

Silicon NPN Power Transistors

2SC3151

DESCRIPTION

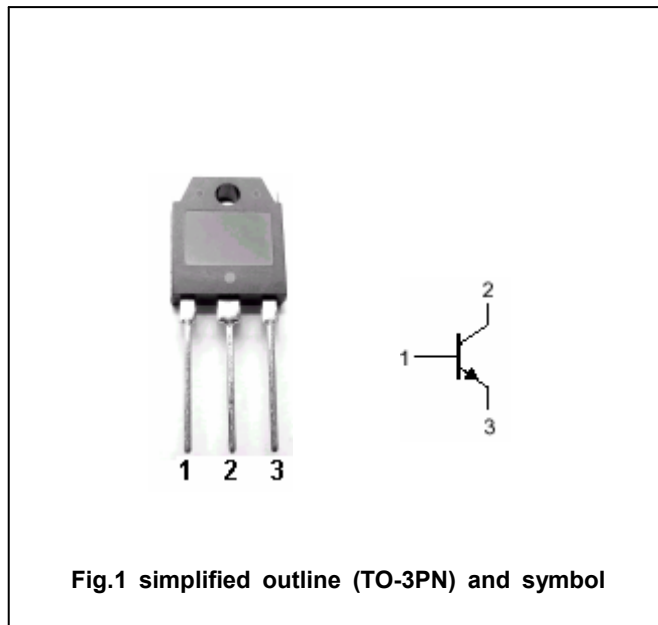
- With TO-3PN package
- High breakdown voltage ($V_{CBO} \geq 900V$)
- Fast switching speed
- Wide ASO □ Safe Operating Area □

APPLICATIONS

- 800V/1.5A Switching Regulator 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		1.5	A
I_{CM}	Collector current-peak		5	A
I_B	Base current		0.8	A
P_C	Collector power dissipation	$T_C = 25^\circ\text{C}$	60	W
T_j	Junction temperature		150	□
T_{stg}	Storage temperature		-55~150	□

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CHARACTERISTICS

T_j=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _C =5mA ; R _{BE} =∞	800			V
V _{(BR)CBO}	Collector-base breakdown voltage	I _C =1mA ; I _E =0	900			V
V _{(BR)EBO}	Emitter-base breakdown voltage	I _E =1mA ; I _C =0	7			V
V _{CEsat}	Collector-emitter saturation voltage	I _C =0.75A ; I _B =0.15A			2.0	V
V _{BEsat}	Base-emitter saturation voltage	I _C =0.75A ; I _B =0.15A			1.5	V
I _{CBO}	Collector cut-off current	V _{CB} =800V; I _E =0			10	μA
I _{EBO}	Emitter cut-off current	V _{EB} =5V; I _C =0			10	μA
h _{FE-1}	DC current gain	I _C =0.1A ; V _{CE} =5V	10		40	
h _{FE-2}	DC current gain	I _C =0.5A ; V _{CE} =5V	8			
C _{OB}	Output capacitance	I _E =0 ; V _{CB} =10V; f=1MHz		30		pF
f _T	Transition frequency	I _C =0.1A ; V _{CE} =10V		15		MHz

Switching times

t _{on}	Turn-on time	I _C =1A; I _{B1} =0.2A; I _{B2} =-0.4A R _L =400Ω, V _{CC} =400V			1.0	μs
t _s	Storage time				3.0	μs
t _f	Fall time				0.7	μs

◆ h_{FE-1} classifications

K	L	M
10-20	15-30	20-40

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Technical drawing of a mechanical part showing outline dimensions. The drawing includes a front view on the left and a side view on the right.

Front View Dimensions:

- Overall width: 15.60
- Top flange width: 13.50
- Inner flange width: 10.00
- Inner flange width: 8.00
- Hole diameters: 30- $\phi 11.50$, 10- $\phi 13.50$
- Radius: R0.50
- Slot width: 12.00
- Bottom flange width: 10- $\phi 12.05 \pm 0.05$
- Bottom flange thickness: 0.60
- Vertical dimensions (from top): 42.60, 40.60, 37.60, 36.60, 35.60, 26.80, 25.00, 22.60, 21.10, 19.30, 3.25, 2.00, 0.00, 2.00

Side View Dimensions:

- Overall height: 40.10
- Top flange thickness: 4.80
- Top flange width: 13.50
- Top flange hole diameter: $\phi 15.50$
- Top flange hole position: 7.00
- Top flange hole diameter: 3.00
- Top flange hole position: 3.00
- Top flange hole position: 2.00
- Top flange hole position: 1.00
- Top flange hole position: 10.90 ± 0.01
- Top flange hole position: 3.40 $^{+0.05}_0$
- Top flange hole position: 0.60 ± 0.005
- Top flange hole position: 2.00 ± 0.005

