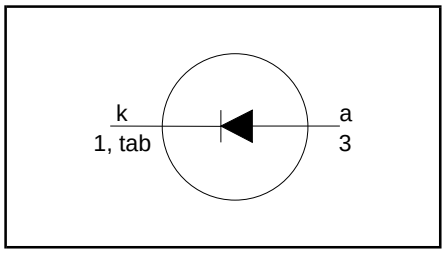
Rectifier diodes Schottky barrier

PBYL1620, PBYL1620B PBYL1625, PBYL1625B

FEATURES

- Low forward voltage drop
- Repetitive ruggedness rated
- Very high efficiency
- Extremely fast switching
- Guaranteed reliability
- 150˚C forward operation

SYMBOL



QUICK REFERENCE DATA

V_{RRM} = 20, 25 V

$V_F \leq 0.46$ V

$I_{F(AV)}$ = 16 A

GENERAL DESCRIPTION

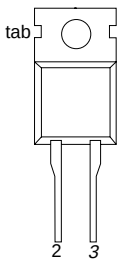
Nickel silicide schottky barrier rectifier diodes in a plastic envelope. The devices are intended for use in switched mode power supplies, high frequency DC - DC converters or as or-ing diodes in fault tolerant power supply systems.

The PBYL1625 series is supplied in the SOD59 (TO220AC) conventional leaded package.
The PBYL1625B series is supplied in the SOT404 surface mounting package.

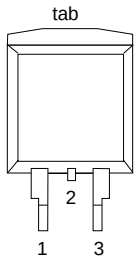
PINNING

PIN	DESCRIPTION
1	no connection
2	cathode (k)
3	anode (a)
tab	cathode (k)

SOD59 (TO220AC)



SOT404



LIMITING VALUES

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

PARAMETER	CONDITIONS	SYMBOL	MIN.	MAX.		UNIT
				-20	-25	
Repetitive peak reverse voltage		V_{RRM}	-	20	25	V
Continuous reverse voltage	$T_{mb} \leq 134$ ˚C	V_R	-	20	25	V
Average forward current	square wave; $\delta = 0.5$; $T_{mb} \leq 128$ ˚C	$I_{F(AV)}$	-	16		A
RMS forward current		$I_{F(RMS)}$	-	22.6		A
Repetitive peak forward current	t = 25 µs; $\delta = 0.5$; $T_{mb} \leq 128$ ˚C	I_{FRM}	-	32		A
Non-repetitive peak forward current	t = 10 ms t = 8.3 ms sinusoidal T_j = 125 ˚C prior to surge; with reapplied $V_{RRM(max)}$	I_{FSM}	- -	135 150		A A
Repetitive peak reverse current	t_p = 2 µs; $\delta = 0.001$	I_{RRM}	-	1		A
Storage temperature		T_{stg}	-65	175		˚C
Operating junction temperature		T_j	-	150		˚C

THERMAL RESISTANCES

PARAMETER	CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Thermal resistance junction to mounting base		$R_{th\ j\text{-}mb}$	-	-	2.0	K/W
Thermal resistance junction to ambient	in free air	$R_{th\ j\text{-}a}$	-	60	-	K/W

CHARACTERISTICS

T_j = 25 ˚C unless otherwise stated

PARAMETER	CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I_F = 16 A; T_j = 150˚C	V_F	-	0.42	0.46	V
	I_F = 32 A; T_j = 150˚C		-	0.60	0.66	V
	I_F = 32 A		-	0.55	0.68	V
Reverse current	$V_R = V_{RRM}$	I_R	-	1.0	5.0	mA
	$V_R = V_{RRM}$; T_j = 100 ˚C		-	22	40	mA
Junction capacitance	f = 1MHz; V_R = 5V; T_j = 25 ˚C to 125 ˚C	C_d	-	700	-	pF
Internal cathode inductance	Measured from tab to centre of die	L_k	-	3.5	-	nH
Internal cathode inductance	Measured from cathode lead solder point to centre of die	L_k	-	4.5	-	nH
Internal anode inductance	Measured from anode lead solder point to centre of die	L_a	-	7.5	-	nH

