

Silicon NPN Power Transistors

2SC3831

DESCRIPTION

- With TO-3PN package
- High voltage
- High speed switching

APPLICATIONS

- For switching regulator and general purpose applications

PINNING

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

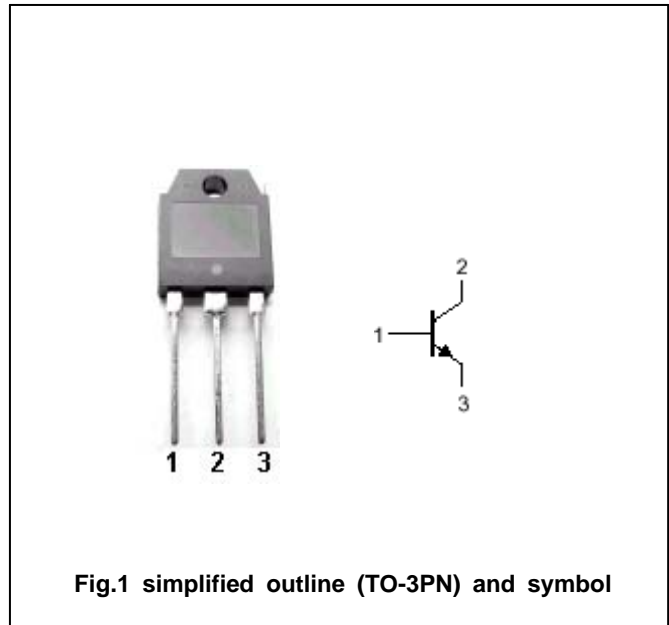


Fig.1 simplified outline (TO-3PN) and symbol

Absolute maximum ratings(Ta=°C)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V _{CBO}	Collector-base voltage	Open emitter	600	V
V _{CEO}	Collector-emitter voltage	Open base	500	V
V _{EBO}	Emitter-base voltage	Open collector	10	V
I _C	Collector current		10	A
I _{CP}	Collector current-pulse		20	A
I _B	Base current		4	A
P _C	Collector power dissipation	T _C =25°C	100	W
T _j	Junction temperature		150	°C
T _{stg}	Storage temperature		-55~150	°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	$I_C=25mA; I_B=0$	500			V
V_{CEsat}	Collector-emitter saturation voltage	$I_C=5A; I_B=1.0A$			0.5	V
V_{BEsat}	Base-emitter saturation voltage	$I_C=5A; I_B=1.0A$			1.3	V
I_{CBO}	Collector cut-off current	$V_{CB}=600V; I_E=0$			1	mA
I_{EBO}	Emitter cut-off current	$V_{EB}=10V; I_C=0$			0.1	mA
h_{FE}	DC current gain	$I_C=5A; V_{CE}=4V$	10		30	
f_T	Transition frequency	$I_C=1A; V_{CE}=12V$		8		MHz
C_{OB}	Output capacitance	$f=1MHz; V_{CB}=10V$		105		pF

Switching times

t_{on}	Turn-on time	$I_C=5A; V_{CC}=200V$ $I_{B1}=0.5A; I_{B2}=-1A$ $R_L=40\Omega$			1.0	μs
t_{stg}	Storage time				4.5	μs
t_f	Fall time				0.5	μs

