

Silicon NPN Power Transistors

2SD2059

DESCRIPTION

- With TO-220F package
- Complement to type 2SB1367
- Low collector saturation voltage:
 $V_{CE(SAT)}=2.0V(Max)$ at $I_C=4A, I_B=0.4A$
- Collector power dissipation:
 $P_C=30W(T_C=25^{\circ}C)$

APPLICATIONS

- With general purpose applications

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

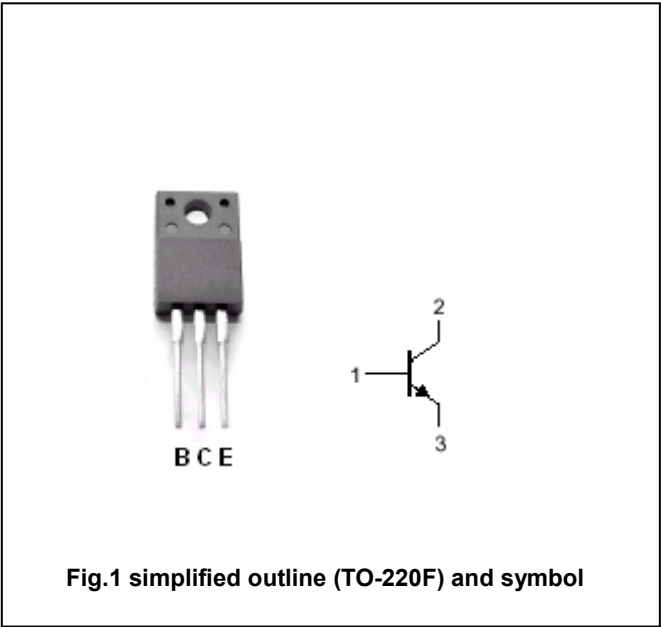


Fig.1 simplified outline (TO-220F) and symbol

Absolute maximum ratings (Ta=25°C)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	100	V
V_{CEO}	Collector-emitter voltage	Open base	100	V
V_{EBO}	Emitter-base voltage	Open collector	5	V
I_C	Collector current		5	A
I_B	Base current		0.5	A
P_C	Collector dissipation	$T_C=25^{\circ}C$	30	W
T_j	Junction temperature		150	°C
T_{stg}	Storage temperature		-55~150	°C

Silicon NPN Power Transistors

2SD2059

CHARACTERISTICS

Tj=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=50mA ; I_B=0$	100			V
V_{CEsat}	Collector-emitter saturation voltage	$I_C=4A ; I_B=0.4A$			2.0	V
V_{BE}	Base-emitter on voltage	$I_C=1A ; V_{CE}=5V$			1.5	V
I_{CBO}	Collector cut-off current	$V_{CB}=100V ; I_E=0$			0.1	mA
I_{EBO}	Emitter cut-off current	$V_{EB}=5V ; I_C=0$			1.0	mA
h_{FE-1}	DC current gain	$I_C=1A ; V_{CE}=5V$	40		240	
h_{FE-2}	DC current gain	$I_C=4A ; V_{CE}=5V$	20			
f_T	Transition frequency	$I_C=1A ; V_{CE}=5V$		12		MHz
C_{OB}	Collector output capacitance	$f=1MHz ; V_{CB}=10V$		100		pF

