

Silicon NPN Power Transistors

2SC5002

DESCRIPTION

- With TO-3PML package
- High voltage switching

APPLICATIONS

- Display horizontal deflection output;
switching regulator general purpose

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

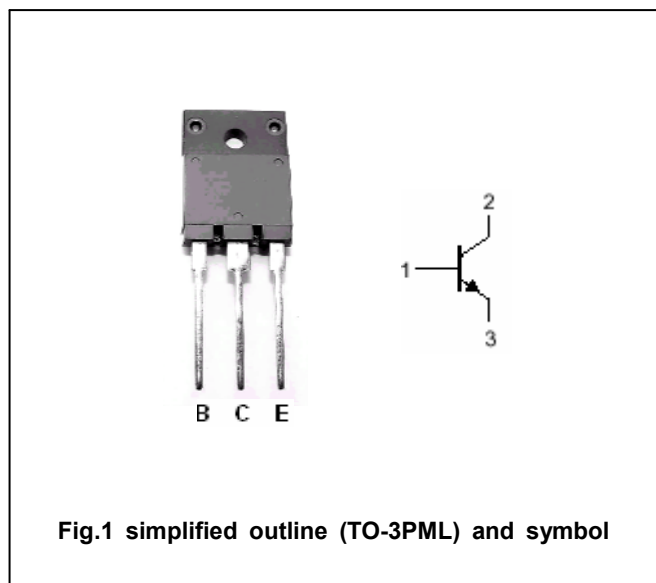


Fig.1 simplified outline (TO-3PML) and symbol

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	1500	V
V_{CEO}	Collector-emitter voltage	Open base	800	V
V_{EBO}	Emitter-base voltage	Open collector	6	V
I_C	Collector current		7	A
I_{CM}	Collector current-peak		14	A
I_B	Base current		3.5	A
P_C	Collector power dissipation	$T_C=25^\circ\text{C}$	80	W
T_j	Junction temperature		150	$^\circ\text{C}$
T_{stg}	Storage temperature		-55~150	$^\circ\text{C}$

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CHARACTERISTICS

Tj=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=10mA; I_B=0$	800			V
V_{CEsat}	Collector-emitter saturation voltage	$I_C=5A; I_B=1.2A$			5	V
V_{BEsat}	Base-emitter saturation voltage	$I_C=5A; I_B=1.2A$			1.5	V
I_{CBO1}	Collector cut-off current	$V_{CB}=1200V; I_E=0$			100	μA
I_{CBO2}	Collector cut-off current	$V_{CB}=1500V; I_E=0$			1	mA
I_{EBO}	Emitter cut-off current	$V_{EB}=6V; I_C=0$			100	μA
h_{FE-1}	DC current gain	$I_C=1A; V_{CE}=5V$	8			
h_{FE-2}	DC current gain	$I_C=5A; V_{CE}=5V$	4		9	
f_T	Transition frequency	$I_E=-0.5A; V_{CE}=12V$		4		MHz
C_{OB}	Output capacitance	$V_{CB}=10V; f=1MHz$		100		pF

Switching times

t_{stg}	Storage time	$I_C=4A; I_{B1}=0.8A;$ $I_{B2}=-1.6A; R_L=50\Omega$ $V_{CC}=200V$			4.0	μs
t_f	Fall time				0.2	μs

