Silicon NPN Power Transistors 2SD1159

DESCRIPTION

- With TO-220 package

APPLICATIONS

- TV horizontal deflection output,
- High-current switching applications

PINNING

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

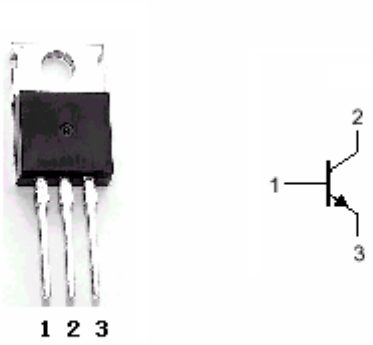

Fig.1 simplified outline (TO-220C) and symbol

Absolute maximum ratings (Ta=25℃)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	200	V
V_{CEO}	Collector-emitter voltage	Open base	60	V
V_{EBO}	Emitter-base voltage	Open collector	6	V
I_C	Collector current (DC)		4.5	A
I_{CM}	Collector current-peak		10	A
P_C	Collector power dissipation	T_C=25℃	40	W
T_j	Junction temperature		150	℃
T_{stg}	Storage temperature		-55~150	℃

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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}=∞	60			V
$V_{(BR)CBO}$	Collector-base breakdown voltage	I_C=5mA ;I_E=0	200			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	I_E=5mA ;I_C=0	6			V
V_{CEsat}	Collector-emitter saturation voltage	I_C=4A, I_B=0.4A		0.5	1.0	V
V_{BEsat}	Base-emitter saturation voltage	I_C=4A, I_B=0.4A			1.5	V
I_{CBO}	Collector cut-off current	V_{CB}=40V;I_E=0			0.1	mA
I_{EBO}	Emitter cut-off current	V_{EB}=5V; I_C=0			0.1	mA
h_{FE-1}	DC current gain	I_C=1A ; V_{CE}=5V	30		160	
h_{FE-2}	DC current gain	I_C=4A ; V_{CE}=5V	25			
f_T	Transition frequency	I_C=1A ; V_{CE}=5V		10		MHz
Switching times						
t_f	Fall time	I_C=5A;I_{B1}=-I_{B2}=0.5A; V_{CC}=50V		0.2	0.5	μs

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PACKAGE OUTLINE

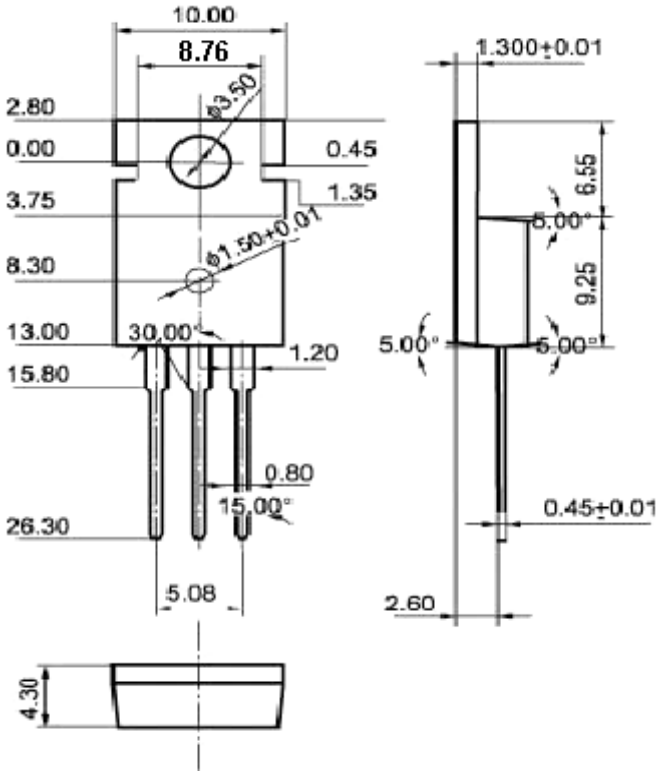

Fig.2 outline dimensions (unindicated tolerance:±0.10 mm)

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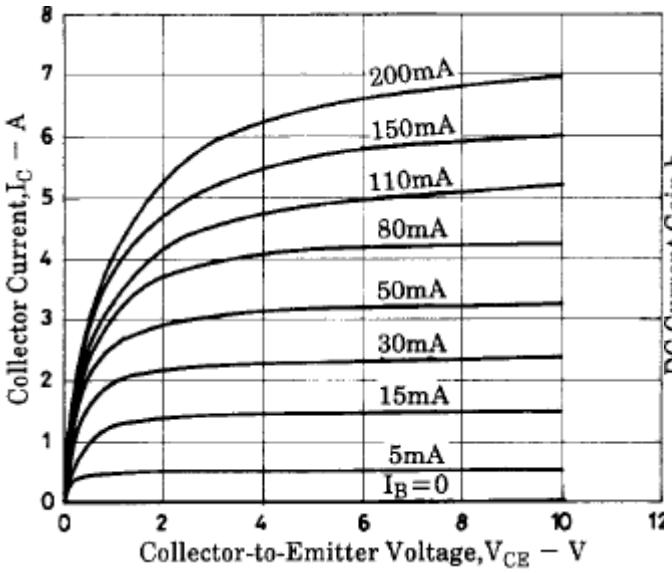

