Silicon NPN Power Transistors 2SC3451

DESCRIPTION

·With TO-3PN package
·High breakdown voltage and high reliability.
·Fast switching speed
·Wide area of safe operation

APPLICATIONS

·500V/15A Switching Regulator Applications

PINNING

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

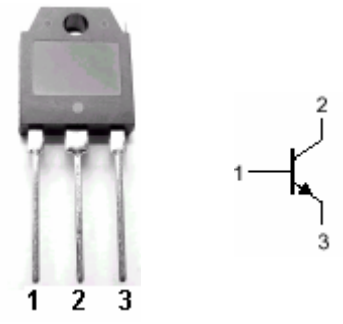


Fig.1 simplified outline (TO-3PN) and symbol

Absolute maximum ratings(Ta=□)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	800	V
V_{CEO}	Collector-emitter voltage	Open base	500	V
V_{EBO}	Emitter-base voltage	Open collector	7	V
I_C	Collector current		15	A
I_{CM}	Collector current-peak		25	A
I_B	Base current		4	A
P_C	Collector power dissipation	T_C=25□	100	W
T_j	Junction temperature		150	□
T_{stg}	Storage temperature		-55~150	□

Silicon NPN Power Transistors 2SC3451

CHARACTERISTICS

Tj=25□ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	I_C=5mA ;R_{BE}=∞	500			V
$V_{(BR)CBO}$	Collector-base breakdown voltage	I_C=1mA ;I_E=0	800			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	I_E=1mA ;I_C=0	7			V
V_{CEsat}	Collector-emitter saturation voltage	I_C=6A ;I_B=1.2A			1.0	V
V_{BEsat}	Base-emitter saturation voltage	I_C=6A ;I_B=1.2A			1.5	V
I_{CBO}	Collector cut-off current	V_{CB}=500V; 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=1.2A ; V_{CE}=5V	15		50	
h_{FE-2}	DC current gain	I_C=6A ; V_{CE}=5V	8			
C_{ob}	Output capacitance	I_E=0 ; V_{CB}=10V;f=1MHz		160		pF
f_T	Transition frequency	I_C=1.2A ; V_{CE}=10V		18		MHz
Switching times						
t_{on}	Turn-on time	I_C=7A;R_L=28.6Ω I_{B1}=1.4A; I_{B2}=-2.8A V_{CC}=200V			0.5	μs
t_{stg}	Storage time				3.0	μs
t_f	Fall time				0.3	μs