◆ h_{FE-1} Classifications

R	O	Y
40-80	70-140	120-240

Silicon NPN Power Transistors

2SD2059

PACKAGE OUTLINE

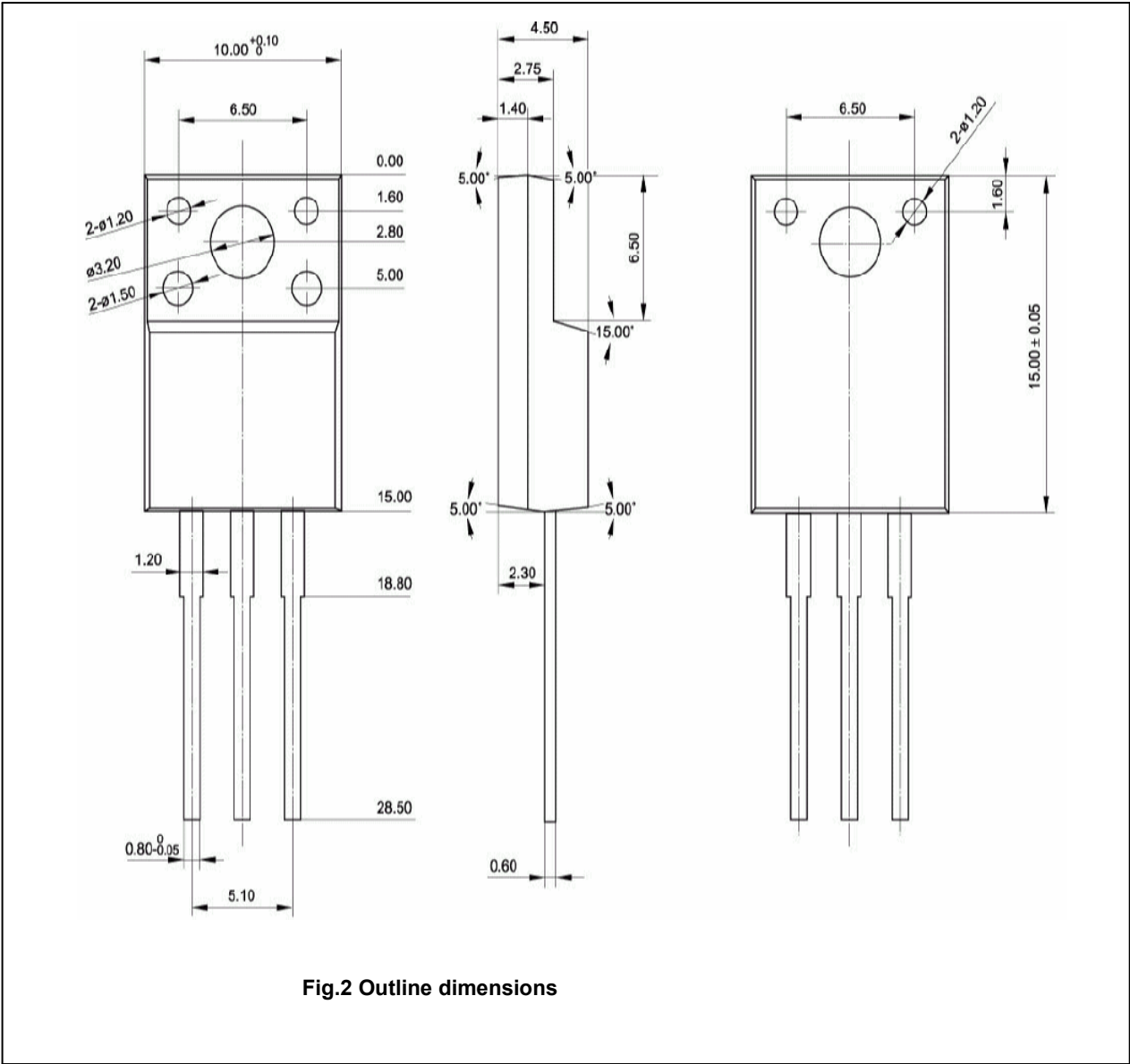


Fig.2 Outline dimensions

Silicon NPN Power Transistors

2SD2059

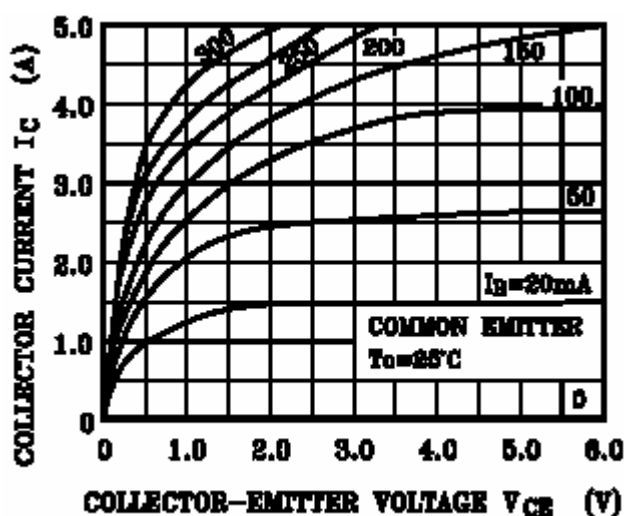


Fig.3 Static Characteristic

