

Silicon NPN Power Transistors

2SC3309

DESCRIPTION

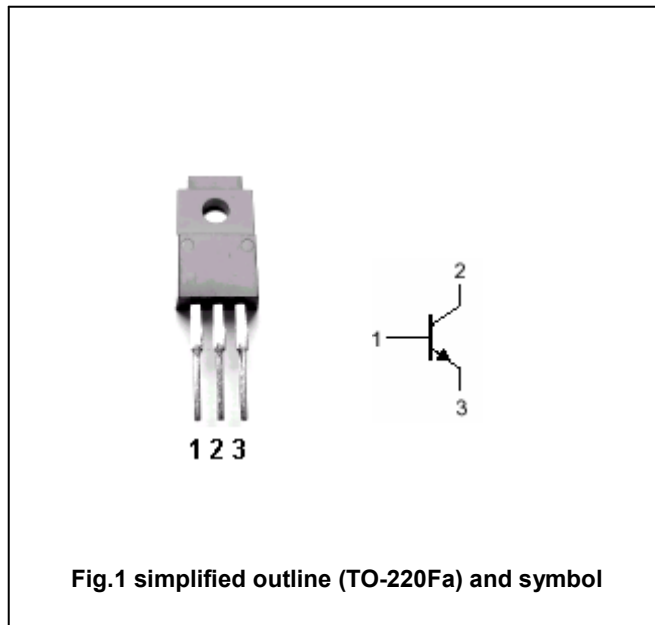
- With TO-220Fa package
- High collector breakdown voltage
- Excellent switching times

APPLICATIONS

- Switching regulators and high voltage switching applications
- High speed DC-DC converter application

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	500	V
V_{CEO}	Collector-emitter voltage	Open base	400	V
V_{EBO}	Emitter-base voltage	Open collector	7	V
I_C	Collector current (DC)		2	A
I_{CM}	Collector current-peak		4	A
I_B	Base current		0.5	A
P_C	Collector dissipation	$T_a=25^\circ\text{C}$	2.0	W
		$T_C=25^\circ\text{C}$	20	
T_j	Junction temperature		150	$^\circ\text{C}$
T_{stg}	Storage temperature		-50~150	$^\circ\text{C}$

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CHARACTERISTICS

Tj=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=10mA ; I_B=0$	400			V
$V_{(BR)CBO}$	Collector -base breakdown voltage	$I_E=1mA ; I_C=0$	500			V
V_{CEsat}	Collector-emitter saturation voltage	$I_C=1A ; I_B=0.2A$			1.0	V
V_{BEsat}	Base-emitter saturation voltage	$I_C=1A ; I_B=0.2A$			1.5	V
I_{CBO}	Collector cut-off current	$V_{CB}=400V ; I_E=0$			100	μA
I_{EBO}	Emitter cut-off current	$V_{EB}=7V ; I_C=0$			1	mA
h_{FE-1}	DC current gain	$I_C=0.1A ; V_{CE}=5V$	20			
h_{FE-2}	DC current gain	$I_C=1A ; V_{CE}=5V$	8			

Switching times

t_r	Rise time	$I_{B1}=-I_{B2}=0.08A$ $V_{CC}\approx 200V ; R_L=250\Omega$ $PW=20\mu s$			1.0	μs
t_s	Storage time				2.5	μs
t_f	Fall time				1.0	μs

PACKAGE OUTLINE

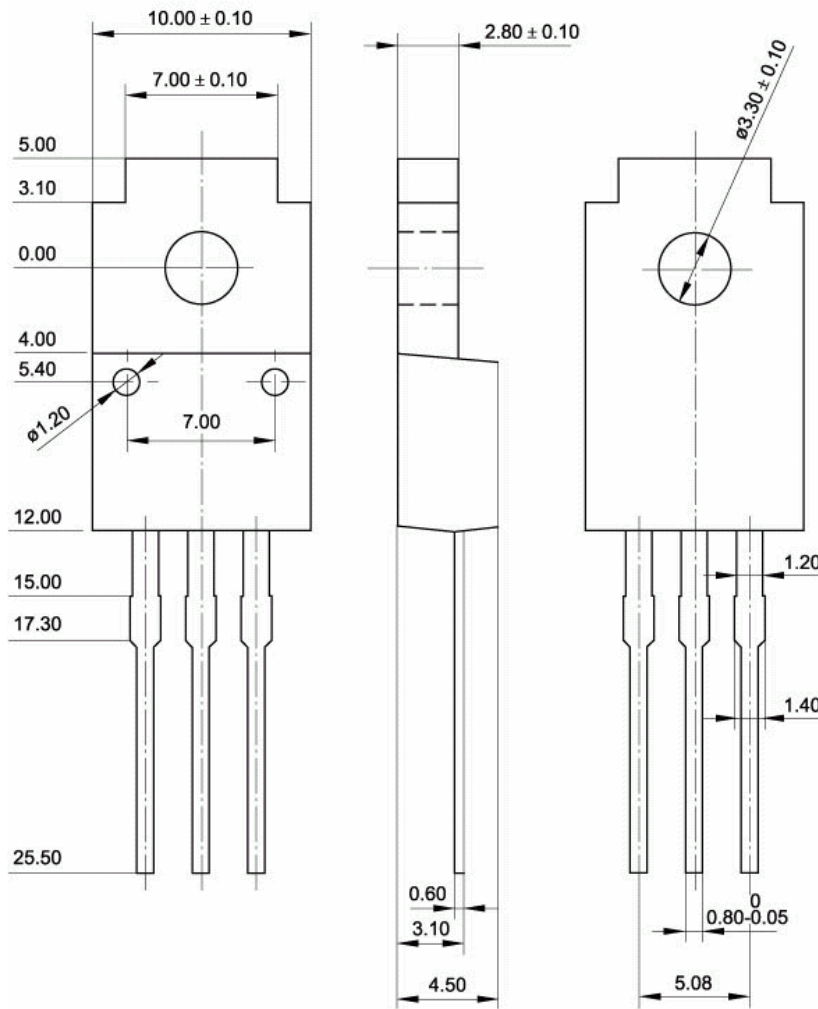


Fig.2 Outline dimensions (unindicated tolerance: ± 0.15 mm)