◆ h_{FE-1} Classifications

L	M	N
15-30	20-40	30-50

PACKAGE OUTLINE

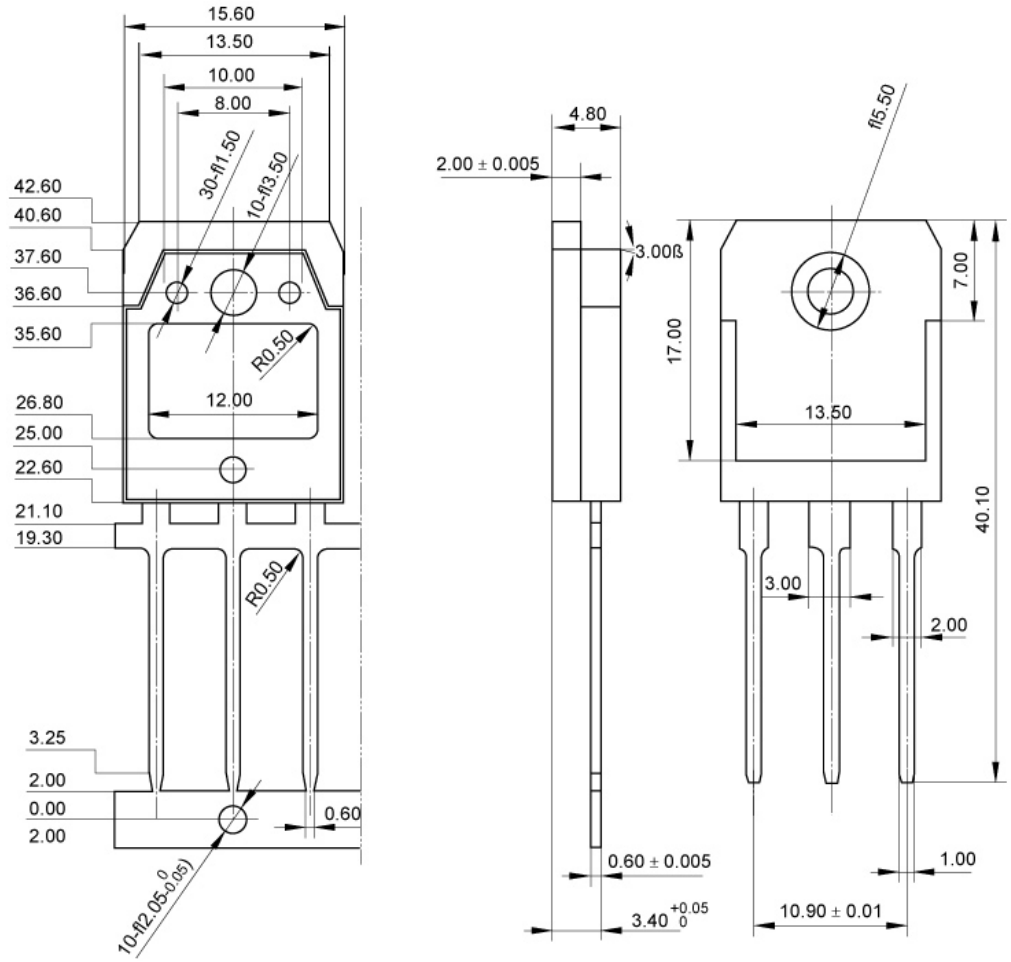


Fig.2 outline dimensions (unindicated tolerance:±0.1mm)