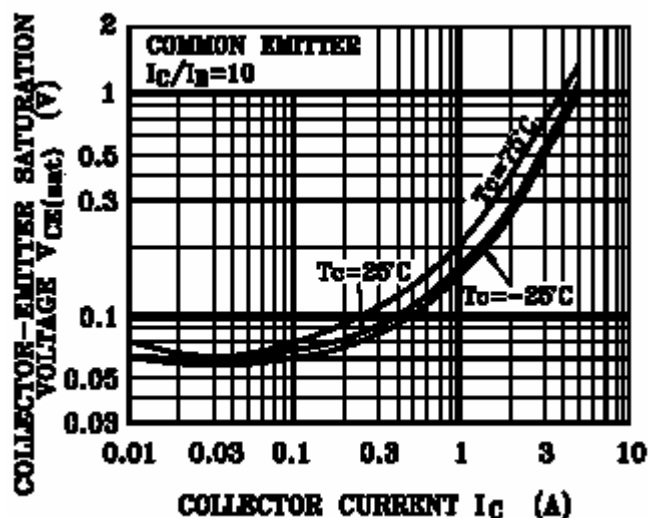


Fig.4 Collector-Emitter Saturation Voltage

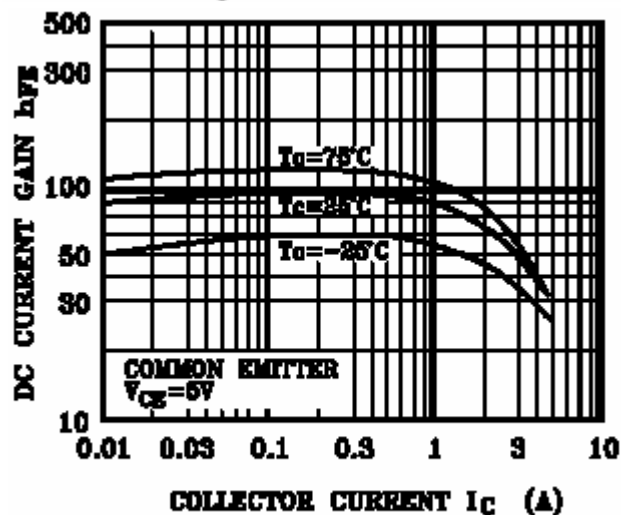


Fig.5 DC current Gain

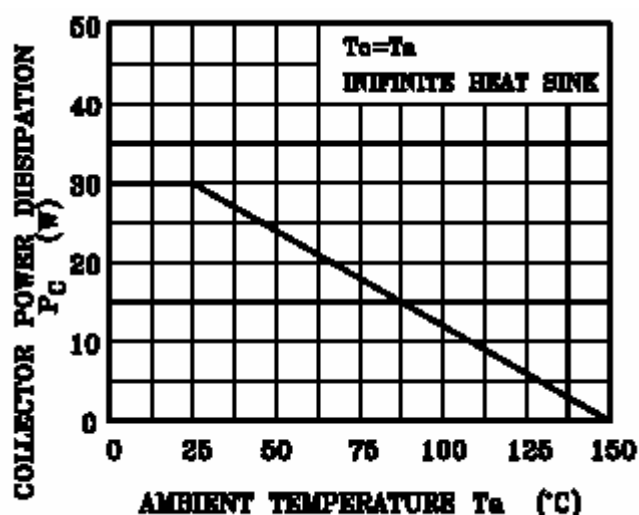


Fig.6 Power Derating

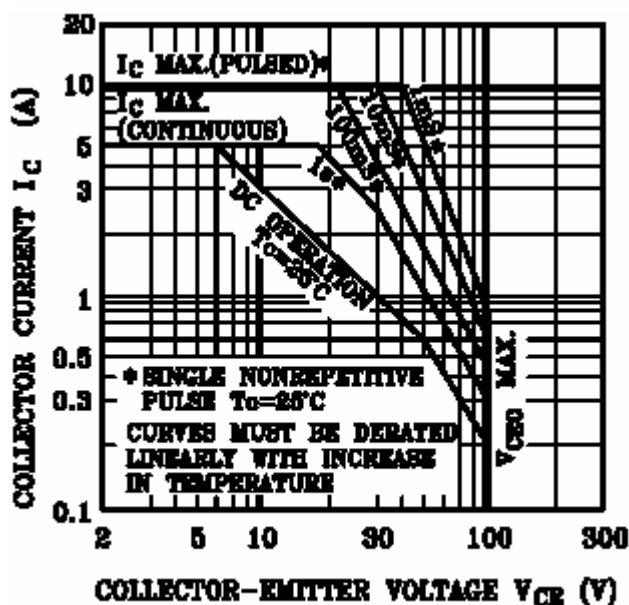


Fig.7 Safe Operating Area