

## Silicon NPN Power Transistors

MJH10012

## DESCRIPTION

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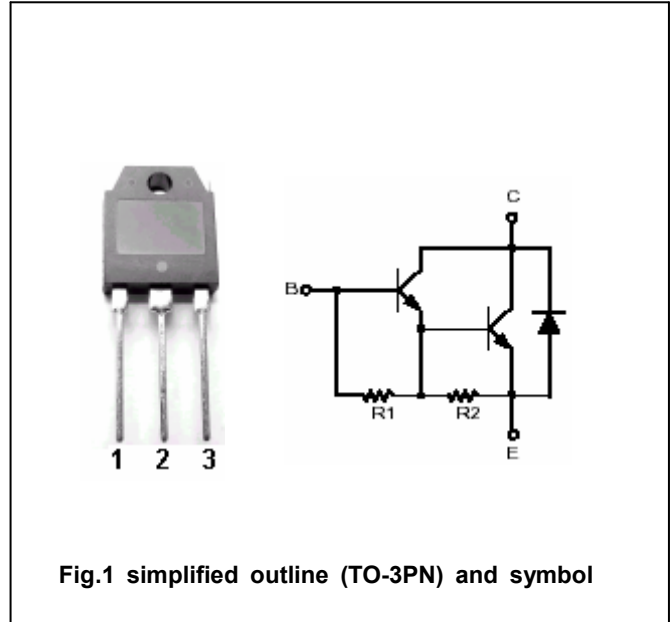
- With TO-3PN package
- High voltage,high current
- DARLINGTON

## APPLICATIONS

- Automotive ignition
- Switching regulator
- Motor control applications

## PINNING

PIN	DESCRIPTION
1	Base
2	Collector;connected to mounting base
3	Emitter

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	600	V
$V_{CEO}$	Collector-emitter voltage	Open base	400	V
$V_{EBO}$	Emitter-base voltage	Open collector	8	V
$I_C$	Collector current		10	A
$I_{CP}$	Collector current-peak		15	A
$I_B$	Base current		2	A
$P_C$	Collector power dissipation	$T_C=25^\circ\text{C}$	118	W
$T_j$	Junction temperature		150	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-55~150	$^\circ\text{C}$

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-c}$	Thermal resistance from junction to case	0.95	$^\circ\text{C}/\text{W}$

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## CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

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SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-emitter sustaining voltage	I <sub>C</sub> =0.2A ; I <sub>B</sub> =0	400			V
V <sub>CEsat-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =3A ; I <sub>B</sub> =0.6A			1.5	V
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =6A ; I <sub>B</sub> =0.6A			2.0	V
V <sub>CEsat-3</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =10A ; I <sub>B</sub> =2A			2.5	V
V <sub>BEsat-1</sub>	Base-emitter saturation voltage	I <sub>C</sub> =6A ; I <sub>B</sub> =0.6A			2.5	V
V <sub>BEsat-2</sub>	Base-emitter saturation voltage	I <sub>C</sub> =10A ; I <sub>B</sub> =2A			3.0	V
V <sub>BE</sub>	Base-emitter on voltage	I <sub>C</sub> =10A ; V <sub>CE</sub> =6V			2.8	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =600V ; I <sub>E</sub> =0			1	mA
I <sub>CEO</sub>	Collector cut-off current	V <sub>CE</sub> =400V ; I <sub>B</sub> =0			1	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =6V ; I <sub>C</sub> =0			40	mA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =3A ; V <sub>CE</sub> =6V	300			
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =6A ; V <sub>CE</sub> =6V	100		2000	
h <sub>FE-3</sub>	DC current gain	I <sub>C</sub> =10A ; V <sub>CE</sub> =6V	20			
V <sub>F</sub>	Diode forward voltage	I <sub>F</sub> =10A			3.5	V
t <sub>s</sub>	Storage time	I <sub>C</sub> =6.0A ; V <sub>CC</sub> =12V I <sub>B1</sub> =I <sub>B2</sub> =0.3A			15	μs
t <sub>f</sub>	Fall time				15	μs

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PACKAGE OUTLINE

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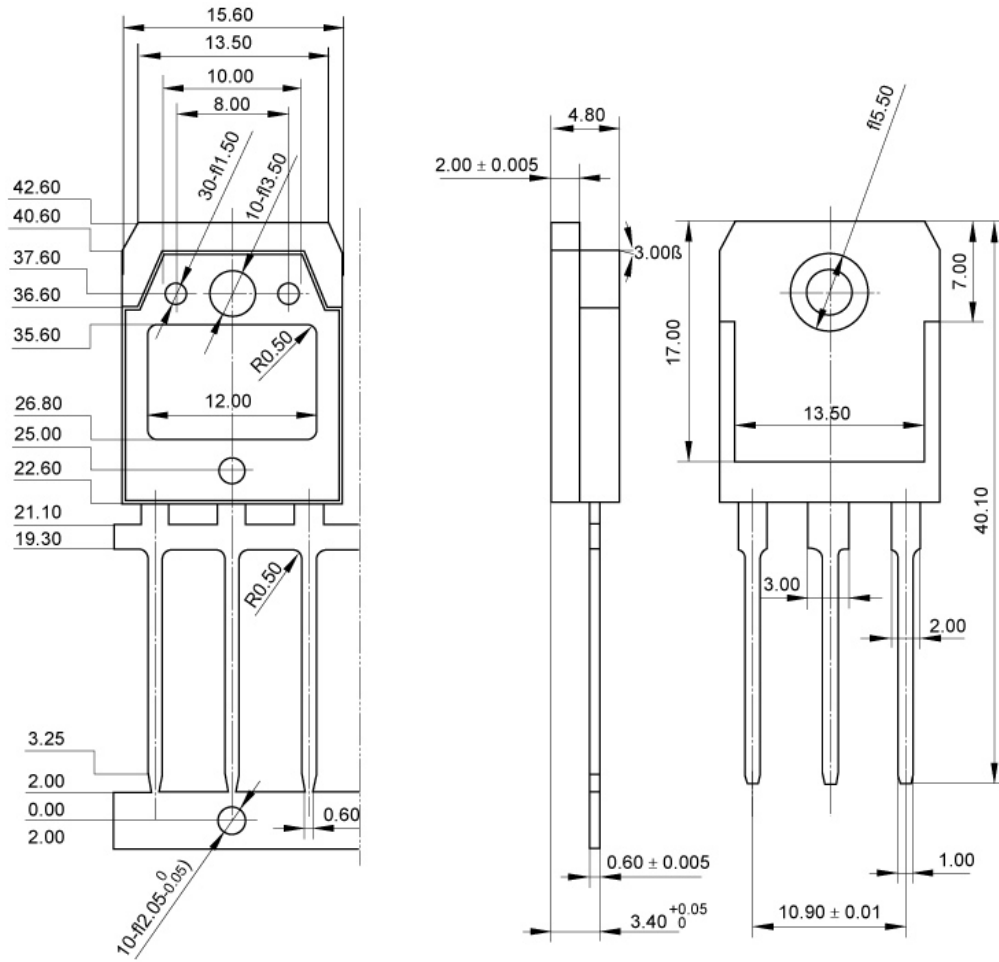