Fig.3 Static Characteristic

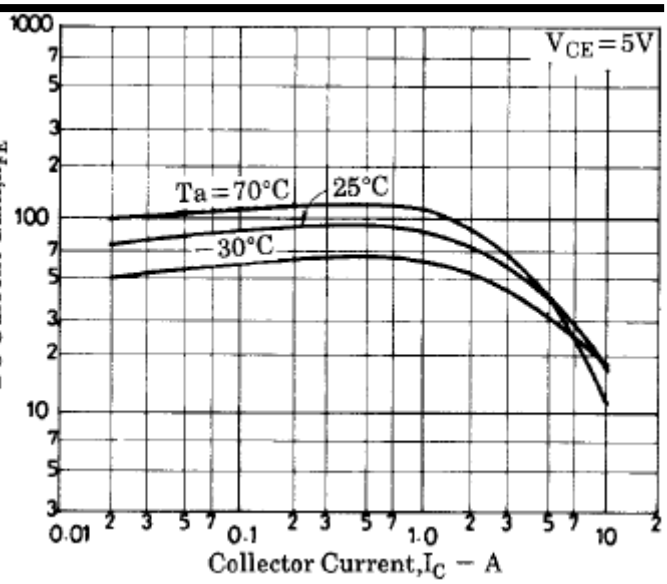

Fig.4 DC current Gain

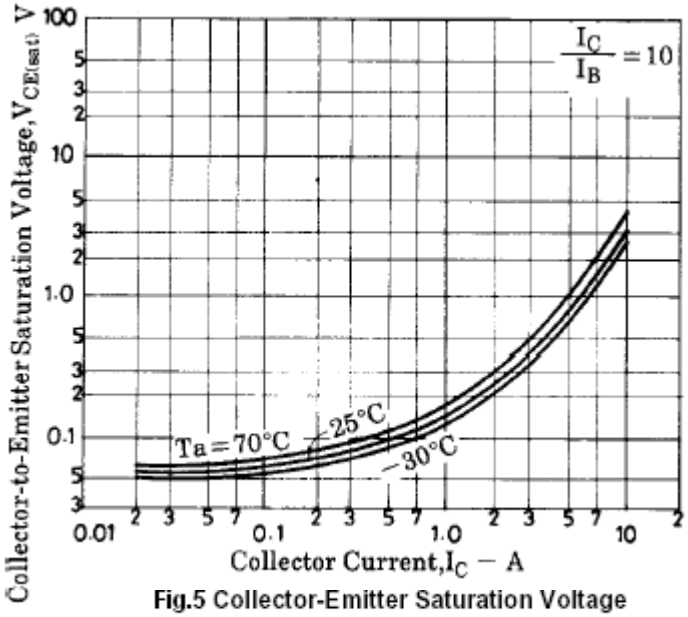

Fig.5 Collector-Emitter Saturation Voltage

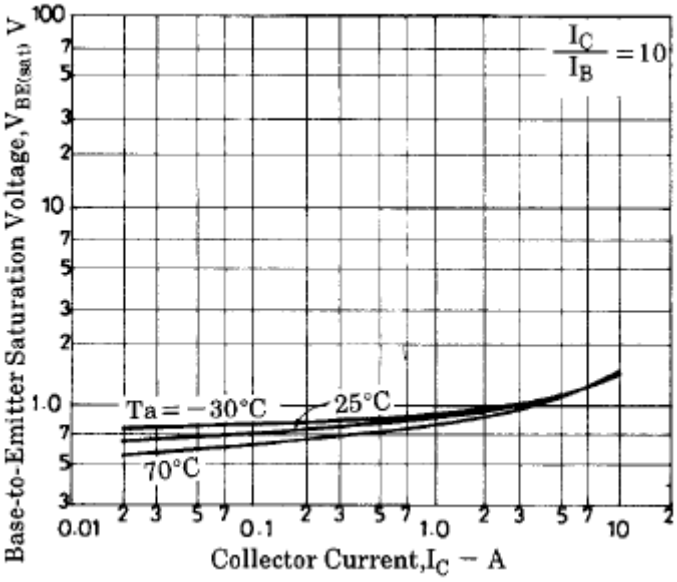

Fig.6 Base-Emitter Saturation Voltage

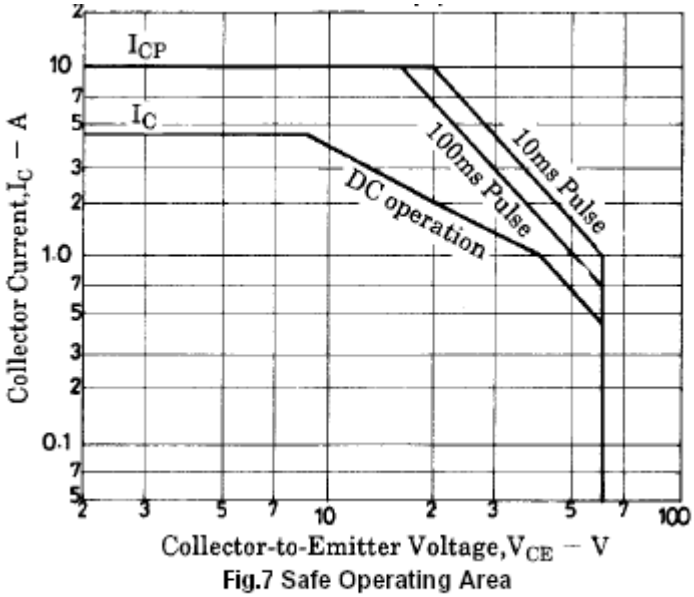

Fig.7 Safe Operating Area