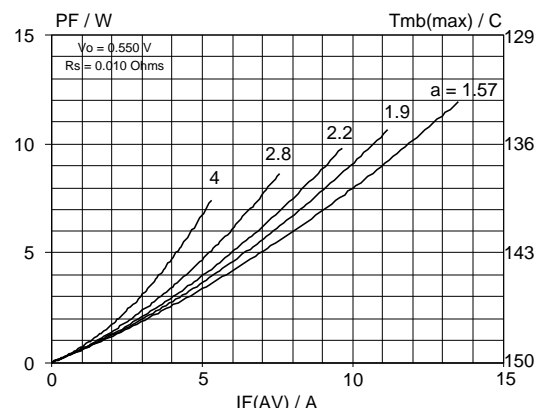


Fig.2. Maximum forward dissipation $P_F = f(I_{F(AV)})$ per diode; sinusoidal current waveform where $a = \text{form factor} = I_{F(RMS)} / I_{F(AV)}$.

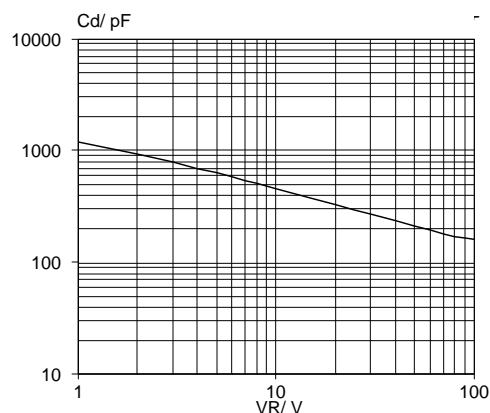


Fig.5. Typical junction capacitance per diode; $C_d = f(V_R)$; $f = 1 \text{ MHz}$; $T_j = 25^\circ\text{C}$ to 125°C .

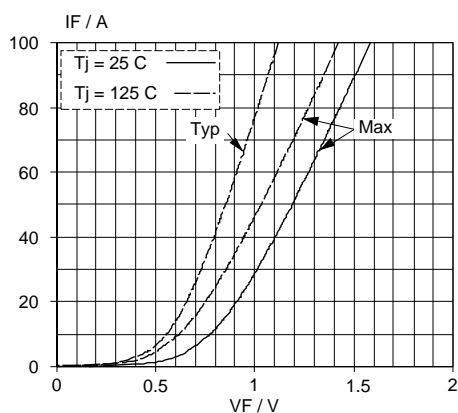


Fig.3. Typical and maximum forward characteristic per diode; $I_F = f(V_F)$; parameter T_j

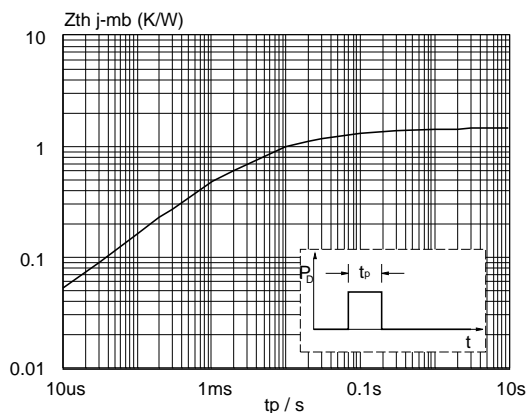


Fig.6. Transient thermal impedance per diode; $Z_{th j-mb} = f(t_p)$.

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MECHANICAL DATA

Dimensions in mm

Net Mass: 5 g

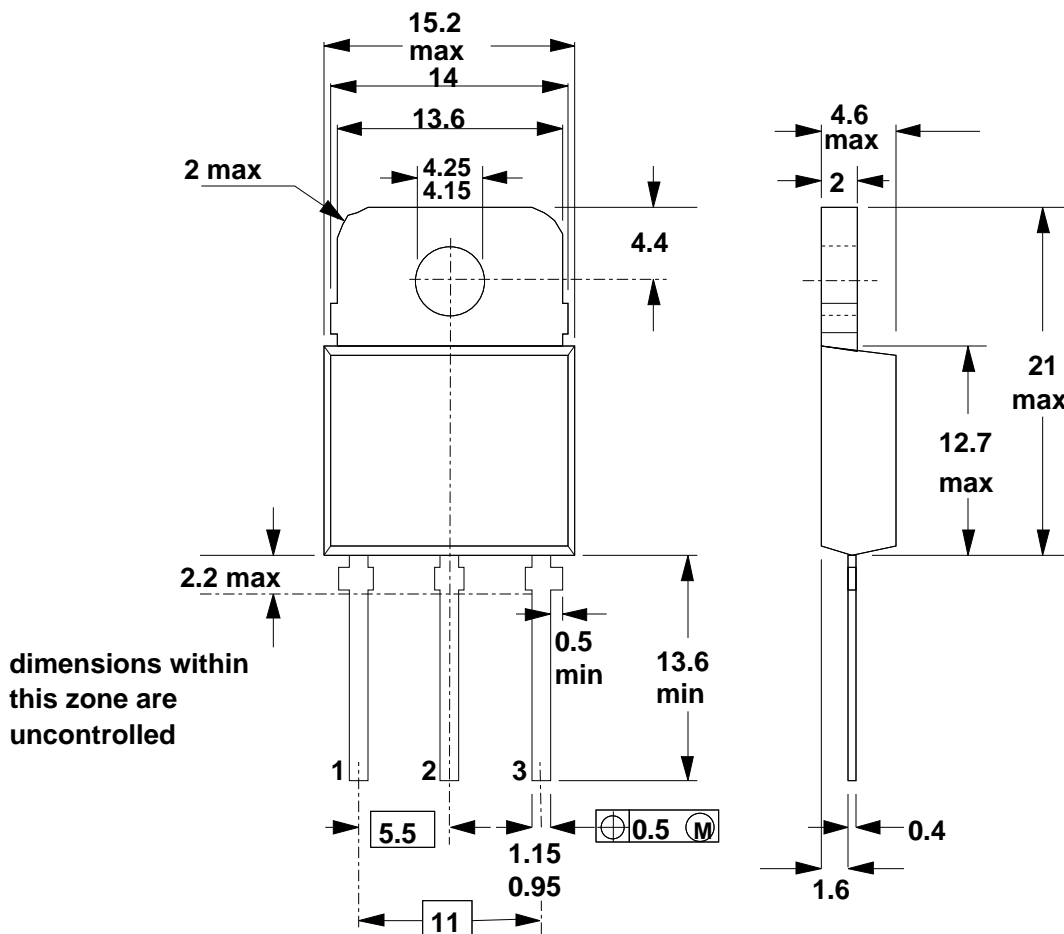


Fig.7. SOT93; pin 2 connected to mounting base.

Notes

1. Accessories supplied on request: refer to mounting instructions for SOT93 envelope.
2. Epoxy meets UL94 V0 at 1/8".

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DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values are given in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of this specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	
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