

## Silicon NPN Power Transistors

2SC3148

## DESCRIPTION

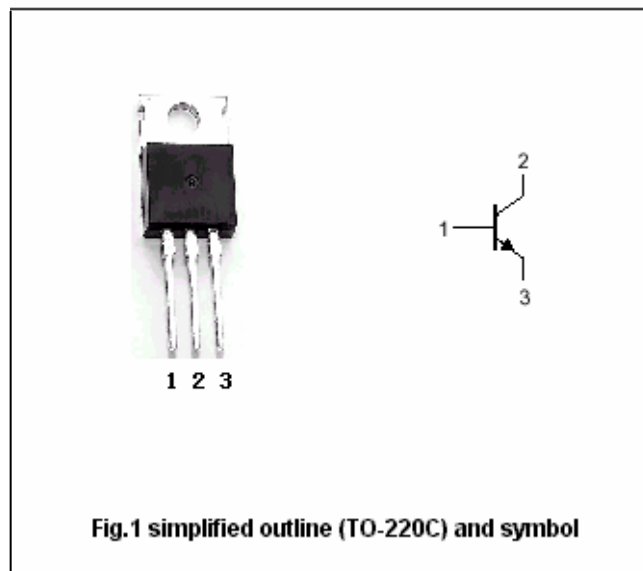
- With TO-220C package
- High collector breakdown voltage:  
 $V_{CE0}=800V(\text{Min})$
- Excellent switching time:  
 $t_r=1.0 \mu s(\text{Max.})$   
 $t_f=1.0 \mu s(\text{Max.}@I_C=0.8A)$

## APPLICATIONS

- Switching regulator and high voltage switching applications
- High speed DC-DC converter 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	900	V
$V_{CEO}$	Collector-emitter voltage	Open base	800	V
$V_{EBO}$	Emitter-base voltage	Open collector	7	V
$I_C$	Collector current		3	A
$I_{CM}$	Collector current-peak		5	A
$I_B$	Base current		1	A
$P_C$	Collector dissipation	$T_a=25$	1.5	W
		$T_C=25$	40	
$T_j$	Junction temperature		150	
$T_{stg}$	Storage temperature		-55~150	

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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> =10mA ; I <sub>B</sub> =0	800			V
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =1mA ; I <sub>E</sub> =0	900			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =0.8A; I <sub>B</sub> =0.16A			0.6	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =0.8A; I <sub>B</sub> =0.16A			1.2	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =800V ; I <sub>E</sub> =0			100	μ A
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =7V; I <sub>C</sub> =0			1	mA
h <sub>FE</sub>	DC current gain	I <sub>C</sub> =0.8A ; V <sub>CE</sub> =5V	10			

## Switching times

t <sub>r</sub>	Rise time	V <sub>CC</sub> 400V; I <sub>C</sub> =0.8A I <sub>B1</sub> =0.08A; I <sub>B2</sub> =-0.20A; R <sub>L</sub> =50 ;Duty cycle 1%			1.0	μ s
t <sub>stg</sub>	Storage time				4.0	μ s
t <sub>f</sub>	Fall time				1.0	μ s

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PACKAGE OUTLINE



Fig.2 Outline dimensions (unindicated tolerance: ± 0.10 mm)

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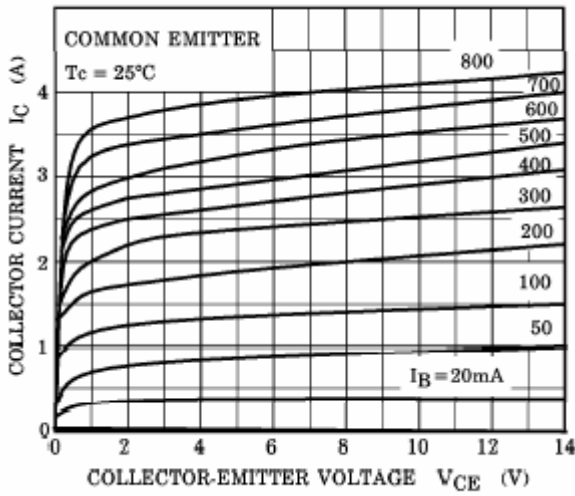