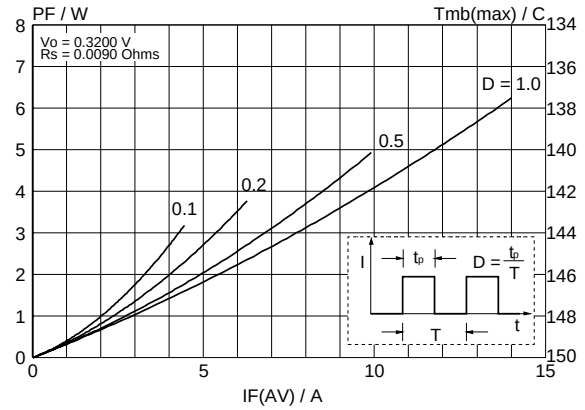


Fig.1. Maximum forward dissipation $P_F = f(I_{F(AV)})$; square current waveform where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.

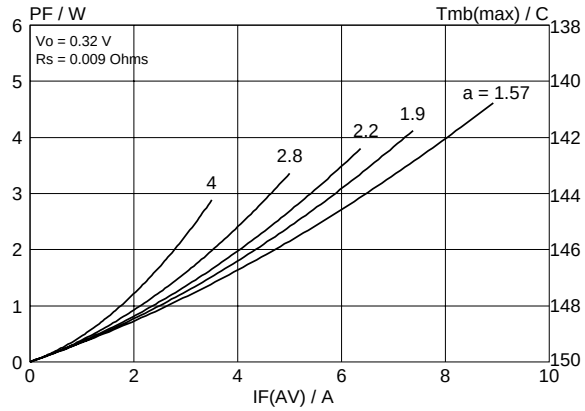


Fig.2. Maximum forward dissipation $P_F = f(I_{F(AV)})$; square current waveform where $I_{F(AV)} = I_{F(RMS)} \times \sqrt{D}$.

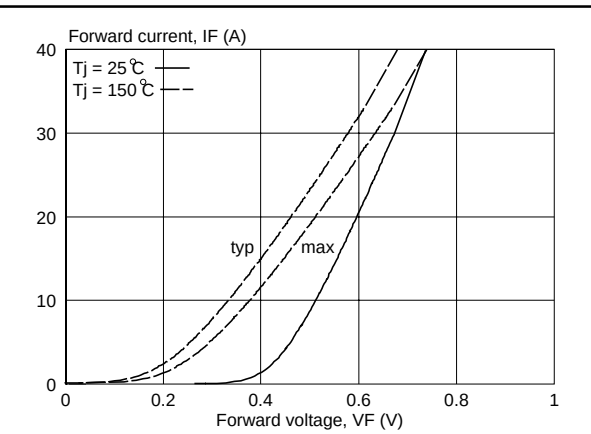


Fig.3. Typical and maximum forward characteristic $I_F = f(V_F)$; parameter T_j

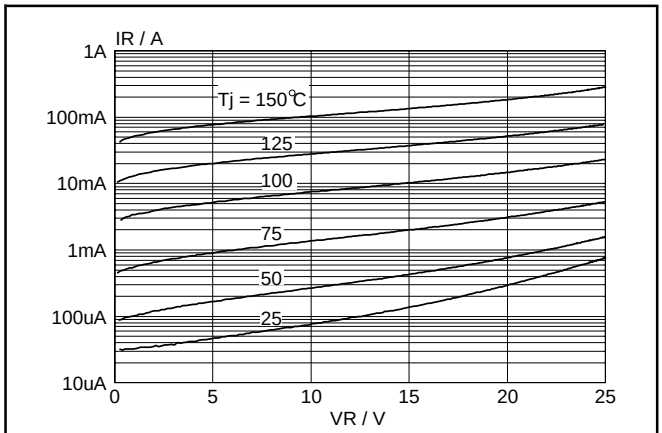


Fig.4. Typical reverse leakage current; $I_R = f(V_R)$; parameter T_j

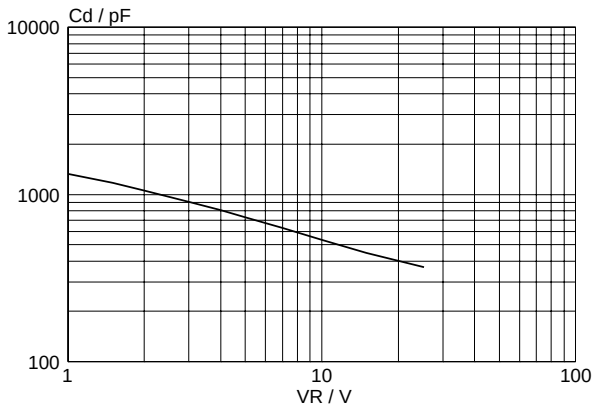


Fig.5. Typical junction capacitance; $C_d = f(V_R)$; f = 1 MHz; T_j = 25˚C to 125 ˚C.

