

Silicon NPN Power Transistors

2SD1409

DESCRIPTION

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- With TO-220Fa package
- High DC current gain
- DARLINGTON

APPLICATIONS

- Igniter applications
- High voltage switching applications

PINNING

PIN DE	SCRIPTION
1	Base
2	Collector
3	Emitter

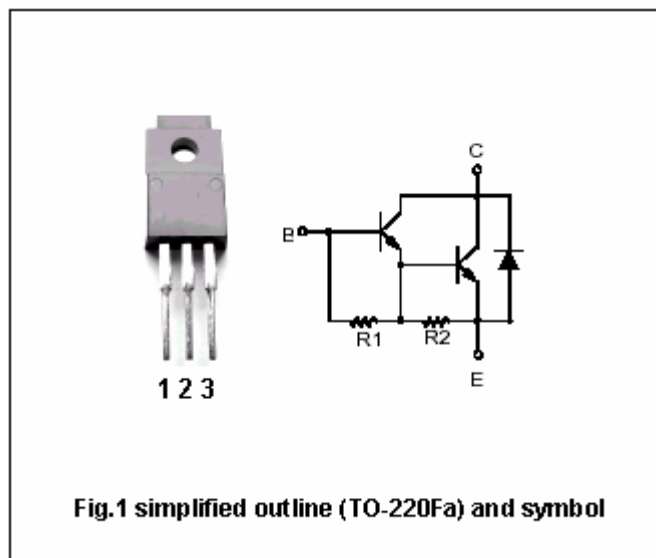


Fig.1 simplified outline (TO-220Fa) and symbol

Absolute maximum ratings(Ta=25°C)

SYMBOL P	ARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	Open emitter	600	V
V <sub>CEO</sub>	Collector -emitter voltage	Open base	400	V
V <sub>EBO</sub>	Emitter-base voltage	Open collector	5	V
I <sub>C</sub>	Collector current		6	A
I <sub>B</sub>	Base current		1	A
P <sub>C</sub>	Collector power dissipation	T <sub>C</sub> =25°C	25	W
		T <sub>a</sub> =25°C	2.0	
T <sub>j</sub>	Junction temperature		150	°C
T <sub>stg</sub>	Storage temperature		-55~150	°C

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## CHARACTERISTICS

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 $T_j=25^\circ\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=10\text{mA}; I_B=0$				V
$V_{CEsat}$	Collector-emitter saturation voltage	$I_C=4\text{A}; I_B=0.04\text{A}$			2.0	V
$V_{BEsat}$	Base-emitter saturation voltage	$I_C=4\text{A}; I_B=0.04\text{A}$			2.5	V
$V_{ECF}$	Emitter-collector diode forward voltage	$I_E=4\text{A}; I_B=0$			3.0	V
$I_{CBO}$	Collector cut-off current	$V_{CB}=600\text{V}; I_E=0$			0.5	mA
$I_{EBO}$	Emitter cut-off current	$V_{EB}=5\text{V}; I_C=0$			3	mA
$h_{FE-1}$	DC current gain	$I_C=2\text{A}; V_{CE}=2\text{V}$	600			
$h_{FE-2}$	DC current gain	$I_C=4\text{A}; V_{CE}=2\text{V}$	100			
$C_{OB}$	Collector output capacitance	$f=1\text{MHz}; V_{CB}=50\text{V}; I_E=0$		35		pF

## Switching times

$t_{on}$	Turn-on time	$I_{B1}=-I_{B2}=0.04\text{A}$ $V_{CC}=100\text{V}, R_L=25\Omega$		1		$\mu\text{s}$
$t_{stg}$	Storage time			8		$\mu\text{s}$
$t_f$	Fall time			5		$\mu\text{s}$

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PACKAGE OUTLINE

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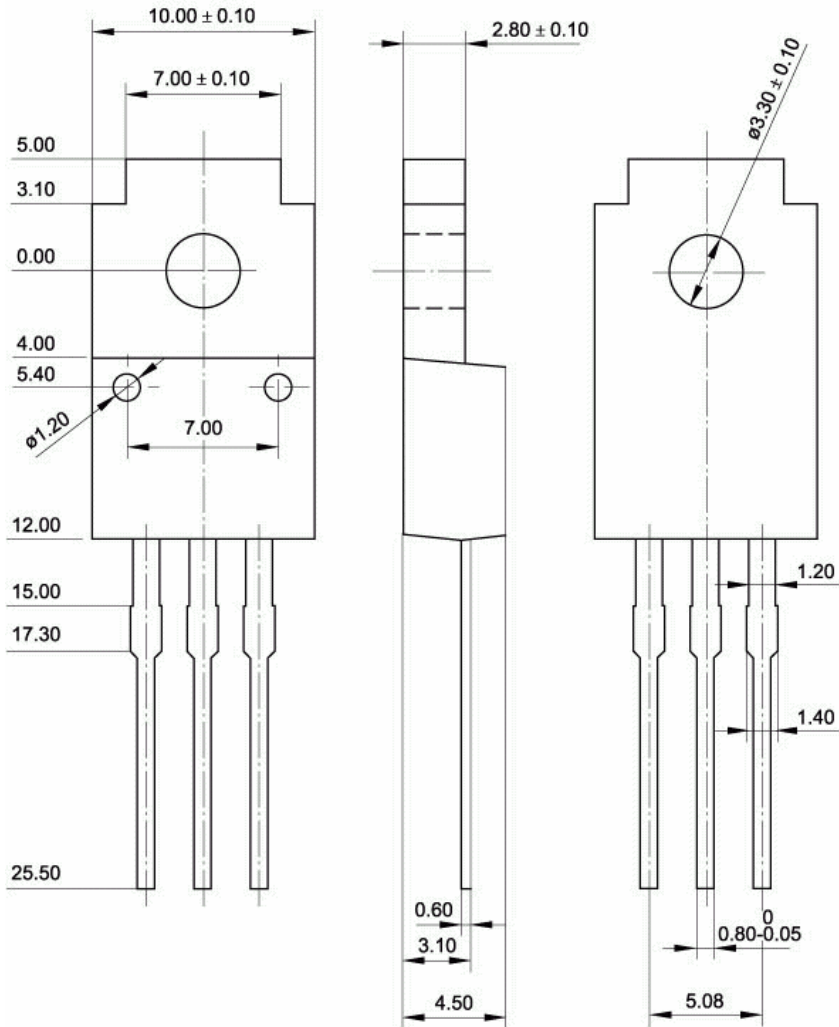


Fig.2 outline dimensions (unindicated tolerance:  $\pm 0.15$  mm)