Fig.3 Static Characteristic

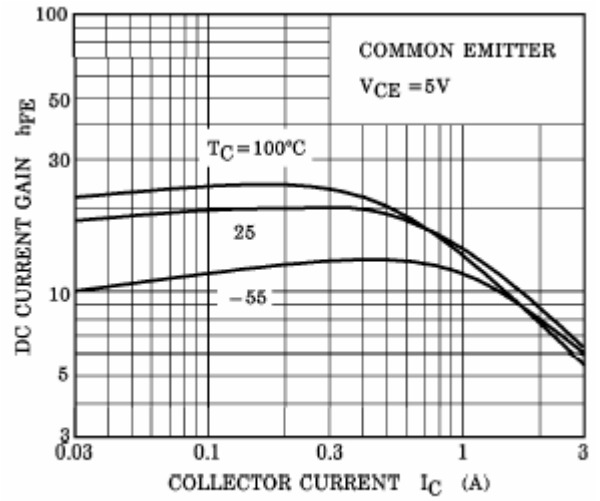


Fig.4 DC current Gain

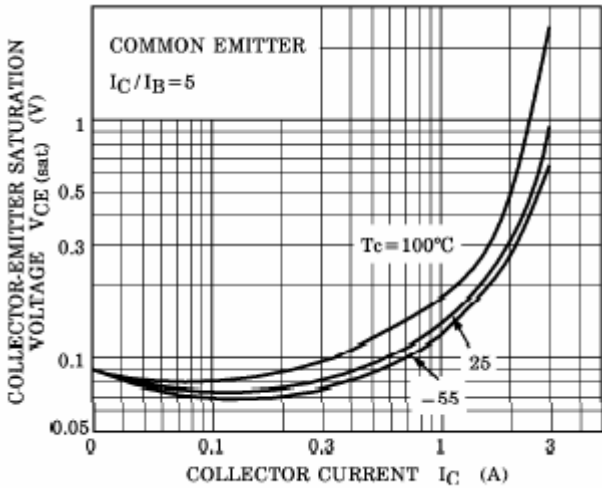


Fig.5 Collector-Emitter Saturation Voltage

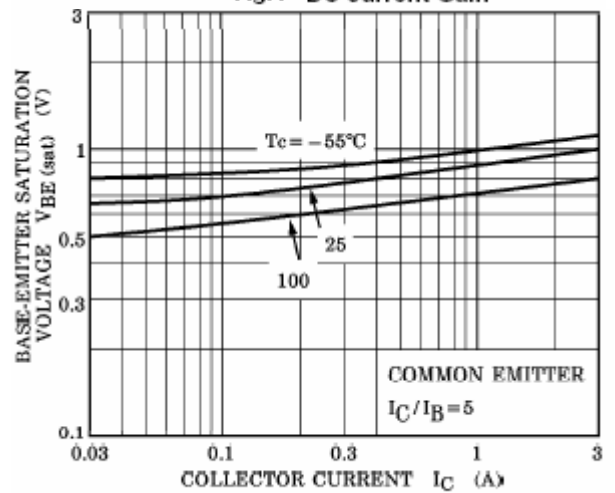


Fig.6 Base-Emitter Saturation Voltage

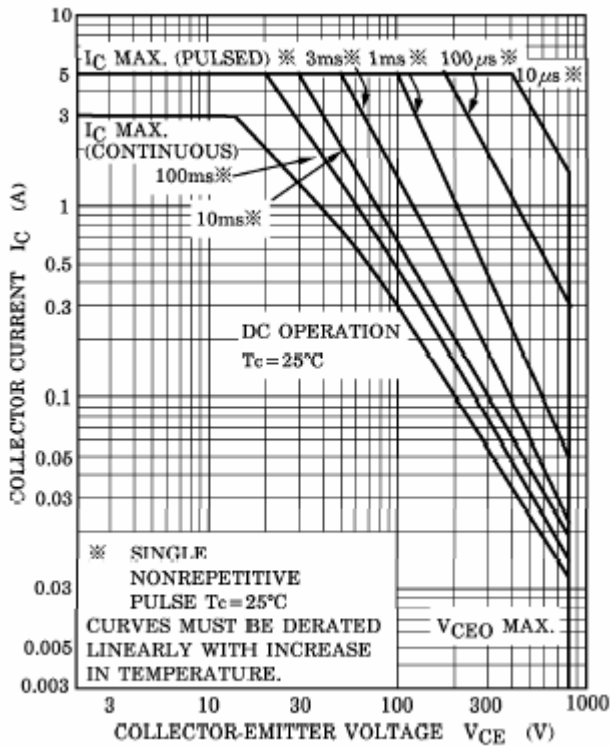


Fig.7 Safe Operating Area