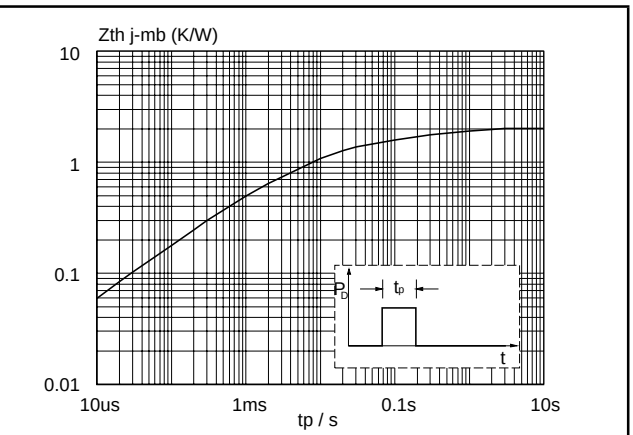


Fig.6. Transient thermal impedance; $Z_{th\ j\text{-}mb} = f(t_p)$.

MECHANICAL DATA

Dimensions in mm

Net Mass: 2 g

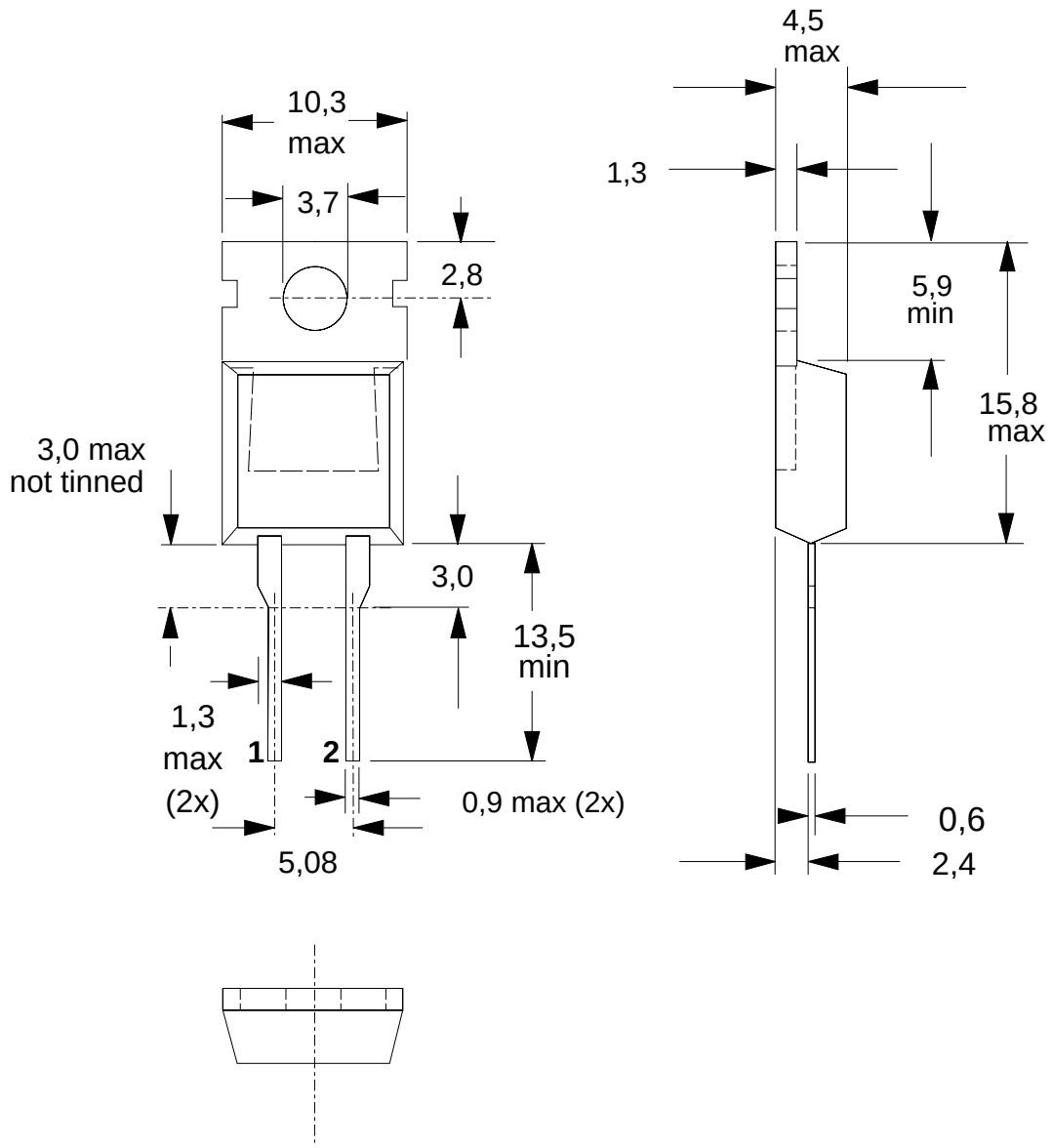


Fig.7. TO220AC; pin 1 connected to mounting base.

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

MECHANICAL DATA

Dimensions in mm

Net Mass: 1.4 g

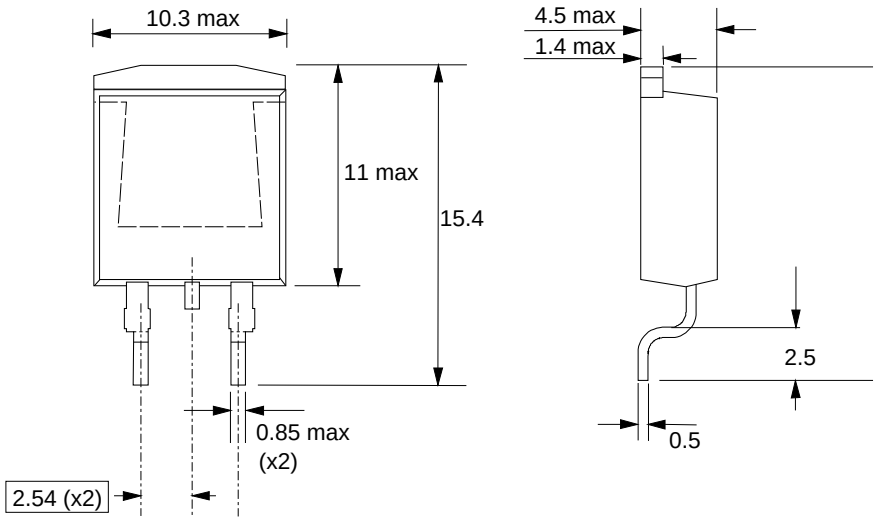


Fig.8. SOT404 : centre pin connected to mounting base.

MOUNTING INSTRUCTIONS

Dimensions in mm

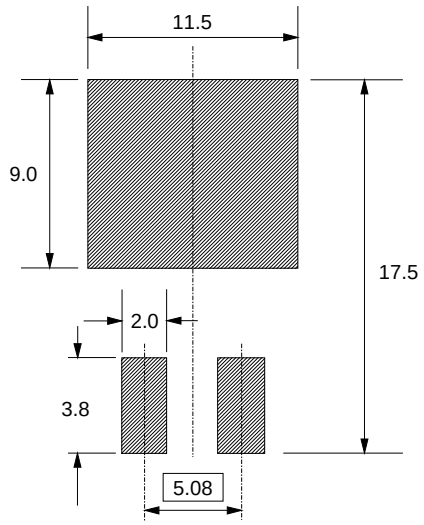


Fig.9. SOT404 : soldering pattern for surface mounting.

Notes

1. Observe the general handling precautions for electrostatic-discharge sensitive devices (ESDs) to prevent damage to MOS gate oxide.
2. Epoxy meets UL94 V0 at 1/8".

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.	

LIFE SUPPORT APPLICATIONS

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