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PACKAGE OUTLINE

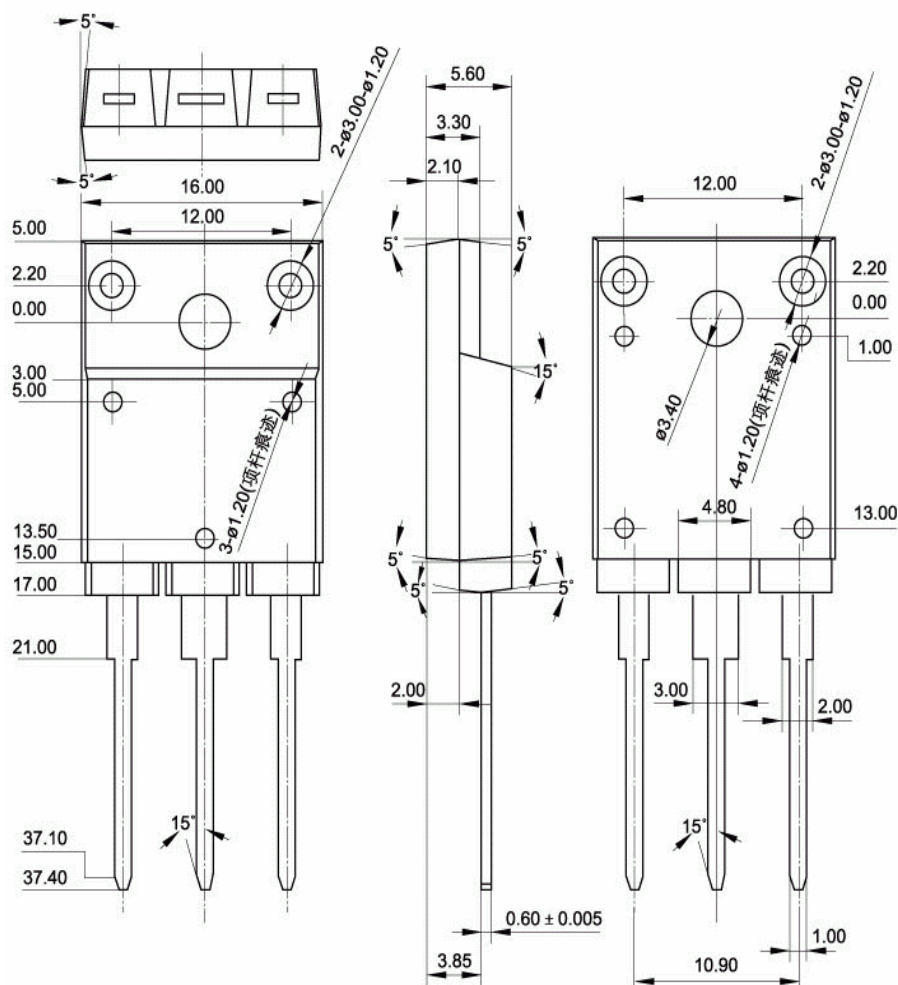


Fig.2 Outline dimensions

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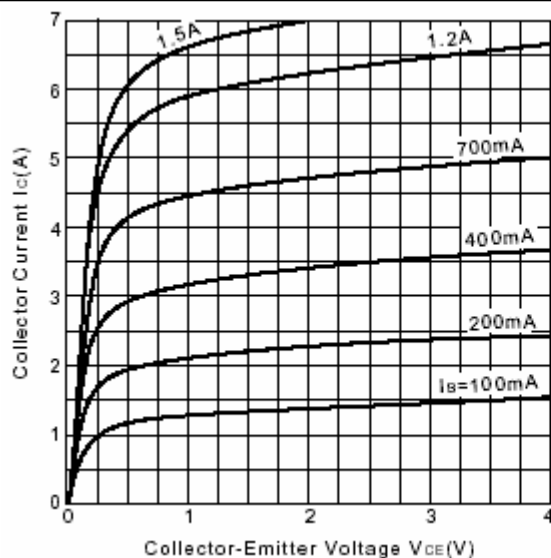


Fig.3 Static Characteristic

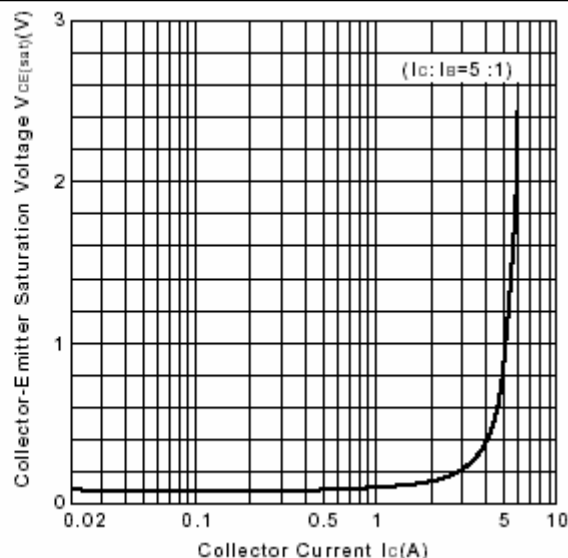
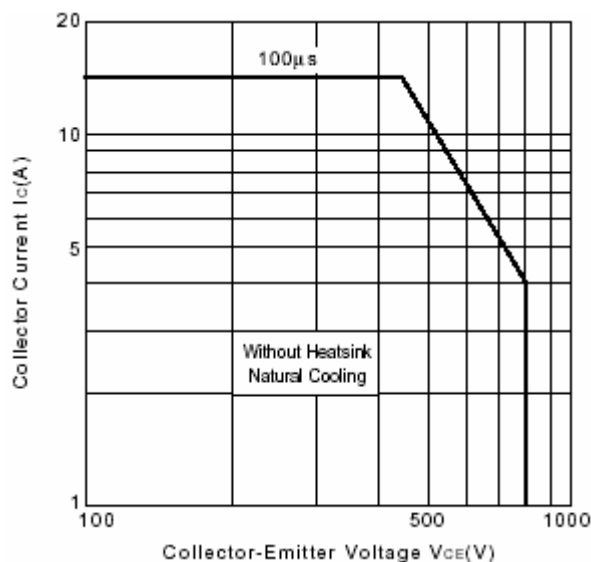
Fig.4 $V_{CE(sat)}$ - I_C Characteristics

