

Silicon PNP Power Transistors

2SB1604 2SB1604A

DESCRIPTION

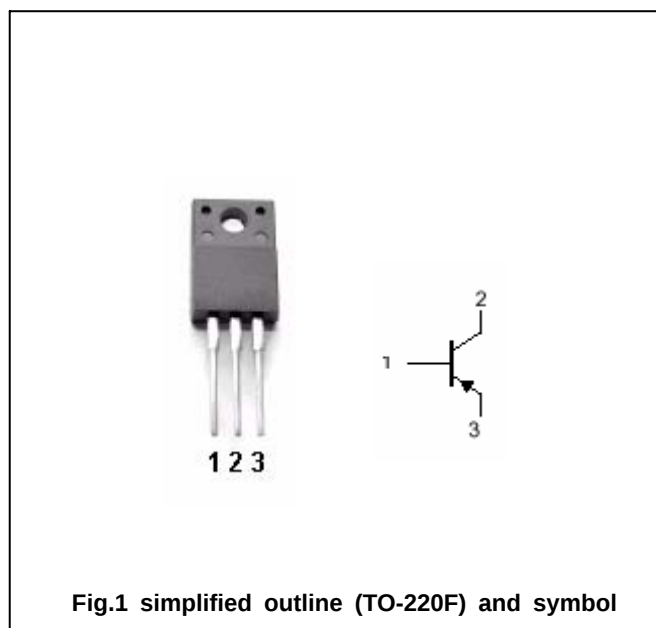
- With TO-220F package
- Low collector saturation voltage
- High speed switching

APPLICATIONS

- For low-voltage switching applications

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

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

SYMBOL	PARAMETER		CONDITIONS	MAX	UNIT
V_{CBO}	Collector-base voltage	2SB1604	Open emitter	-40	V
		2SB1604A		-50	
V_{CEO}	Collector-emitter voltage	2SB1604	Open base	-20	V
		2SB1604A		-40	
V_{EBO}	Emitter-base voltage		Open collector	-5	V
I_C	Collector current			-10	A
I_{CM}	Collector current-peak			-20	A
P_C	Collector dissipation		$T_a=25$	2	W
			$T_C=25$	40	
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	2SB1604	$I_C=-10mA; I_B=0$	-20			V
		2SB1604A		-40			
V_{CEsat}	Collector-emitter saturation voltage		$I_C=-10A; I_B=-0.33A$			-0.6	V
V_{BEsat}	Base-emitter saturation voltage		$I_C=-10A; I_B=-0.33A$			-1.5	V
I_{CBO}	Collector cut-off current		$V_{CB}=-40V; I_E=0$			-50	μA
I_{EBO}	Emitter cut-off current		$V_{EB}=-5V; I_C=0$			-50	μA
h_{FE-1}	DC current gain		$I_C=-0.1A; V_{CE}=-2V$	45			
h_{FE-2}	DC current gain		$I_C=-3A; V_{CE}=-2V$	90		260	
C_{OB}	Output capacitance		$I_E=0; V_{CB}=-10V; f=1MHz$		400		pF
f_T	Transition frequency		$I_C=-0.5A; V_{CE}=-10V$		100		MHz

Switching times

t_{on}	Turn-on time	$I_C=-3A; I_{B1}=-I_{B2}=-0.1A$		0.1		μs
t_{stg}	Storage time			0.5		μs
t_f	Fall time			0.1		μs