Silicon NPN Power Transistors 2SC3451

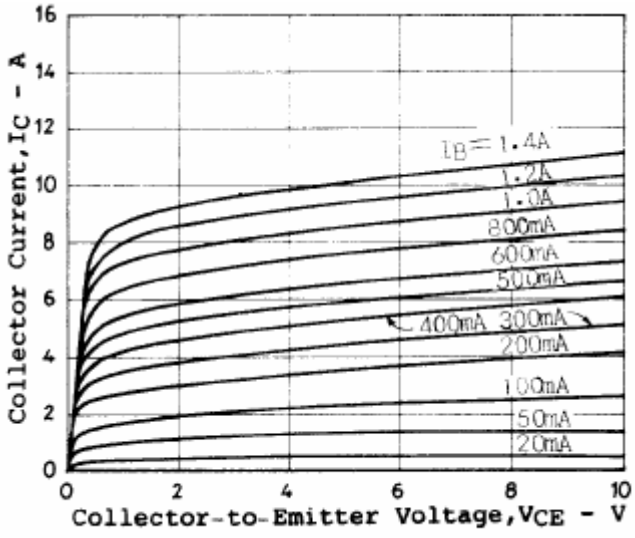


Fig.3 Static Characteristic

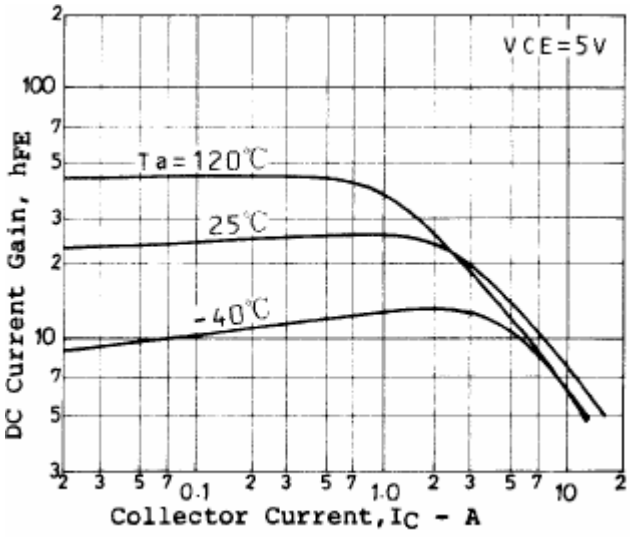


Fig.4 DC current Gain

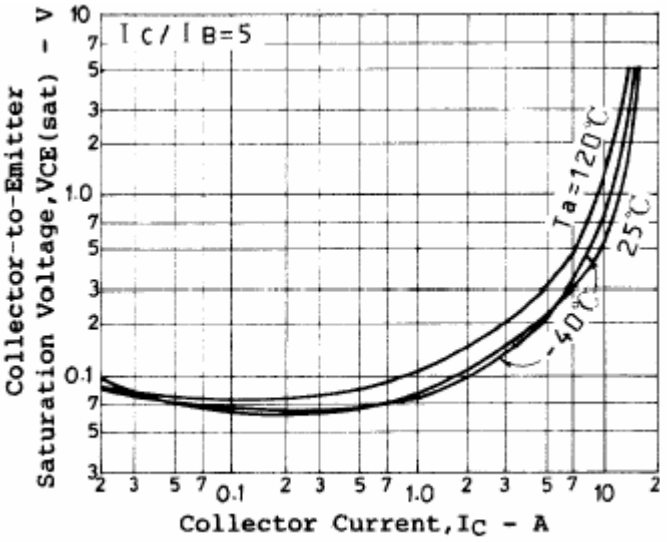


Fig.5 Collector-Emitter Saturation Voltage

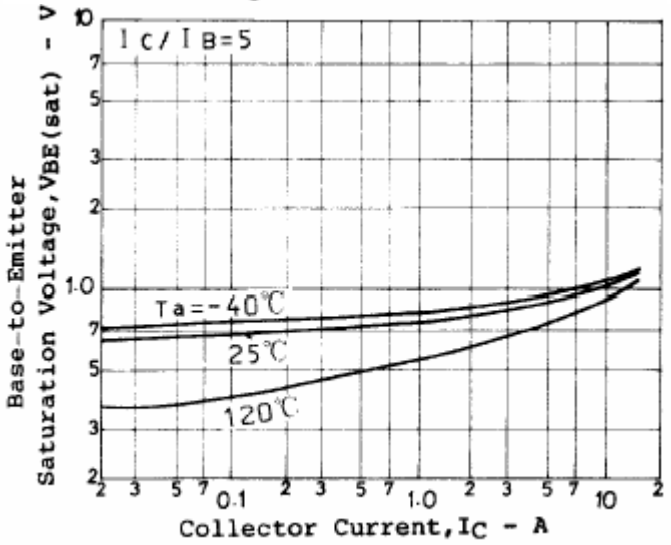


Fig.6 Base-Emitter Saturation Voltage

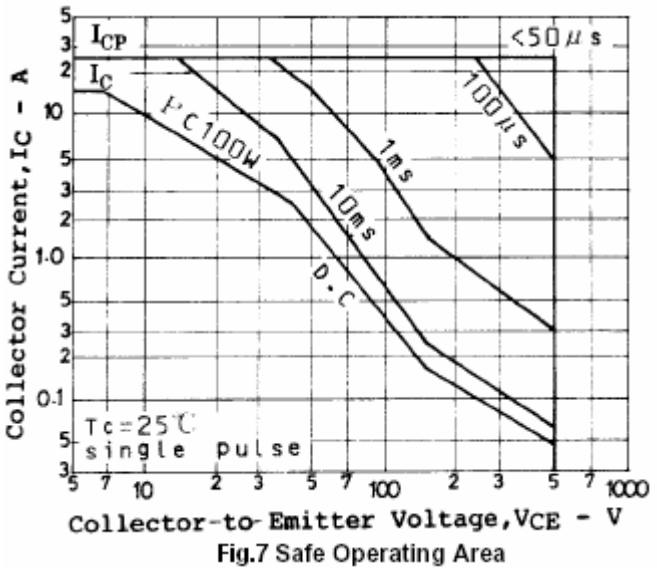


Fig.7 Safe Operating Area