

Silicon NPN Power Transistors

2SC3830

DESCRIPTION

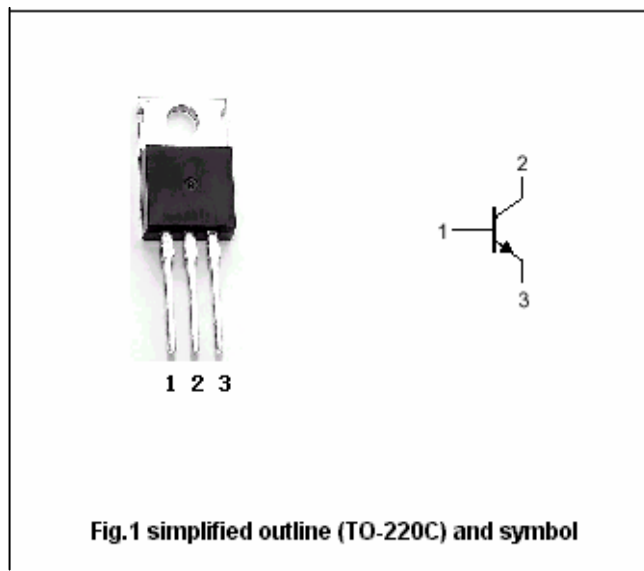
- With TO-220C package
- High voltage
- High speed switching

APPLICATIONS

- For switching regulator and general purpose applications

PINNING

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

Absolute maximum ratings($T_a=25^\circ\text{C}$)

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		6	A
I_{CM}	Collector current-peak		12	A
I_B	Base current		2	A
P_C	Collector dissipation	$T_C=25^\circ\text{C}$	50	W
T_j	Junction temperature		150	$^\circ\text{C}$
T_{stg}	Storage temperature		-55~150	$^\circ\text{C}$

Silicon NPN Power Transistors

2SC3830

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	$I_C=2A$; $I_B=0.4A$			0.5	V
V_{BEsat}	Base-emitter saturation voltage	$I_C=2A$; $I_B=0.4A$			1.3	V
I_{CBO}	Collector cut-off current	$V_{CB}=600V$; $I_E=0$			1	mA
I_{EBO}	Emitter cut-off current	$V_{EB}=10V$; $I_C=0$			100	μA
h_{FE}	DC current gain	$I_C=2A$; $V_{CE}=4V$	10		30	
f_T	Transition frequency	$I_C=0.5A$; $V_{CE}=12V$		8		MHz
C_{OB}	Output capacitance	$f=1MHz$; $V_{CB}=10V$		45		pF

Switching times

t_{on}	Turn-on time	$V_{CC}=200V$; $I_C=2A$ $I_{B1}=0.2A$; $I_{B2}=-0.4A$; $R_L=100\Omega$			1.0	μs
t_{stg}	Storage time				4.5	μs
t_f	Fall time				0.5	μs