Fig.2 outline dimensions (unindicated tolerance:±0.1mm)

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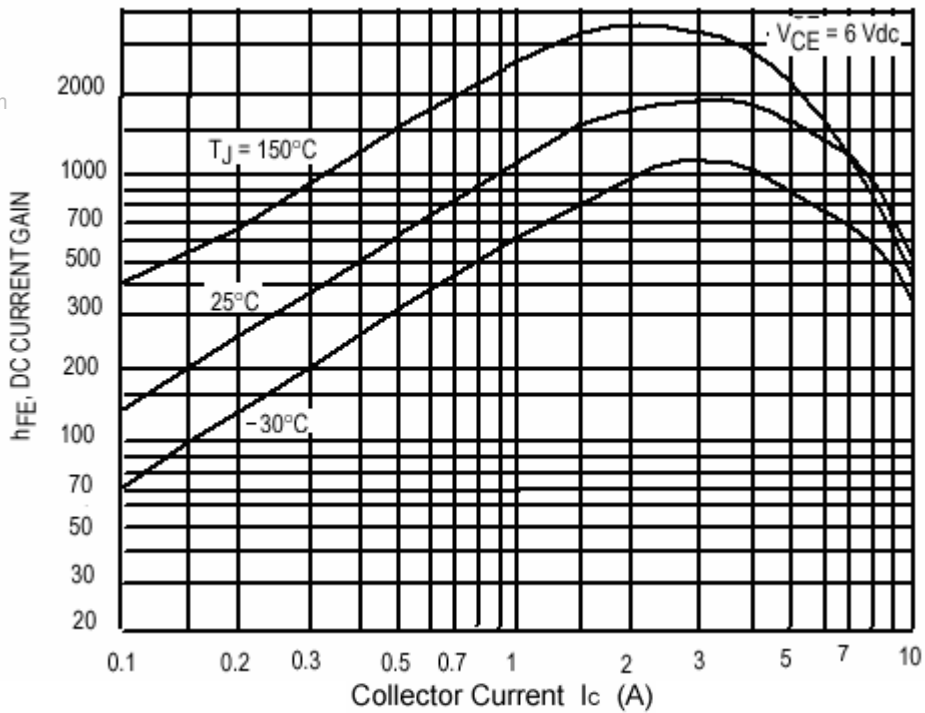


Fig.3 DC current Gain

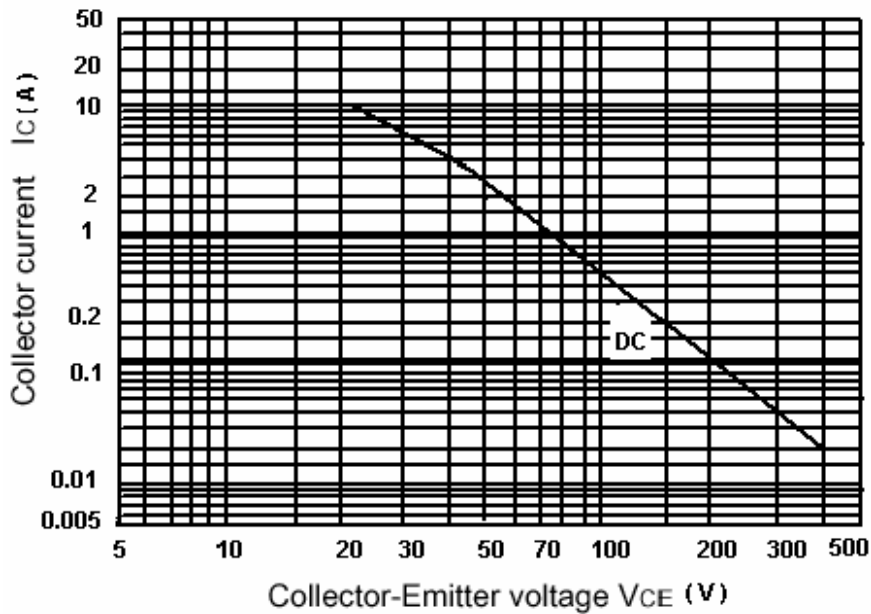


Fig.4 Safe Operating Area