

## Silicon PNP Power Transistors

2SB1509

## DESCRIPTION

- With TO-3PML package
- Low collector saturation voltage
- Complement to type 2SD2282
- Wide area of safe operation

## APPLICATIONS

- For use in relay drivers ,high-speed Inverters,converters

## PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

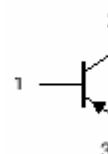


Fig.1 simplified outline (TO-3PML) and symbol

Absolute maximum ratings ( $T_a=25^\circ\text{C}$ )

SYMBOL	PARAMETER	CONDITIONS	MAX	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	-60	V
$V_{CEO}$	Collector-emitter voltage	Open base	-50	V
$V_{EBO}$	Emitter-base voltage	Open collector	-6	V
$I_C$	Collector current		-15	A
$I_{CM}$	Collector current-peak		-30	A
$P_C$	Collector power dissipation	$T_a=25^\circ\text{C}$	3.0	W
		$T_C=25^\circ\text{C}$	50	
$T_j$	Junction temperature		150	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-55~150	$^\circ\text{C}$

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## CHARACTERISTICS

T<sub>j</sub>=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	I <sub>C</sub> =-1mA ; R <sub>BE</sub> =∞	-50			V
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =-1mA ; I <sub>E</sub> =0	-60			V
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage	I <sub>E</sub> =-1mA ; I <sub>C</sub> =0	-6			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-8A ; I <sub>B</sub> =-0.4A		-0.26	-0.5	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =-40V ; I <sub>E</sub> =0			-100	μA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =-4V ; I <sub>C</sub> =0			-100	μA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =-1A ; V <sub>CE</sub> =-2V	70		280	
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =-8A ; V <sub>CE</sub> =-2V	30			
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =-1A ; V <sub>CE</sub> =-5V		20		MHz

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =-2A ; I <sub>B1</sub> =-I <sub>B2</sub> =-0.2A R <sub>L</sub> =10Ω ; V <sub>CC</sub> ≈20V		0.2		μs
t <sub>stg</sub>	Storage time			0.5		μs
t <sub>f</sub>	Fall time			0.1		μs

◆ h<sub>FE-1</sub> Classifications

Q	R	S
70-140	100-200	140-280

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## PACKAGE OUTLINE

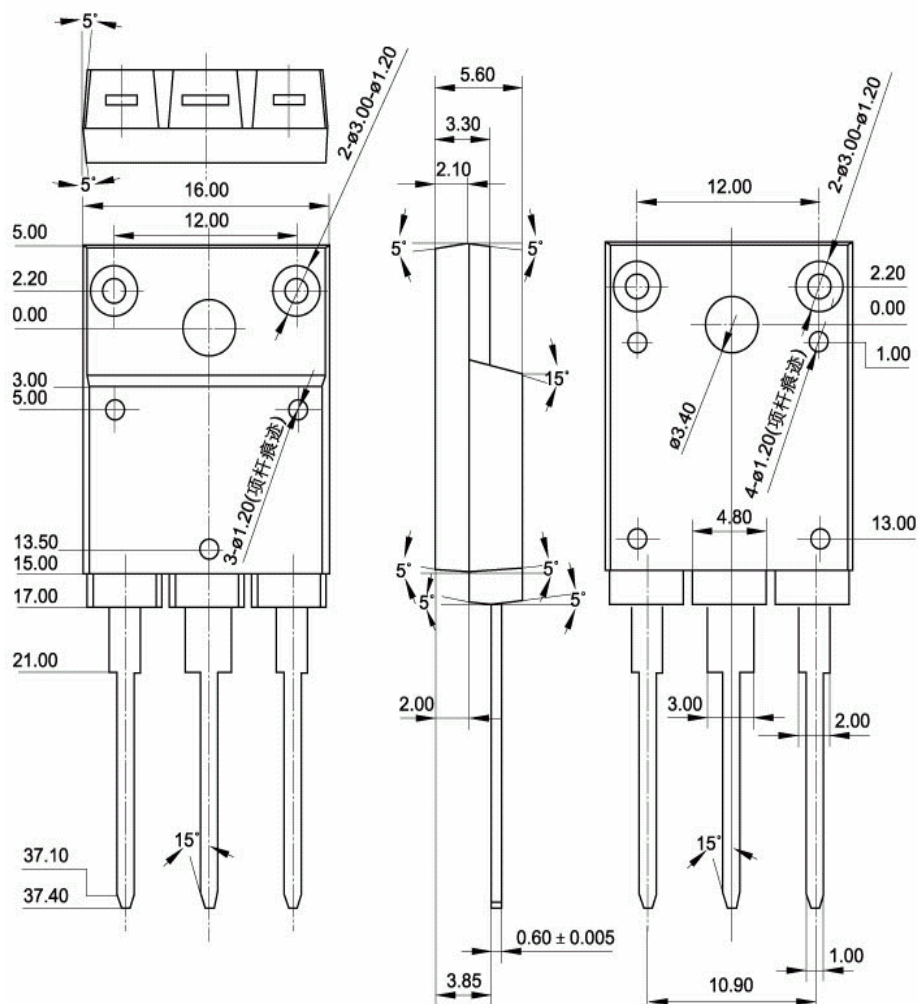


Fig.2 outline dimensions