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Silicon NPN Power Transistors 2SC3988

DESCRIPTION

- With TO-3PN package
- High breakdown voltage high reliability.
- Wide area of safe operation
- Fast switching speed

APPLICATIONS

- 500V/25A switching regulator applications

PINNING

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

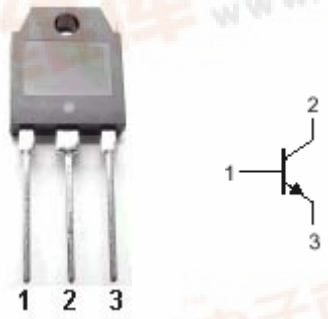

Fig.1 simplified outline (TO-3PN) and symbol

Absolute maximum ratings(Ta=℃)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	800	V
V_{CEO}	Collector-emitter voltage	Open base	500	V
V_{EBO}	Emitter-base voltage	Open collector	7	V
I_C	Collector current		25	A
I_{CP}	Collector current-peak		40	A
I_B	Base current		8	A
P_C	Collector power dissipation	T_C=25℃	150	W
T_j	Junction temperature		150	℃
T_{stg}	Storage temperature		-55~150	℃

固电半导体 INCHANGE SEMICONDUCTOR

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CHARACTERISTICS

Tj=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CBO}$	Collector-base breakdown voltage	I_C=1mA ; I_E=0	800			V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	I_C=5mA ;R_{BE}=∞	500			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	I_C=1mA ;I_C=0	7			V
$V_{CEX(SUS)}$	Collector-emitter sustaining voltage	I_C=10A;I_{B1}=-I_{B2}=2A; L=200μH	500			V
V_{CEsat}	Collector-emitter saturation voltage	I_C=12A; I_B=2.4A			1.0	V
V_{BEsat}	Base-emitter saturation voltage	I_C=12A; I_B=2.4A			1.5	V
I_{CBO}	Collector cut-off current	V_{CB}=500V; 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=2.4A ; V_{CE}=5V	15		50	
h_{FE-2}	DC current gain	I_C=12A ; V_{CE}=5V	8			
C_{ob}	Output capacitance	I_E=0 ; V_{CB}=10V;f=1MHz		260		pF
f_T	Transition frequency	I_C=2.4A ; V_{CE}=10V		18		MHz
Switching times						
t_{on}	Turn-on time	$5I_{B1}$=-2.5I_{B2}= I_C=14A V_{CC}≈200V;R_L=14.3Ω			0.5	μs
t_{stg}	Storage time				3.0	μs
t_f	Fall time				0.3	μs