Fig.5 Safe Operating Area

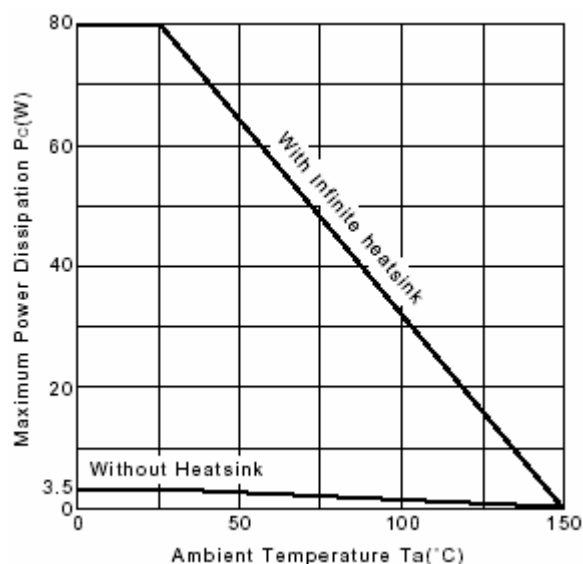
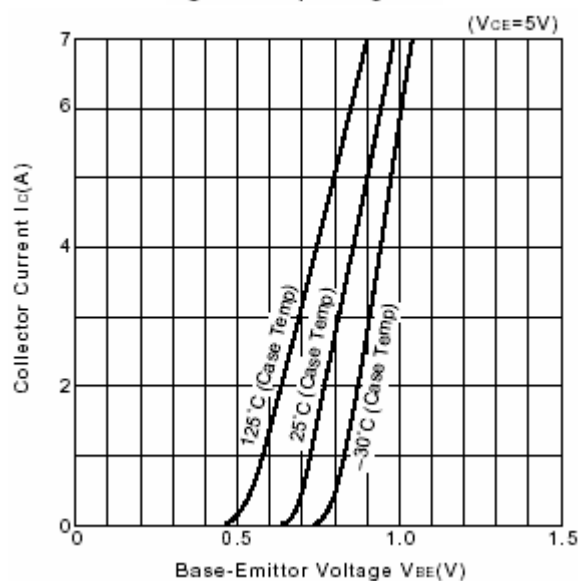
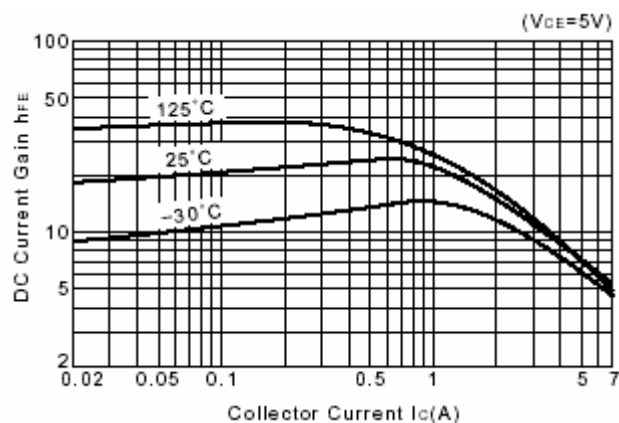
Fig.6 P_C - T_a DeratingFig.7 I_C - V_{BE} 

Fig.8 DC current Gain