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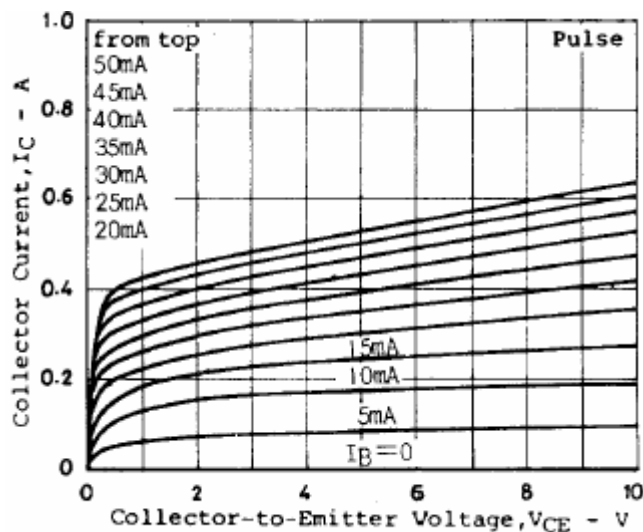


Fig.3 Static Characteristic

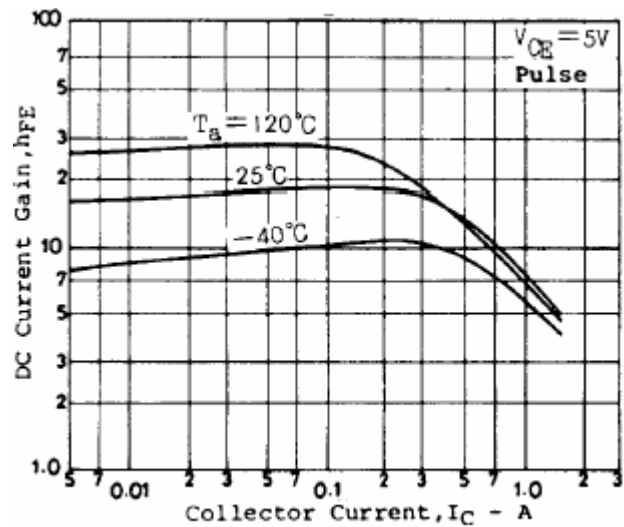


Fig.4 DC current Gain

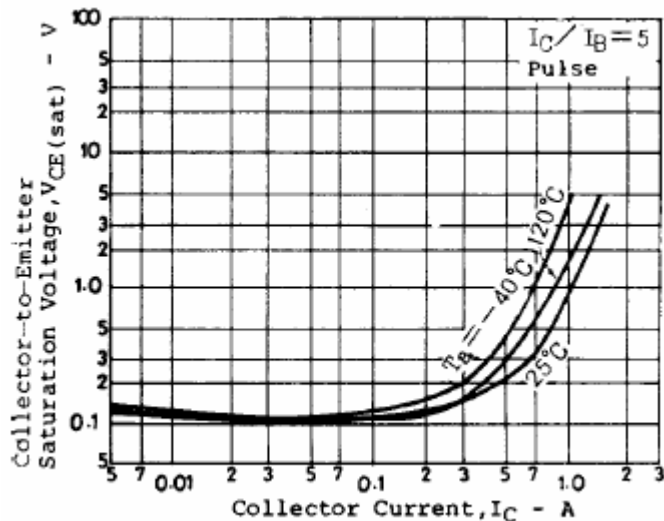


Fig.5 Collector-Emitter Saturation Voltage

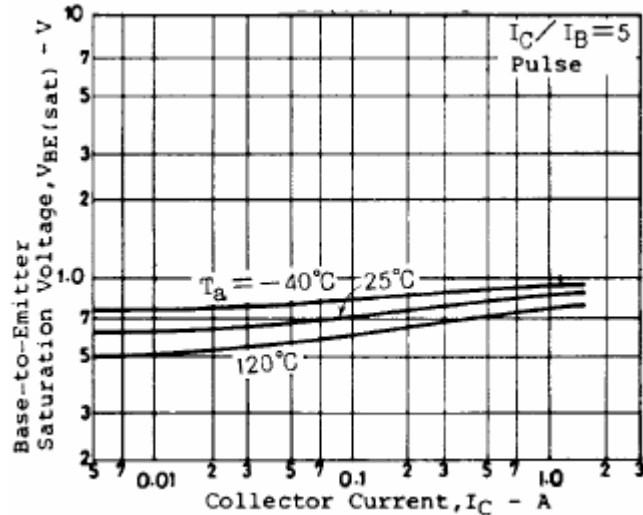


Fig.6 Base-Emitter Saturation Voltage

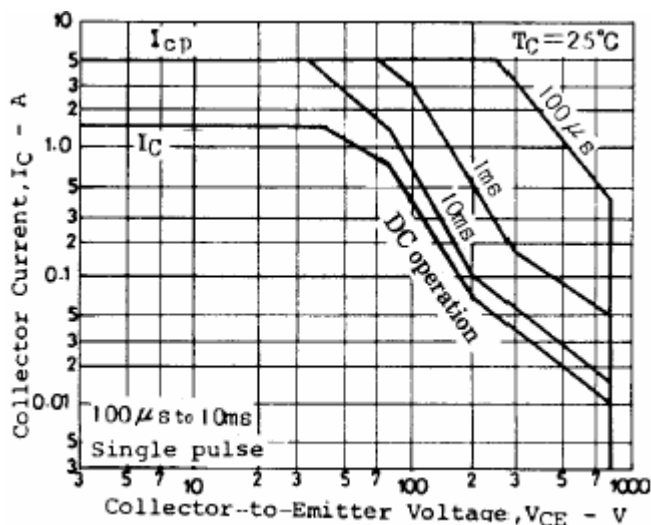


Fig.7 Safe Operating Area