◆ **h_{FE-1} Classifications**

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

固电半导体 INCHANGE SEMICONDUCTOR

PACKAGE OUTLINE

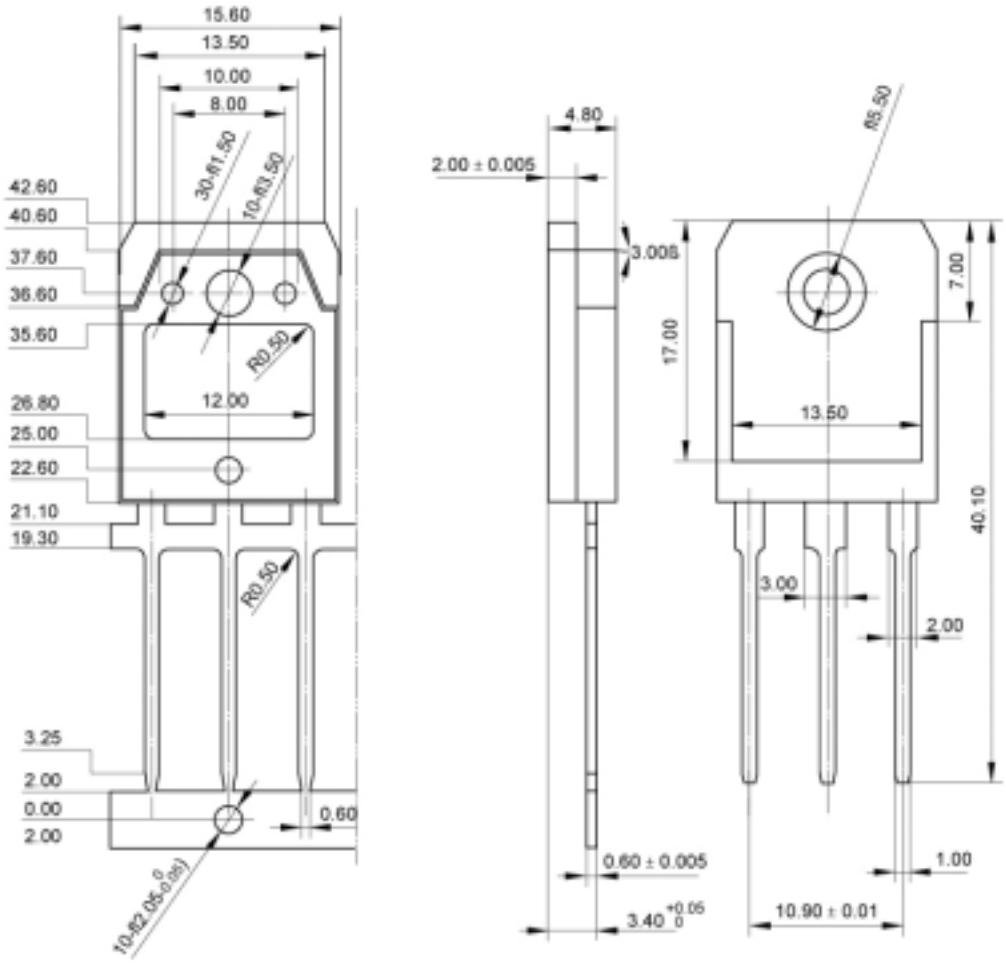

Fig.2 outline dimensions (unindicated tolerance:±0.1mm)

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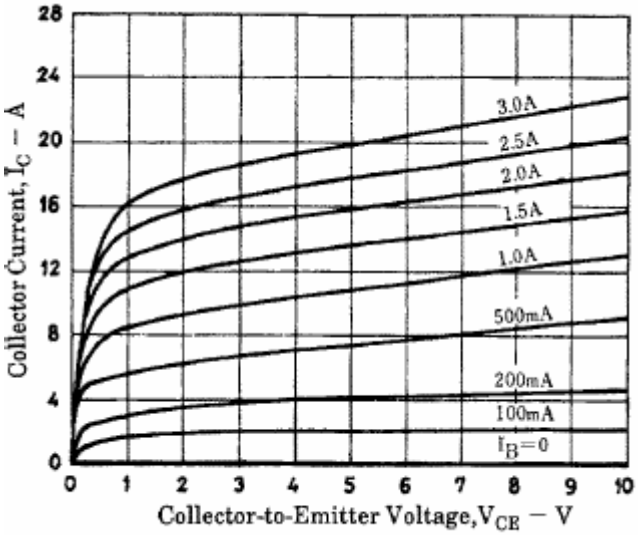

