

Silicon NPN Power Transistors

2SC4304

DESCRIPTION

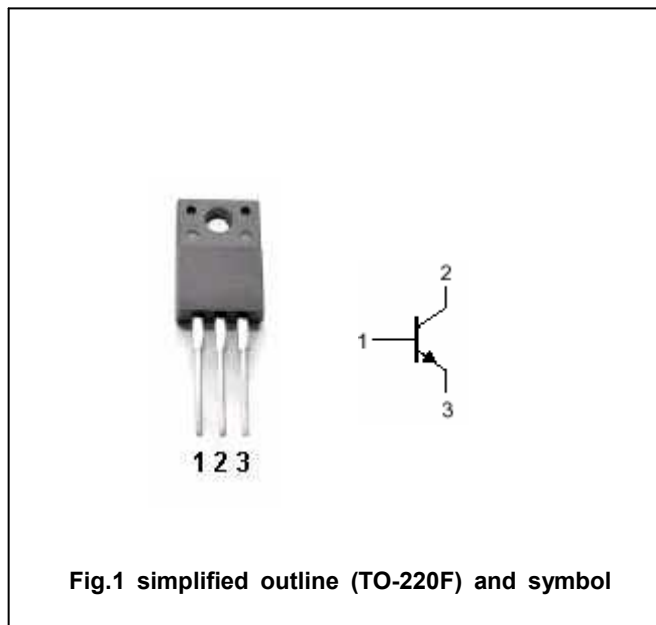
- With TO-220F package
- High voltage
- High speed switching

APPLICATIONS

- For switching regulator and general purpose applications

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	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		6	A
I_B	Base current		1.5	A
P_C	Collector dissipation	$T_C=25^\circ\text{C}$	35	W
T_j	Junction temperature		150	$^\circ\text{C}$
T_{stg}	Storage temperature		-55~150	$^\circ\text{C}$

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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	$I_C=10mA$; $I_B=0$	800			V
V_{CEsat}	Collector-emitter saturation voltage	$I_C=0.7A$; $I_B=0.14A$			0.5	V
V_{BEsat}	Base-emitter saturation voltage	$I_C=0.7A$; $I_B=0.14A$			1.2	V
I_{CBO}	Collector cut-off current	$V_{CB}=800V$; $I_E=0$			100	μA
I_{EBO}	Emitter cut-off current	$V_{EB}=7V$; $I_C=0$			100	μA
h_{FE}	DC current gain	$I_C=0.7A$; $V_{CE}=4V$	10		30	
C_{OB}	Output capacitance	$I_E=0$; $V_{CB}=10V$; $f=1MHz$		50		pF
f_T	Transition frequency	$I_E=-0.3A$; $V_{CE}=12V$		15		MHz

Switching times

t_{on}	Turn-on time	$I_C=0.7A$; $I_{B1}=0.1A$ $I_{B2}=-0.35A$ $V_{CC}=250V$, $R_L=357\Omega$			0.7	μs
t_s	Storage time				4.0	μs
t_f	Fall time				0.7	μs

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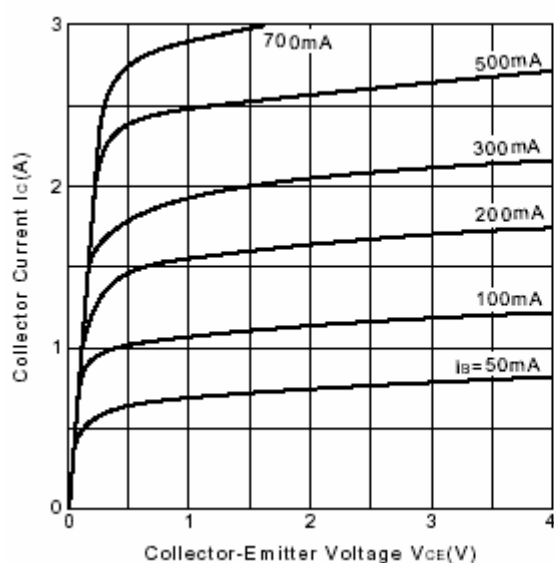