◆ h_{FE-2} Classifications

Q	P
90-180	130-260

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PACKAGE OUTLINE

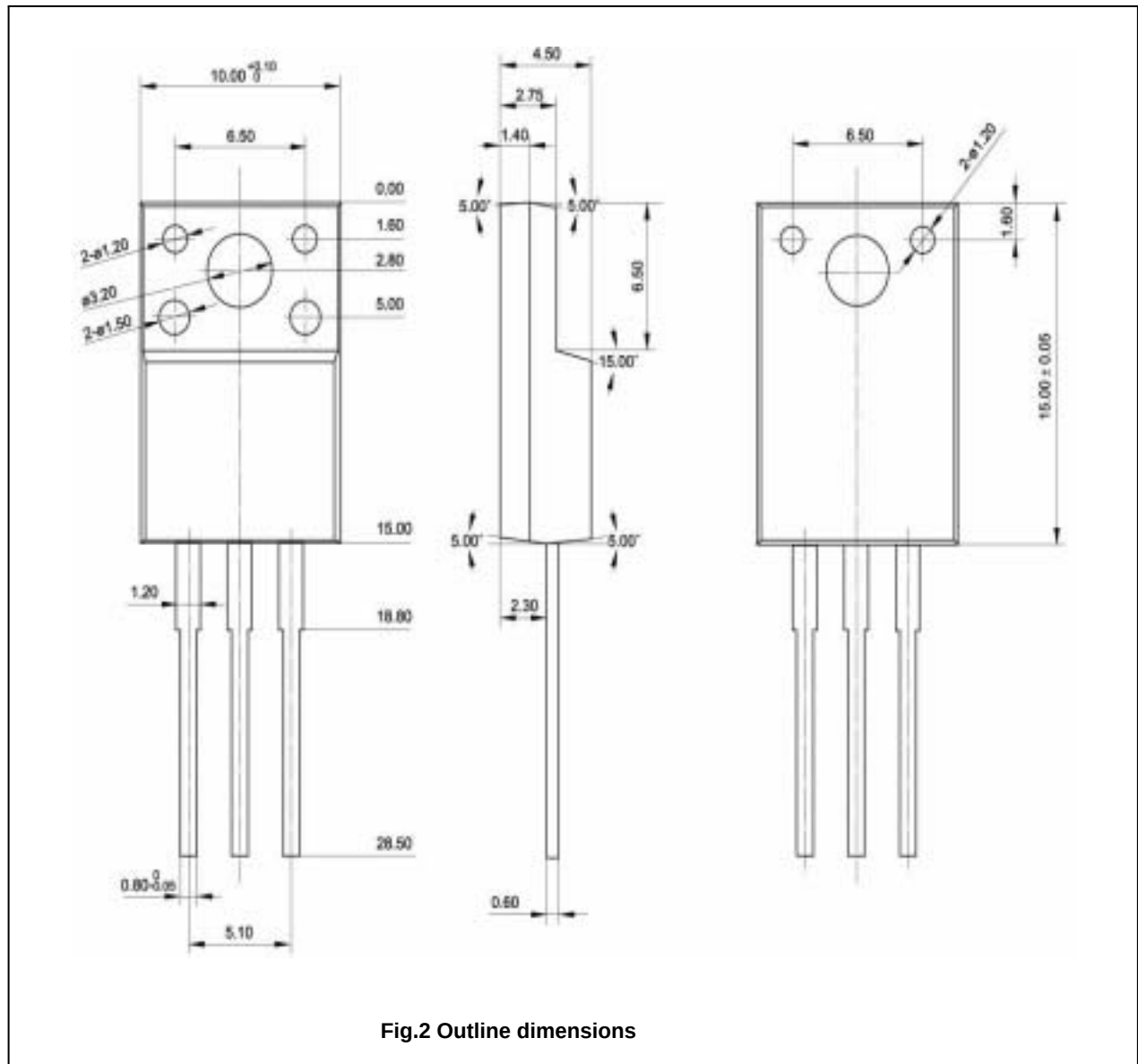


Fig.2 Outline dimensions

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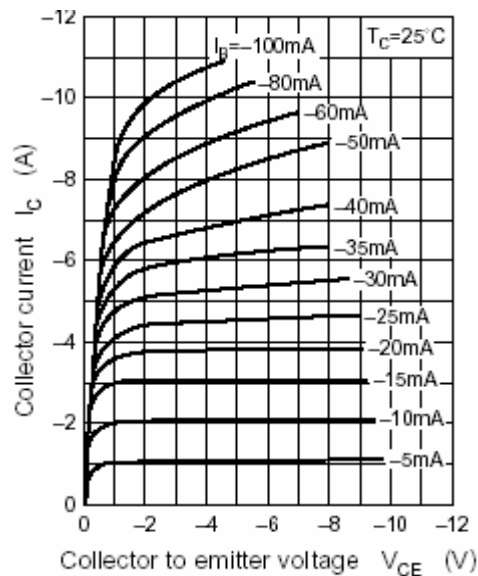