Silicon NPN Power Transistors

2SC3830

PACKAGE OUTLINE

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

Silicon NPN Power Transistors

2SC3830

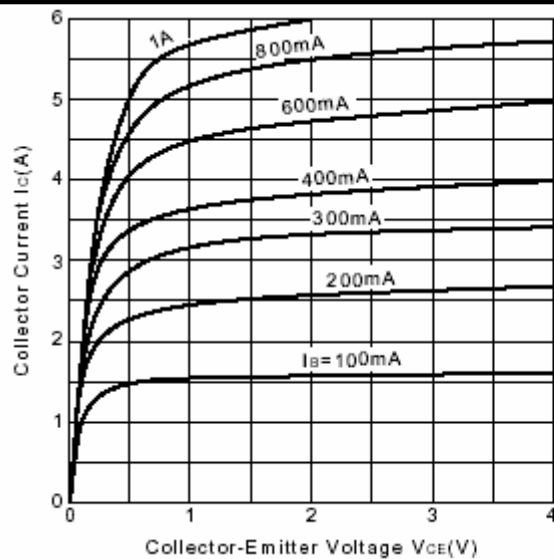


Fig.3 Static Characteristic

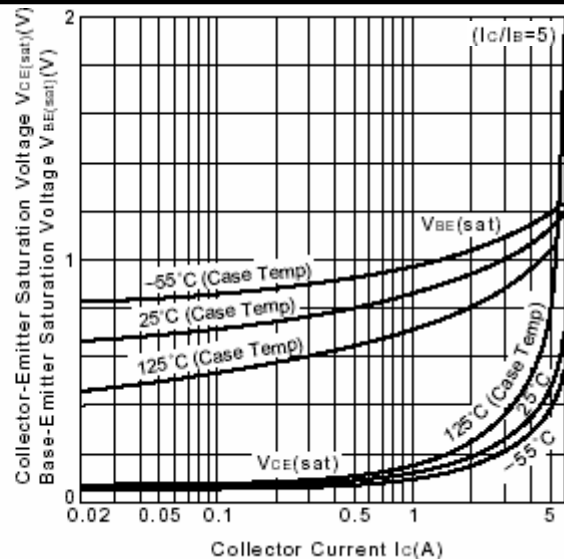
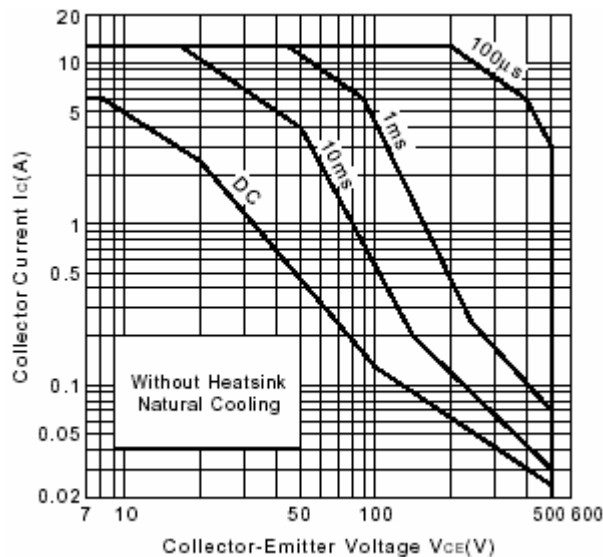
Fig.4 Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

Fig.5 Safe Operating Area

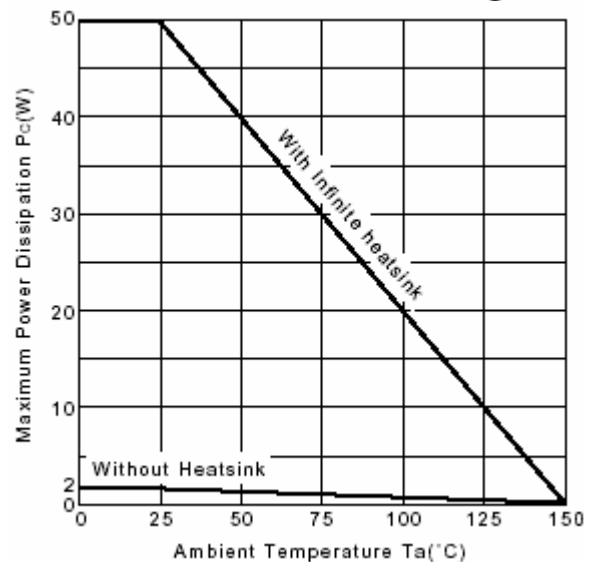


Fig.6 Power Derating

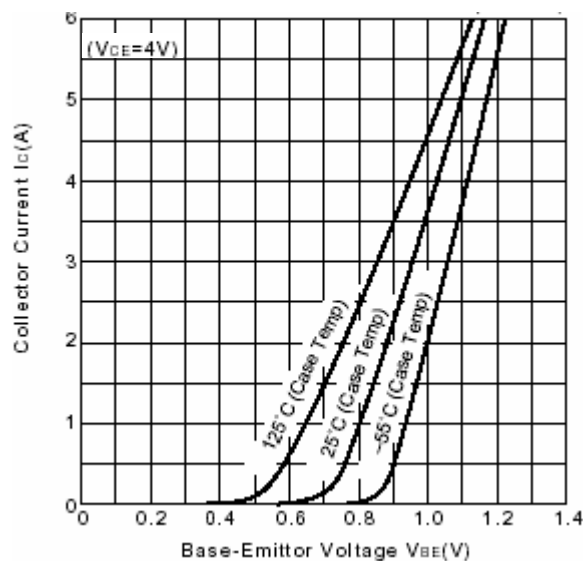
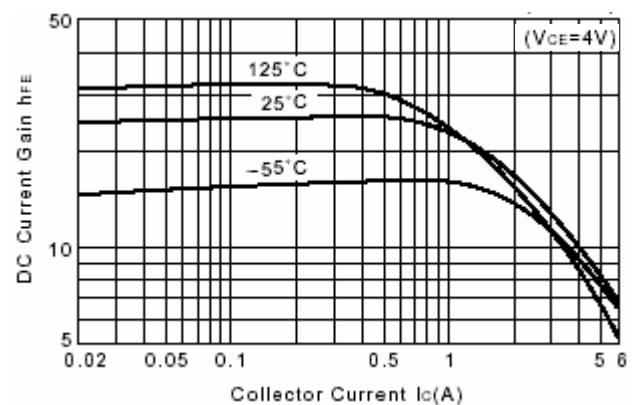
Fig.7 $I_C - V_{BE}$ 

Fig.8 DC current Gain