Fig.3 Static Characteristic

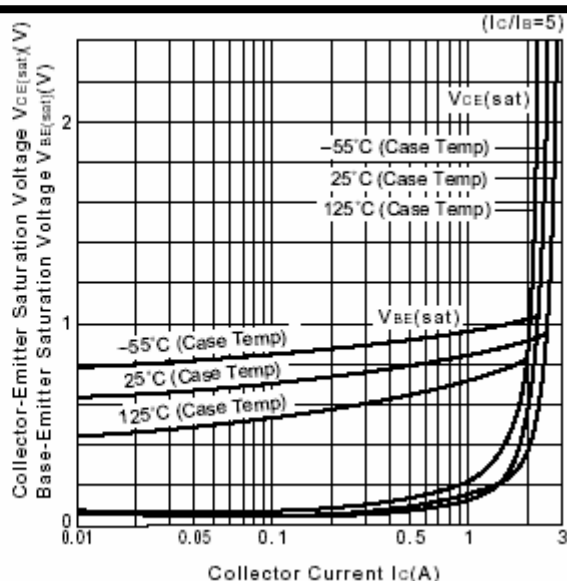
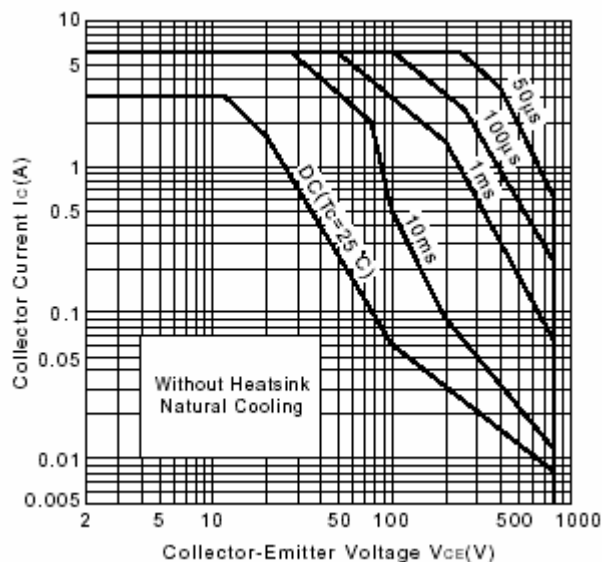
Fig.4 Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

Fig.5 Safe Operating Area

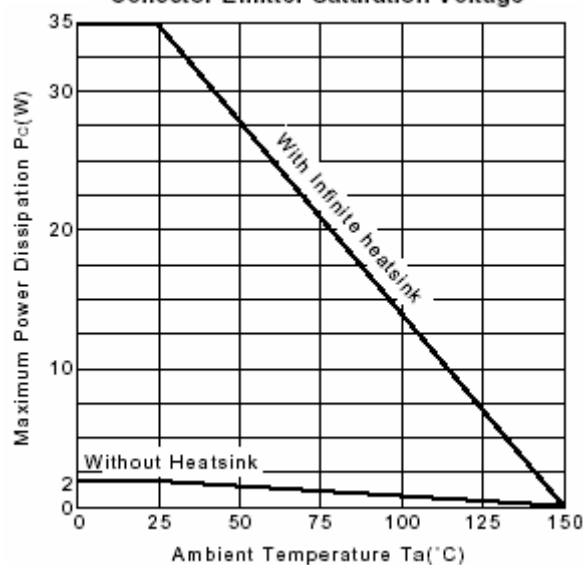
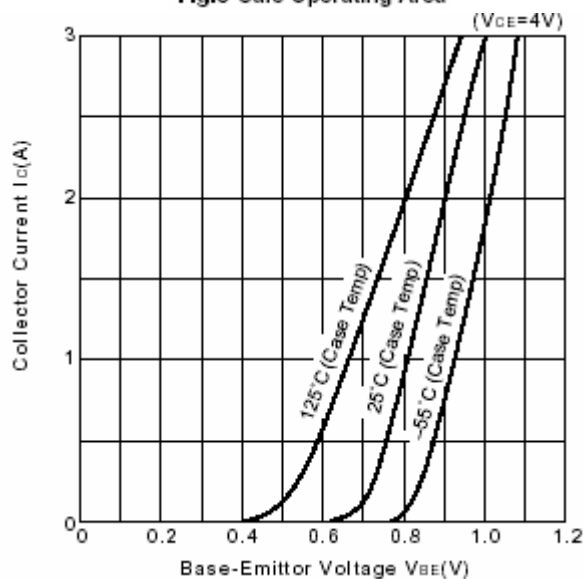
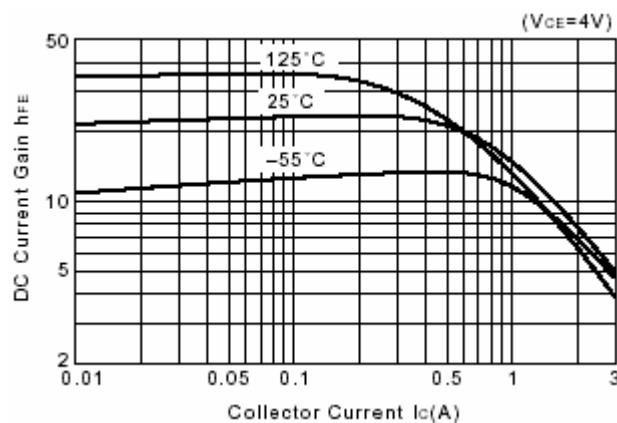
Fig.6 P_C - T_a DeratingFig.7 I_C - V_{BE} 

Fig.8 DC current Gain