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PACKAGE OUTLINE

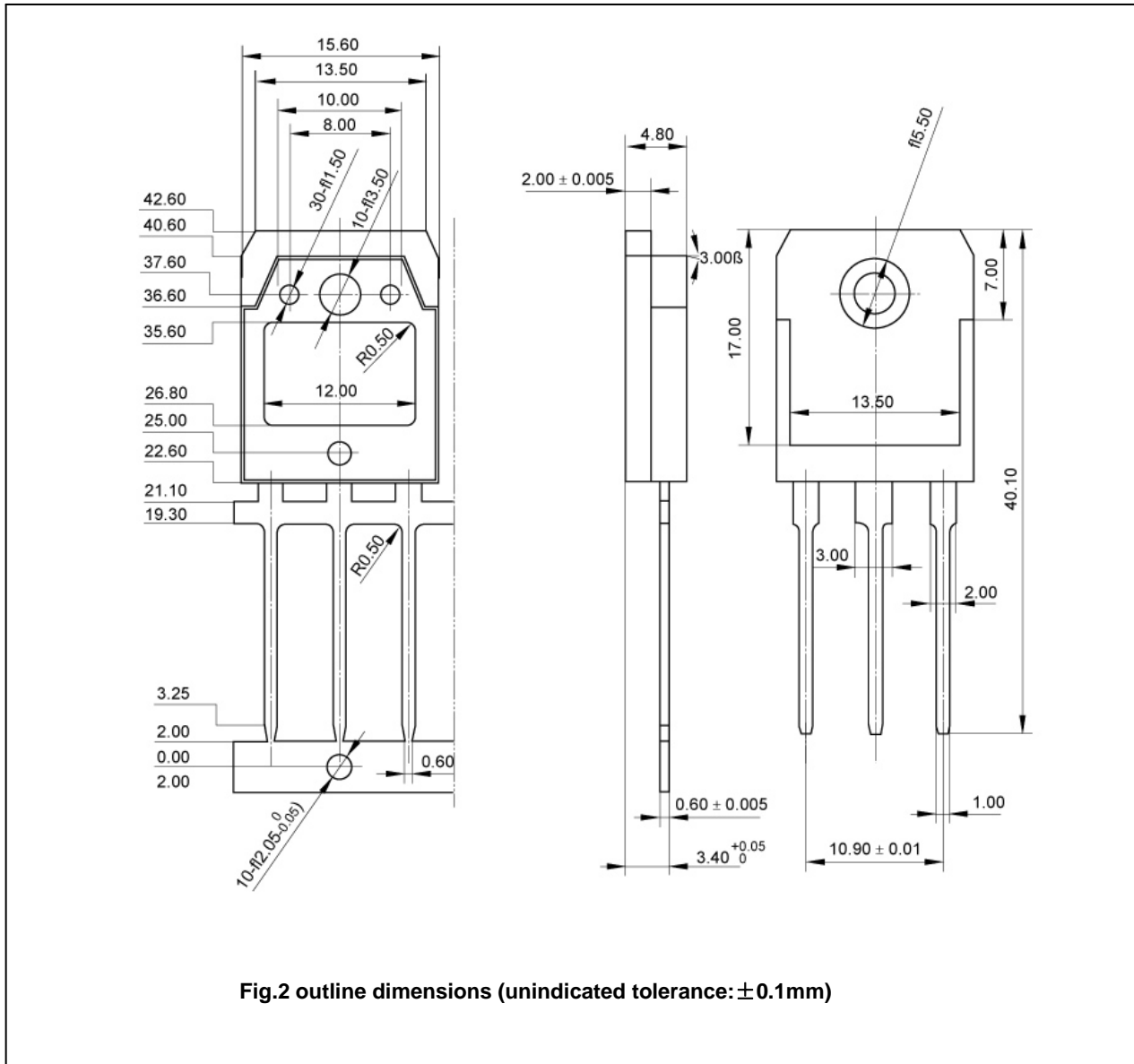


Fig.2 outline dimensions (unindicated tolerance: ±0.1mm)

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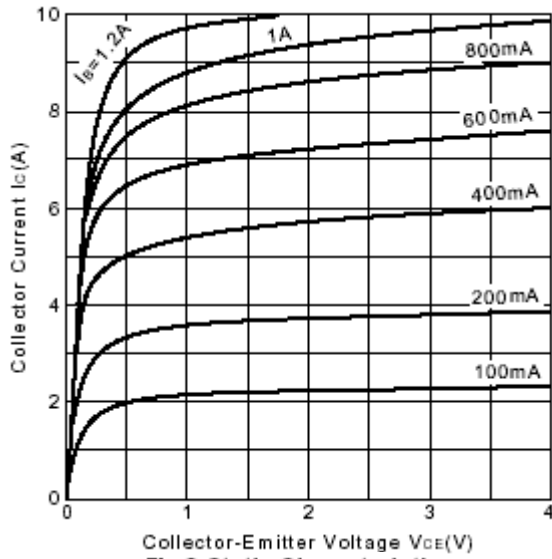


