

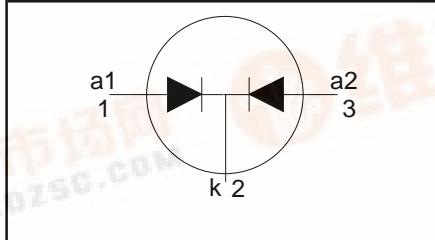
Rectifier diodes  
Schottky barrier

## PBYL3025CT, PBYL3025CTB series

## FEATURES

- Low forward volt drop
- Fast switching
- Reverse surge capability
- High thermal cycling performance
- Low thermal resistance

## SYMBOL



## QUICK REFERENCE DATA

$V_R = 20 \text{ V} / 25 \text{ V}$   
 $I_{O(AV)} = 30 \text{ A}$   
 $V_F \leq 0.43 \text{ V}$

## GENERAL DESCRIPTION

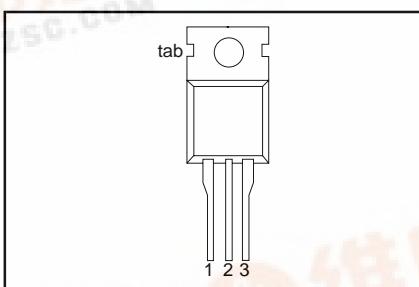
Dual schottky rectifier diodes intended for use as output rectifiers in low voltage, high frequency switched mode power supplies.

The PBYL3025CT series is supplied in the SOT78 (TO220AB) conventional leaded package.  
The PBYL3025CTB series is supplied in the SOT404 surface mounting package.

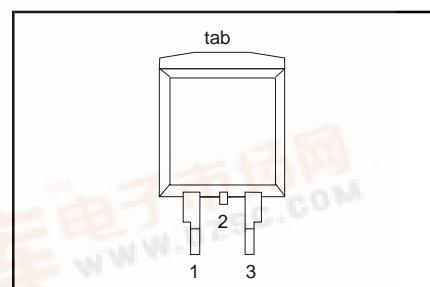
## PINNING

PIN	DESCRIPTION
1	gate
2	drain <sup>1</sup>
3	source
tab	drain

## SOT78 (TO220AB)



## SOT404



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{RRM}$	Peak repetitive reverse voltage	PBYL30 PBYL30	-	20CT 20CTB	V
$V_{RWM}$	Working peak reverse voltage		-	20	V
$V_R$	Continuous reverse voltage	$T_{mb} \leq 120 \text{ }^\circ\text{C}$	-	20	V
$I_{O(AV)}$	Average rectified output current (both diodes conducting)	square wave; $\delta = 0.5$ ; $T_{mb} \leq 123 \text{ }^\circ\text{C}$	-	30	A
$I_{FRM}$	Repetitive peak forward current per diode	square wave; $\delta = 0.5$ ; $T_{mb} \leq 123 \text{ }^\circ\text{C}$	-	30	A
$I_{FSM}$	Non-repetitive peak forward current per diode	$t = 10 \text{ ms}$ $t = 8.3 \text{ ms}$ sinusoidal; $T_j = 125 \text{ }^\circ\text{C}$ prior to surge; with reapplied $V_{RRM(max)}$ pulse width and repetition rate limited by $T_{j max}$	- -	135 150	A
$I_{RRM}$	Peak repetitive reverse surge current per diode		-	1	A
$T_j$	Operating junction temperature		-	150	$^\circ\text{C}$
	Storage temperature		- 65	175	$^\circ\text{C}$

1. It is not possible to make connection to pin 2 of the SOT404 package.

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**THERMAL RESISTANCES**

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j\cdot mb}$	Thermal resistance junction to mounting base	per diode	-	-	2	K/W
$R_{th\ j\cdot a}$	Thermal resistance junction to ambient	both diodes SOT78 package, in free air SOT404 package, pcb mounted, minimum footprint, FR4 board	- - - -	- 60 50	1.5 - -	K/W K/W K/W K/W

**ELECTRICAL CHARACTERISTICS**All characteristics are per diode at  $T_j = 25^\circ\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_F$	Forward voltage	$I_F = 15\text{ A}; T_j = 150^\circ\text{C}$ $I_F = 15\text{ A}; T_j = 125^\circ\text{C}$ $I_F = 30\text{ A}; T_j = 125^\circ\text{C}$ $I_F = 30\text{ A}$	- - - -	0.35 0.38 0.52 0.6	0.43 0.46 0.6 0.67	V V V V
$I_R$	Reverse current	$V_R = V_{RWM}$ $V_R = V_{RWM}; T_j = 100^\circ\text{C}$	-	1	5	mA
$C_d$	Junction capacitance	$V_R = 5\text{ V}; f = 1\text{ MHz}, T_j = 25^\circ\text{C to } 125^\circ\text{C}$	-	22 700	40 -	mA pF

