

Silicon NPN Power Transistors

2SC4164

DESCRIPTION

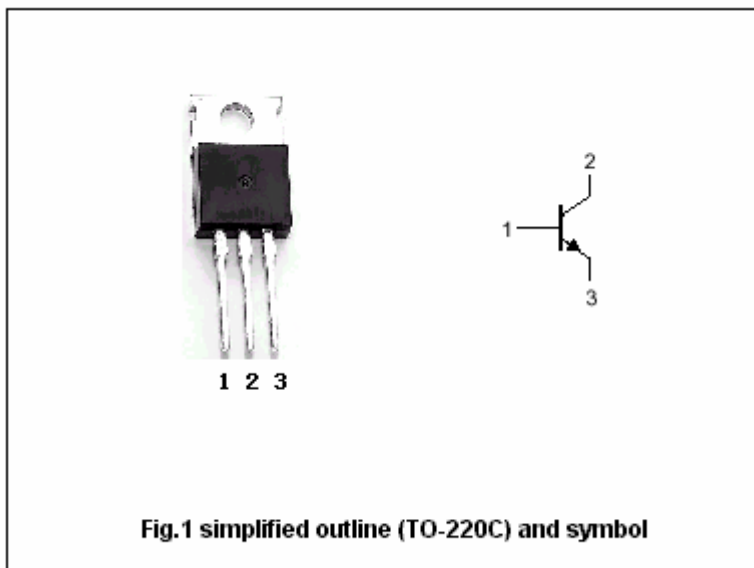
- With TO-220C package
- High voltage ,high speed
- Wide area of safe operation

APPLICATIONS

- For 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	500	V
V_{CEO}	Collector-emitter voltage	Open base	400	V
V_{EBO}	Emitter-base voltage	Open collector	7	V
I_C	Collector current		12	A
I_{CM}	Collector current-Peak	$P_W \leq 300\mu\text{s}$, duty cycle $\leq 10\%$	25	A
I_B	Base current		4	A
P_C	Collector dissipation	$T_a=25^\circ\text{C}$	1.75	W
		$T_C=25^\circ\text{C}$	70	
T_j	Junction temperature		150	$^\circ\text{C}$
T_{stg}	Storage temperature		-50~150	$^\circ\text{C}$

Silicon NPN Power Transistors

2SC4164

CHARACTERISTICS

Tj=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=10mA; R_{BE}=\infty$	400			V
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C=1mA; I_E=0$	500			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=1mA; I_C=0$	7			V
V_{CEsat}	Collector-emitter saturation voltage	$I_C=8A; I_B=1.6A$			0.8	V
V_{BEsat}	Base-emitter saturation voltage	$I_C=8A; I_B=1.6A$			1.5	V
I_{CBO}	Collector cut-off current	$V_{CB}=400V; I_E=0$			10	μA
I_{EBO}	Emitter cut-off current	$V_{EB}=5V; I_C=0$			10	μA
h_{FE-1}	DC current gain	$I_C=1.6A; V_{CE}=5V$	15		50	
h_{FE-2}	DC current gain	$I_C=8A; V_{CE}=5V$	10			
h_{FE-3}	DC current gain	$I_C=10mA; V_{CE}=5V$	10			
f_T	Transition frequency	$I_C=1.6A; V_{CE}=10V$		20		MHz
C_{ob}	Collector output capacitance	$f=1MHz; V_{CB}=10V$		160		pF

Switching times

t_{on}	Turn-on time	$I_C=10A; I_{B1}=2A$ $I_{B2}=-4A; V_{CC}=200V$ $R_L=20\Omega$			0.5	μs
t_s	Storage time				2.5	μs
t_f	Fall time				0.3	μs

◆ h_{FE-1} Classifications

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

Silicon NPN Power Transistors

2SC4164

PACKAGE OUTLINE

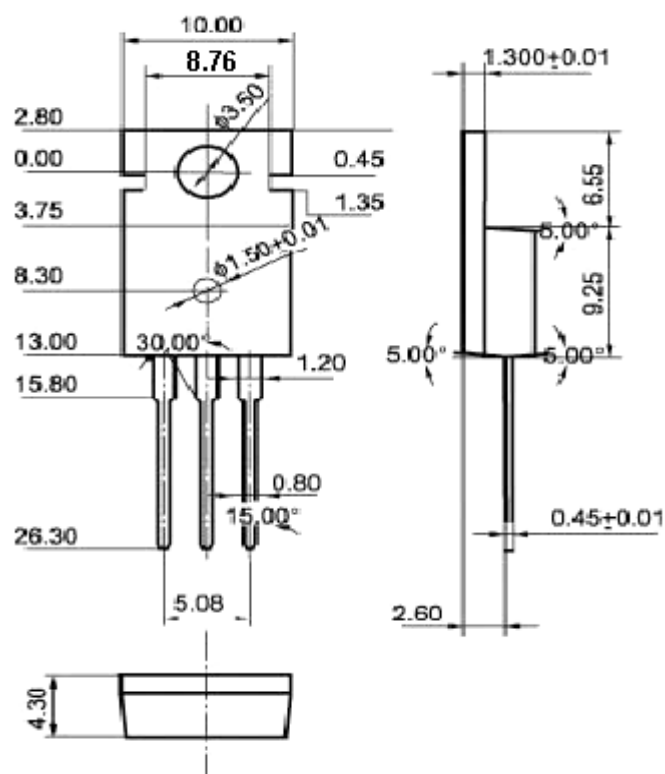


Fig.2 Outline dimensions (unindicated tolerance:±0.10 mm)