Fig.3 Static Characteristic

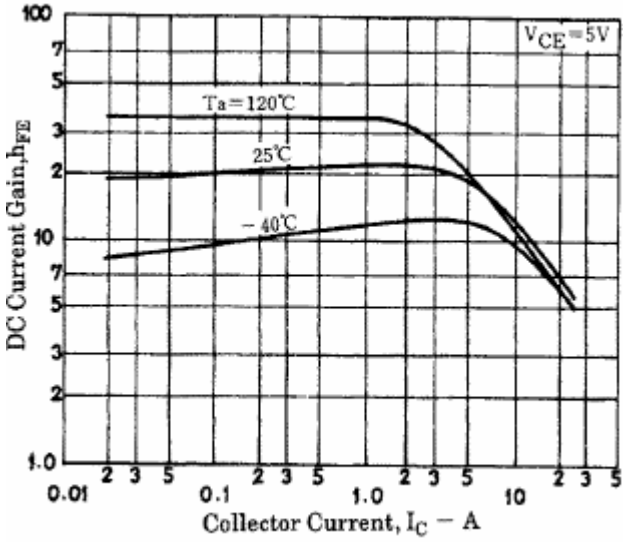

Fig.4 DC current Gain

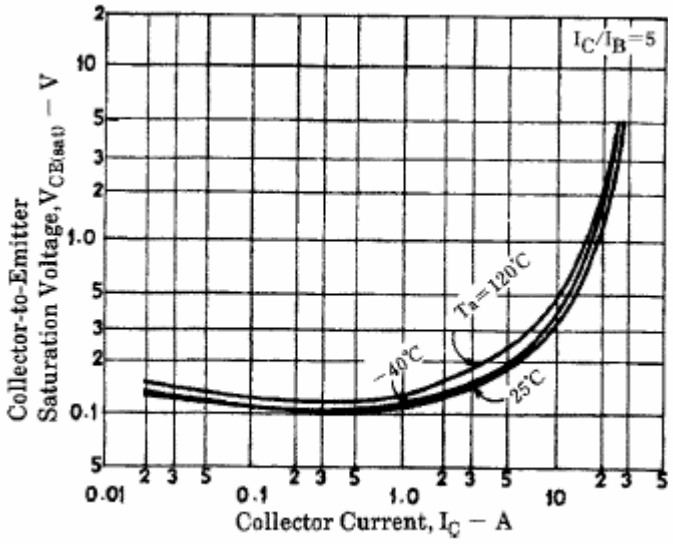

Fig.5 Collector-Emitter Saturation Voltage

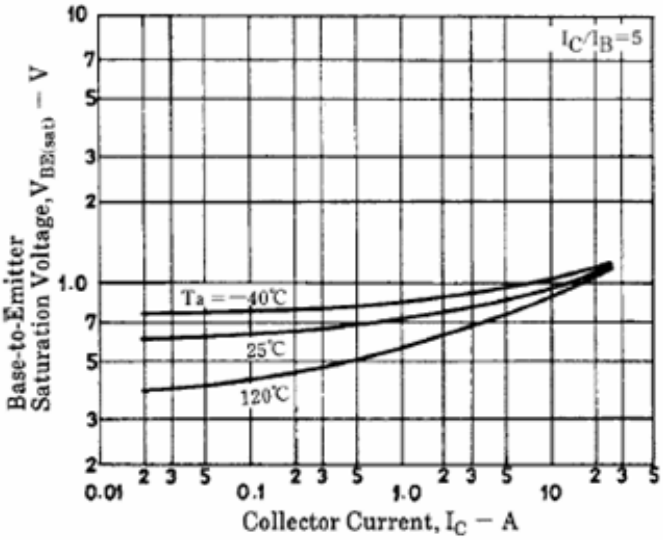

Fig.6 Base-Emitter Saturation Voltage

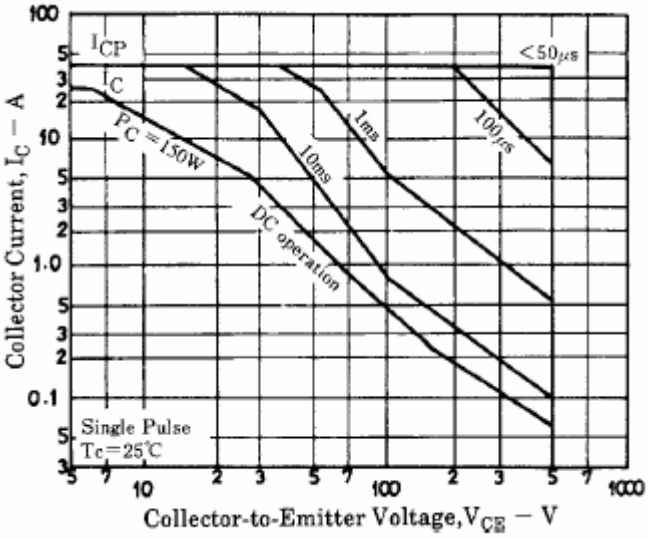

Fig.7 Safe Operating Area