Fig.3 Static Characteristic

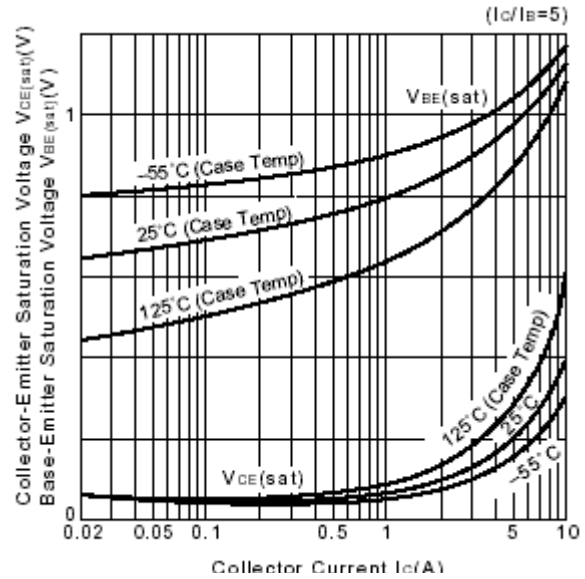


Fig.4 Base-Emitter Saturation Voltage
 Collector-Emitter Saturation Voltage

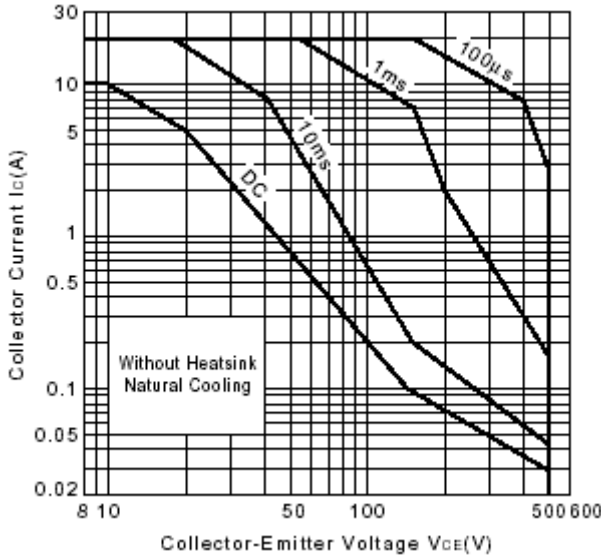


Fig.5 Safe Operating Area

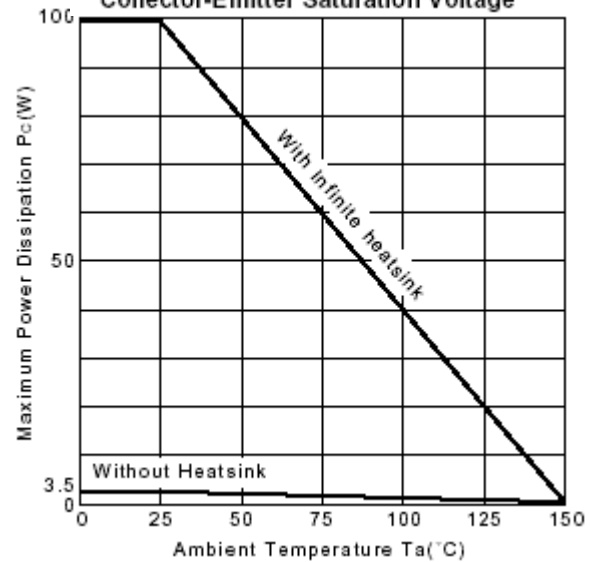


Fig.6 Power Derating

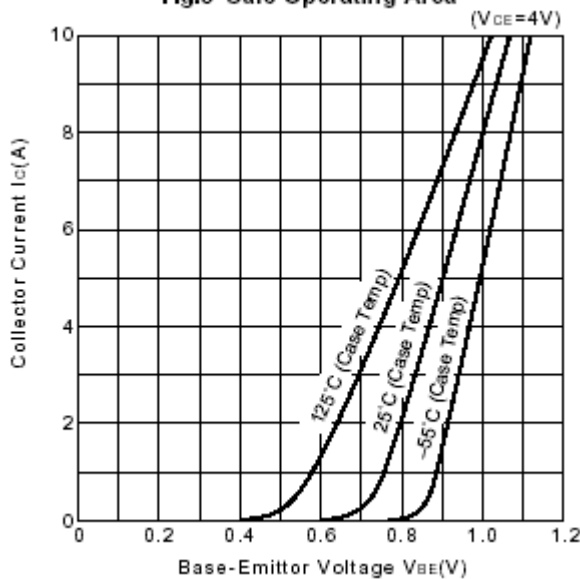


Fig.7 $I_c - V_{BE}$

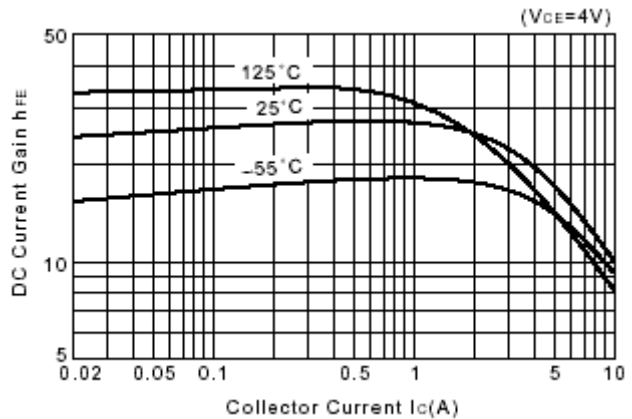


Fig.8 DC current Gain