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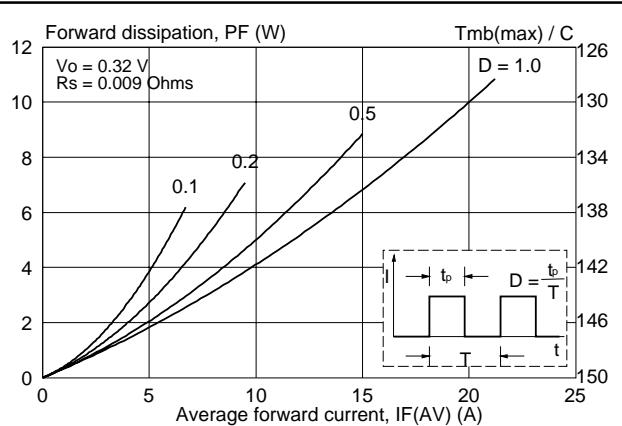


Fig.1. Maximum forward dissipation  $P_F = f(I_{F(AV)})$  per diode; square current waveform where  
 $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$ .

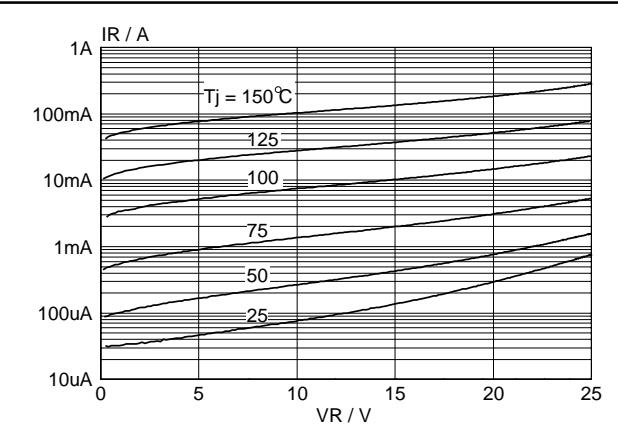


Fig.4. Typical reverse leakage current per diode;  
 $I_R = f(V_R)$ ; parameter  $T_j$

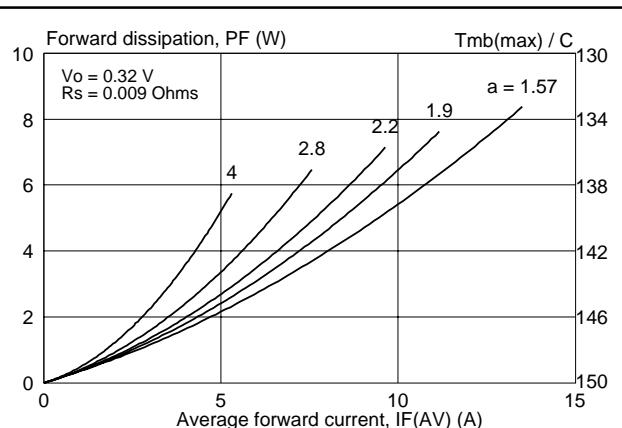


Fig.2. Maximum forward dissipation  $P_F = f(I_{F(AV)})$  per diode; sinusoidal current waveform where  $a = \text{form factor} = I_{F(RMS)} / I_{F(AV)}$ .

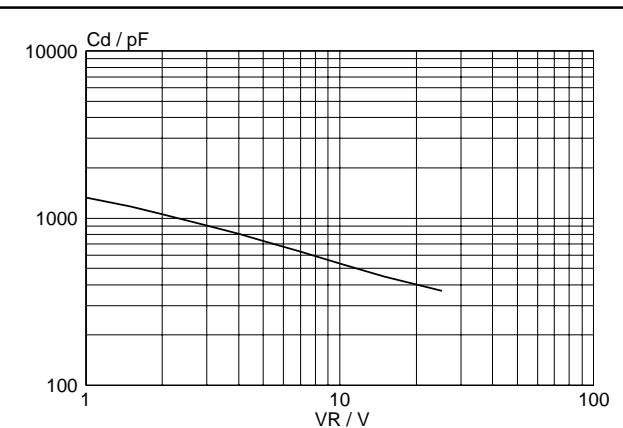


Fig.5. Typical junction capacitance per diode;  
 $C_d = f(V_R)$ ;  $f = 1 \text{ MHz}$ ;  $T_j = 25^\circ C$  to  $125^\circ C$ .