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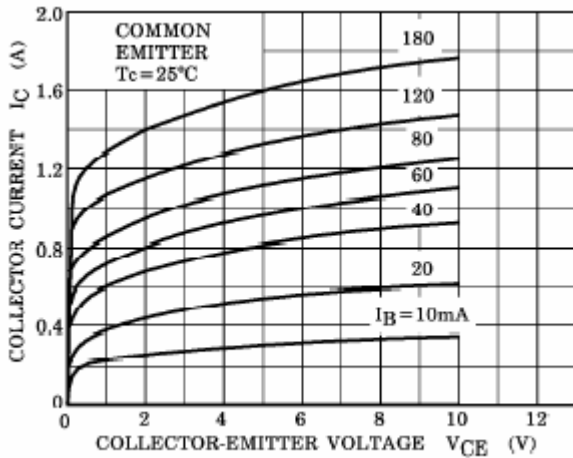


Fig.3 Static Characteristic

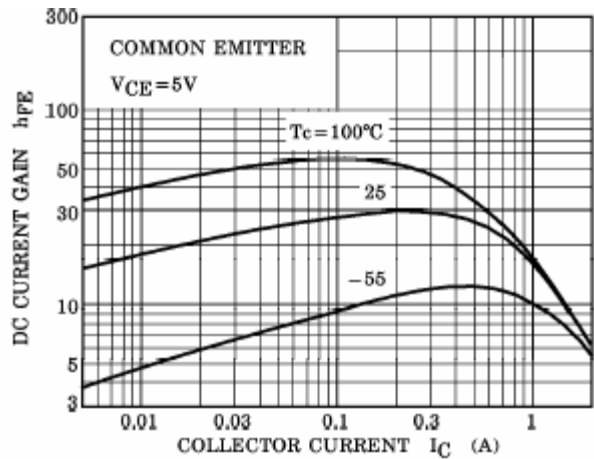


Fig.4 DC current Gain

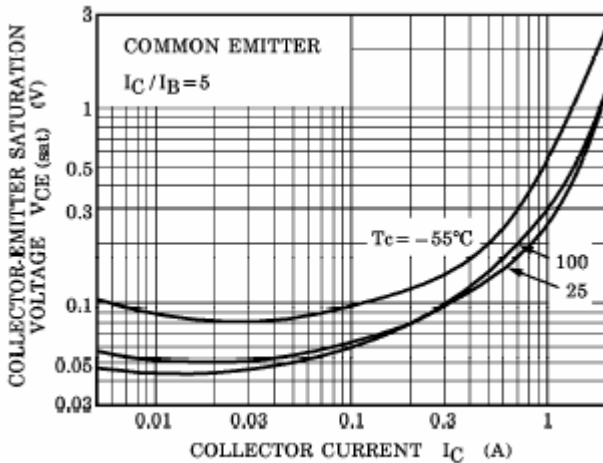


Fig.5 Collector-Emitter Saturation Voltage

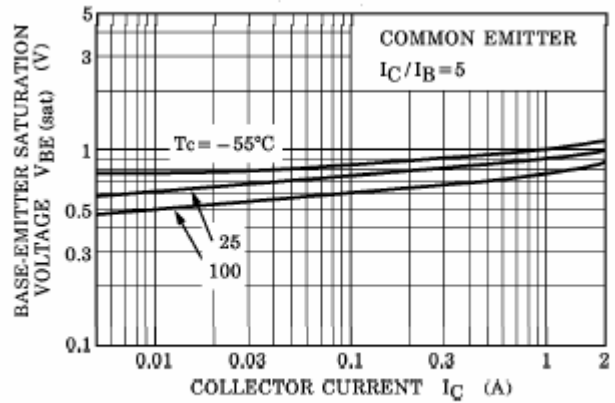


Fig.6 Base-Emitter Saturation Voltage

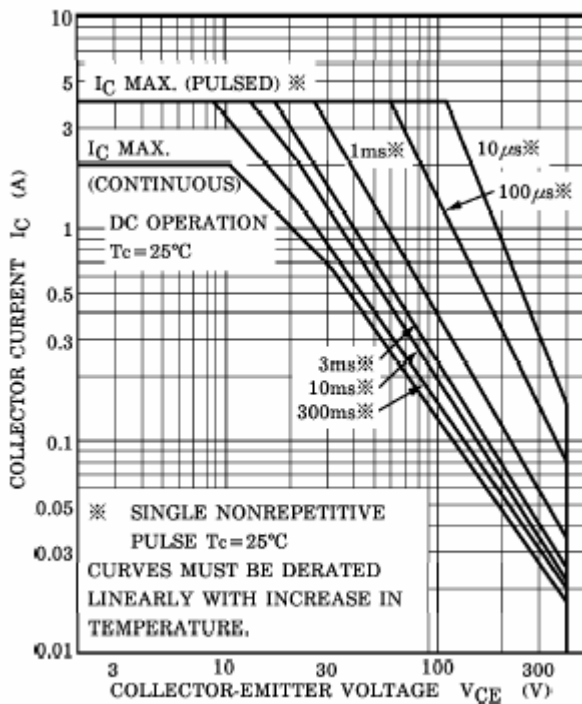


Fig.7 Safe Operating Area