Silicon NPN Power Transistors

2SC4164

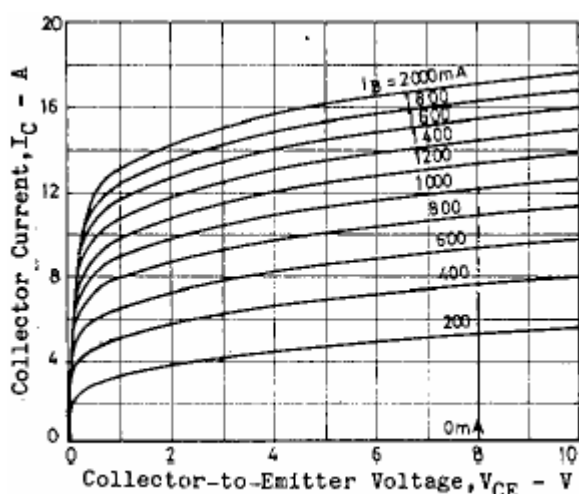


Fig.3 Static Characteristic

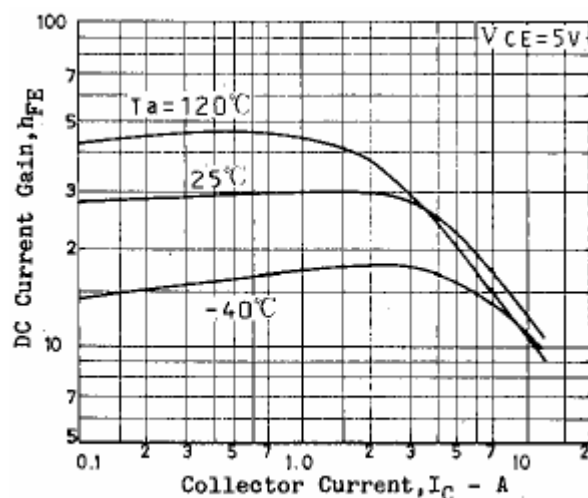


Fig.4 DC current Gain

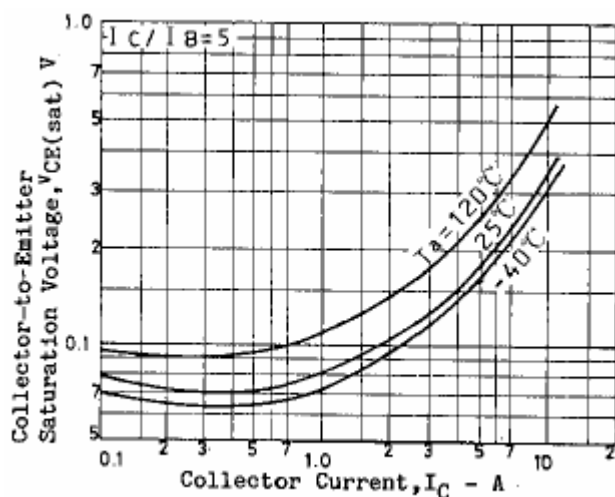


Fig.5 Collector-Emitter Saturation Voltage

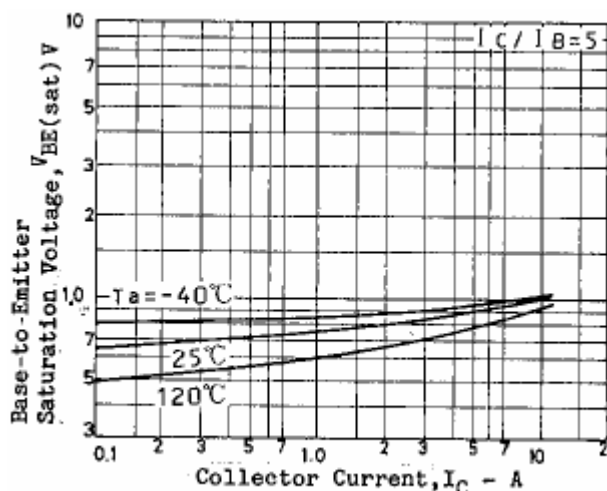


Fig.6 Base-Emitter Saturation Voltage

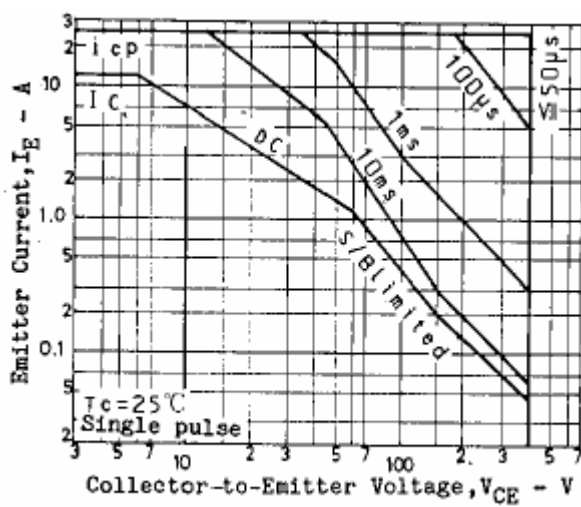


Fig.7 Safe Operating Area