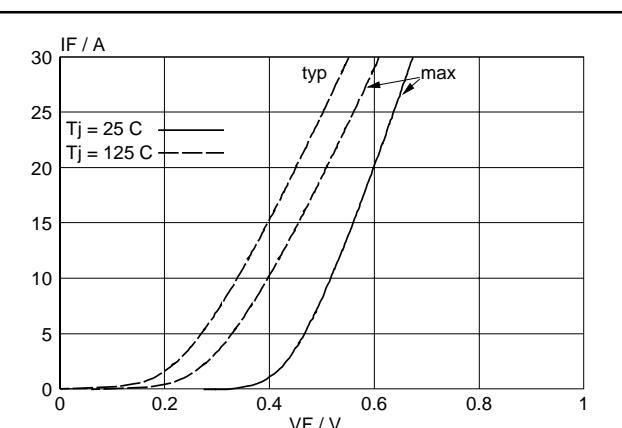


Fig.3. Typical and maximum forward characteristic  $I_F = f(V_F)$ ; parameter  $T_j$

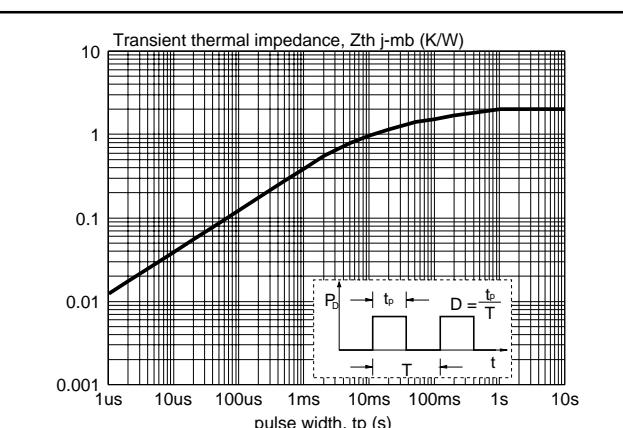


Fig.6. Transient thermal impedance per diode;  
 $Z_{th j-mb} = f(t_p)$ .

