

## Silicon PNP Power Transistors

2SB1228

## DESCRIPTION

- With TO-220F package
- Complement to type 2SD1830
- High DC current gain.
- Large current capacity and wide ASO.
- Low saturation voltage.
- DARLINGTON

## APPLICATIONS

- Suitable for use in control of motor drivers, printer hammer drivers, relay drivers, and constant-voltage regulators.

## PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

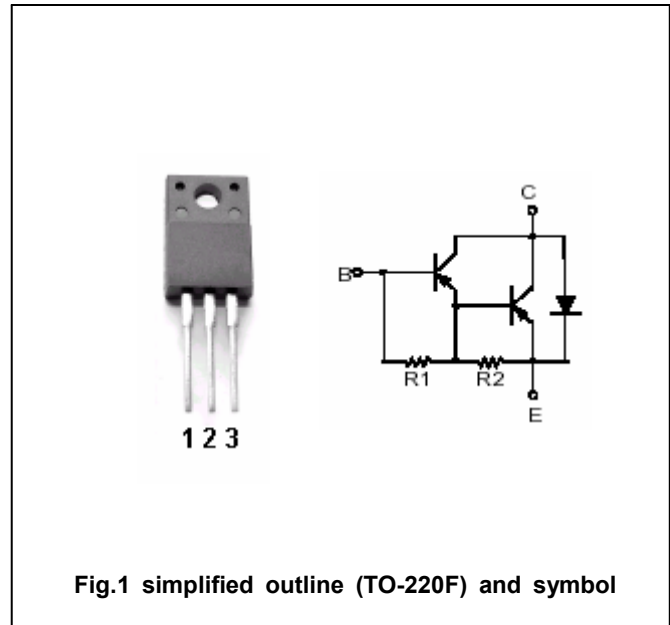


Fig.1 simplified outline (TO-220F) and symbol

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	-110	V
$V_{CEO}$	Collector-emitter voltage	Open base	-100	V
$V_{EBO}$	Emitter-base voltage	Open collector	-6	V
$I_C$	Collector current		-8	A
$I_{CM}$	Collector current-peak		-12	A
$P_C$	Collector dissipation	$T_C=25^\circ\text{C}$	20	W
			2	
$T_j$	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°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =-5mA; I <sub>E</sub> =0	-110			V
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	I <sub>C</sub> =-50mA; R <sub>BE</sub> =∞	-100			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-4A; I <sub>B</sub> =-8mA		-1.0	-1.5	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =-4A; I <sub>B</sub> =-8mA			-2.0	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =-80V; I <sub>E</sub> =0			-0.1	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =-5V; I <sub>C</sub> =0			-3.0	mA
h <sub>FE</sub>	DC current gain	I <sub>C</sub> =-4A; V <sub>CE</sub> =-3V	1500	4000		
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =-4A; V <sub>CE</sub> =-5V		20		MHz

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =500I <sub>B1</sub> =-500I <sub>B2</sub> =-4A V <sub>CC</sub> =-50V, R <sub>L</sub> =12.5Ω		0.7		μs
t <sub>stg</sub>	Storage time			1.4		μs
t <sub>f</sub>	Fall time			1.5		μs

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PACKAGE OUTLINE

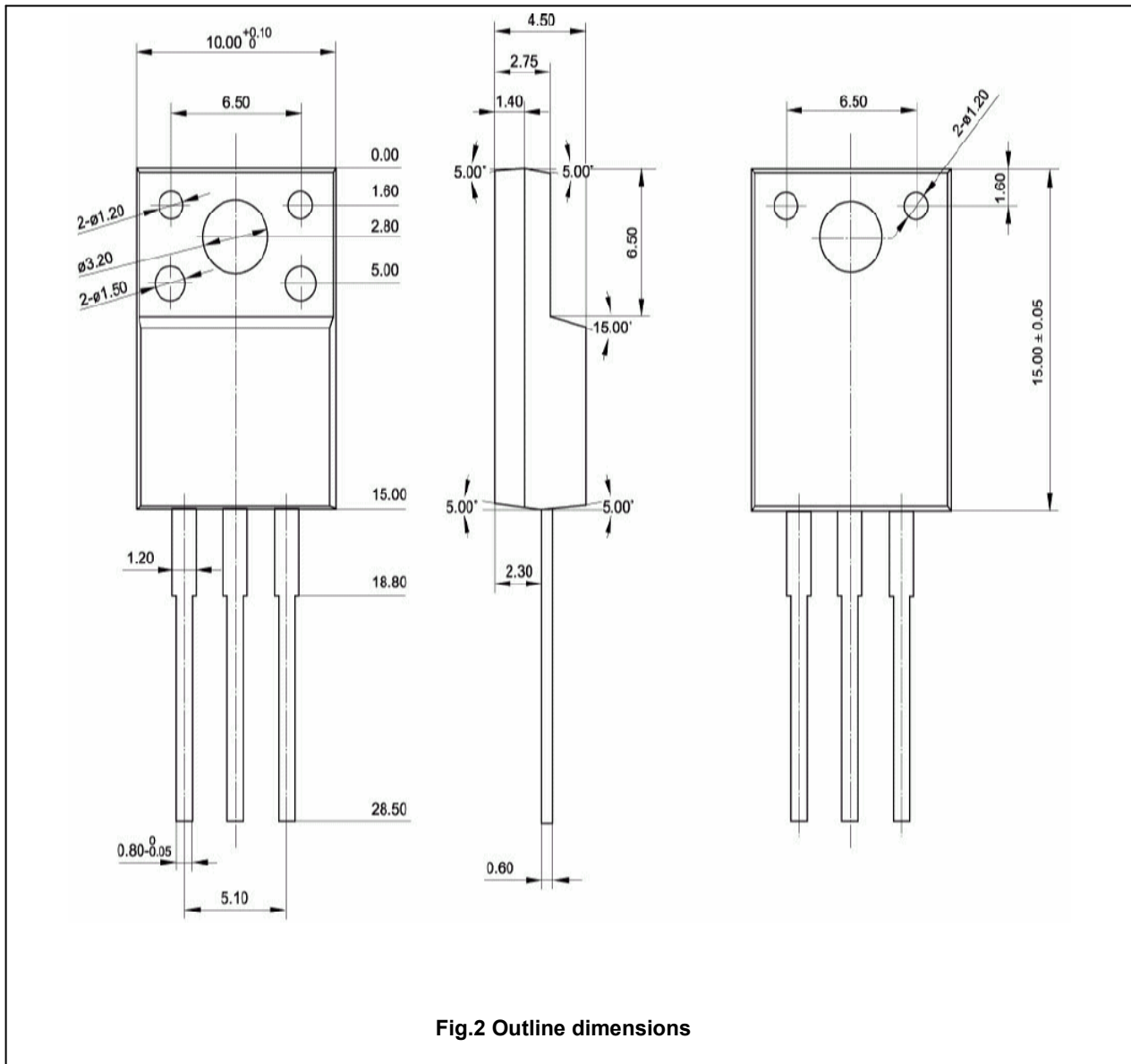


Fig.2 Outline dimensions