Fig.3 Static Characteristic

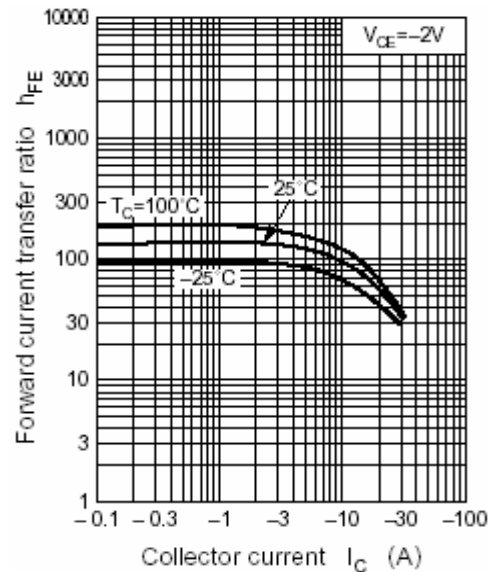


Fig.4 DC current Gain

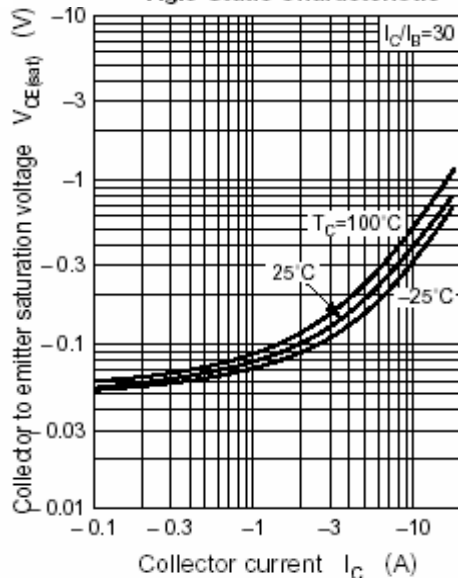


Fig.5 Collector-Emitter Saturation Voltage

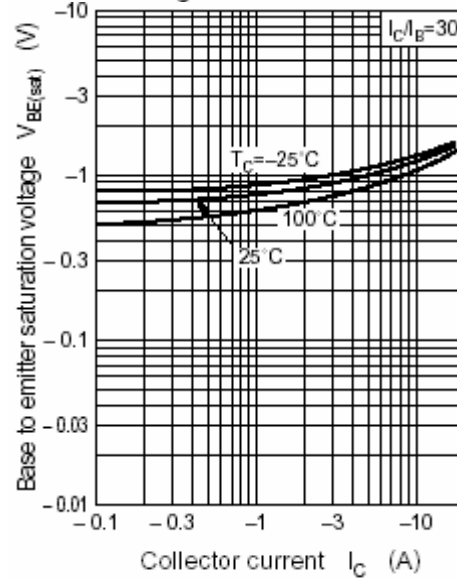


Fig.6 Base-Emitter Saturation Voltage

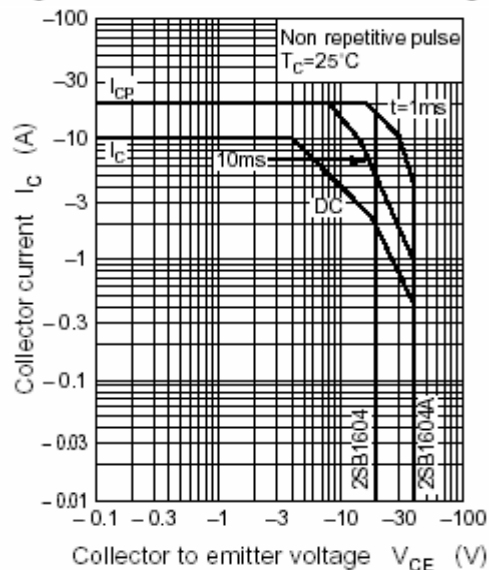


Fig.7 Safe Operating Area