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## MECHANICAL DATA

Dimensions in mm

Net Mass: 2 g

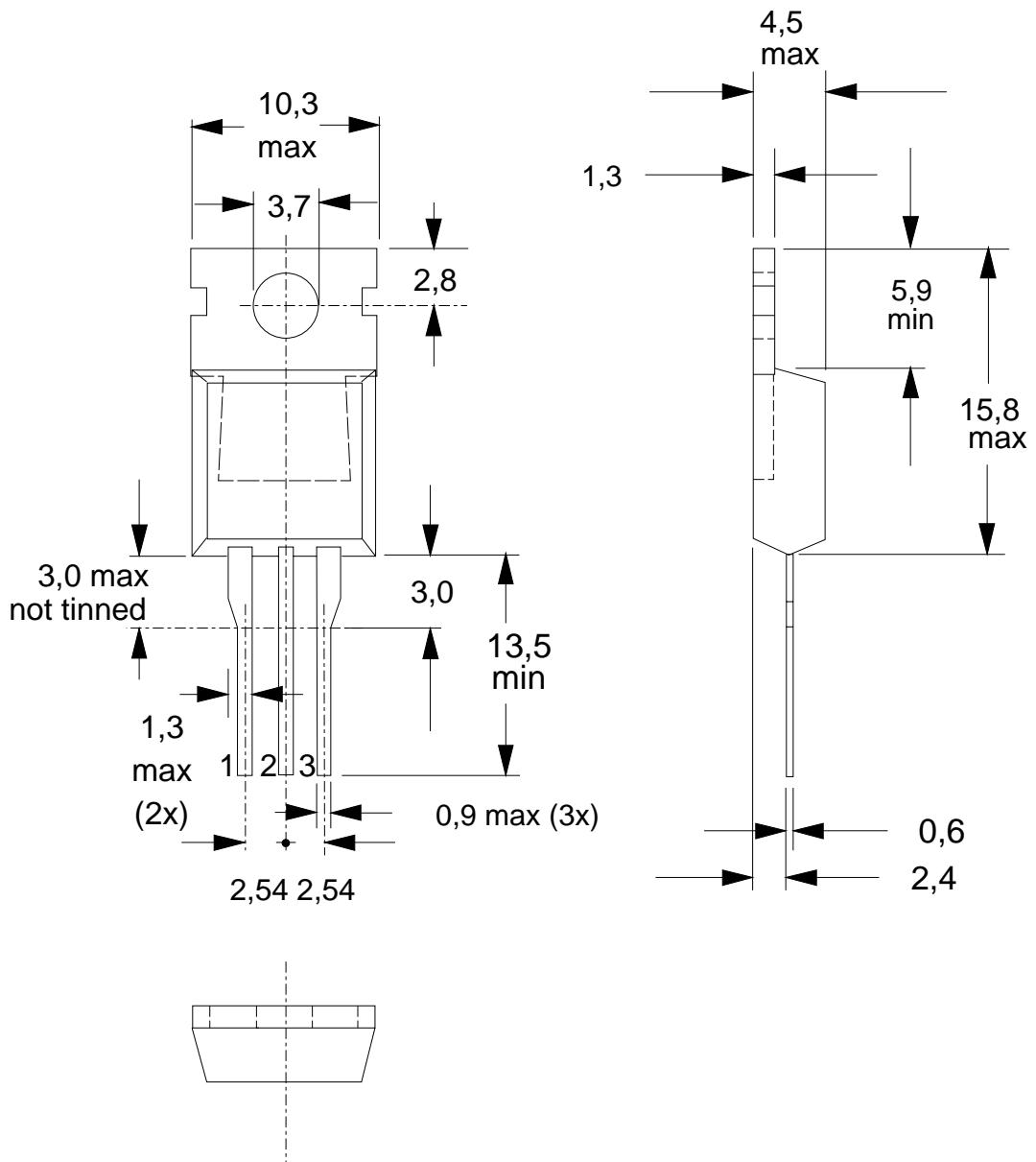


Fig.7. SOT78 (TO220AB); pin 2 connected to mounting base.

## Notes

1. Refer to mounting instructions for SOT78 (TO220) envelopes.
2. Epoxy meets UL94 V0 at 1/8".

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## MECHANICAL DATA

Dimensions in mm

Net Mass: 1.4 g

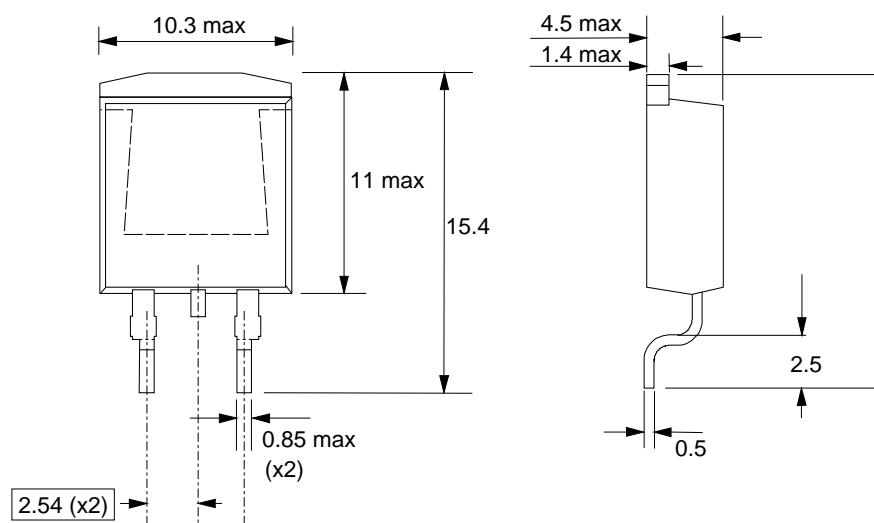


Fig.8. SOT404 : centre pin connected to mounting base.

## MOUNTING INSTRUCTIONS

Dimensions in mm

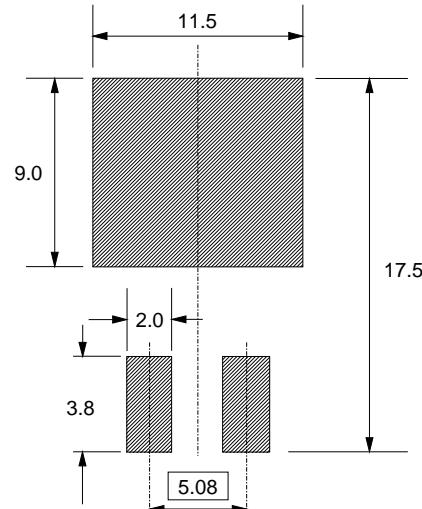


Fig.9. SOT404 : soldering pattern for surface mounting.

## Notes

1. Epoxy meets UL94 V0 at 1/8".

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## DEFINITIONS

<b>Data sheet status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	
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