

**Silicon NPN Power Transistors**

**2SD669 2SD669A**

**DESCRIPTION**

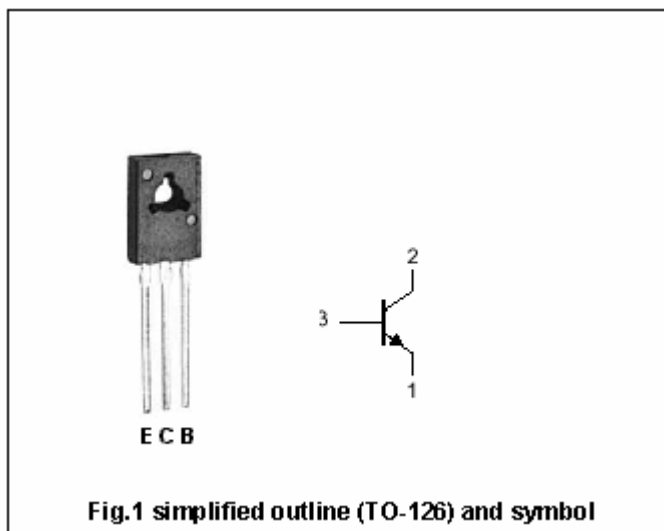
- With TO-126 package
- Complement to type 2SB649/649A
- High breakdown voltage  $V_{CE0}$ :120/160V
- High current 1.5A
- Low saturation voltage,excellent  $h_{FE}$  linearity

**APPLICATIONS**

- For low-frequency power amplifier applications

**PINNING**

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



**Absolute maximum ratings(Ta=25°C)**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	2SD669	180	V
		2SD669A	180	
$V_{CEO}$	Collector-emitter voltage	2SD669	120	V
		2SD669A	160	
$V_{EBO}$	Emitter-base voltage	Open collector	5	V
$I_C$	Collector current (DC)		1.5	A
$I_{CM}$	Collector current-peak		3	A
$P_D$	Total power dissipation	$T_a=25^\circ C$	1	W
		$T_c=25^\circ C$	20	
$T_j$	Junction temperature		150	°C
$T_{stg}$	Storage temperature		-55~150	°C

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## CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT	
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	2SD669	I <sub>C</sub> =10mA; R <sub>BE</sub> =∞	120			V
		2SD669A		160			
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	2SD669	I <sub>C</sub> =1mA; I <sub>E</sub> =0	180			V
		2SD669A		180			
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage	I <sub>E</sub> =1mA; I <sub>C</sub> =0	5			V	
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =0.5A; I <sub>B</sub> =50mA			1.0	V	
V <sub>BE</sub>	Base-emitter on voltage	I <sub>C</sub> =150mA; V <sub>CE</sub> =5V			1.5	V	
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =160V; I <sub>E</sub> =0			10	μA	
h <sub>FE-1</sub>	DC current gain	2SD669	I <sub>C</sub> =150mA; V <sub>CE</sub> =5V	60		320	
		2SD669A		60	200		
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =0.5A; V <sub>CE</sub> =5V	30				
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =150mA; V <sub>CE</sub> =5V		140		MHz	
C <sub>OB</sub>	Collector output capacitance	f=1MHz; V <sub>CB</sub> =10V		14		pF	

◆ h<sub>FE</sub> Classifications

h <sub>FE-1</sub>	B	C	D
2SB649	60-120	100-200	160-320
2SB649A	60-120	100-200	

PACKAGE OUTLINE

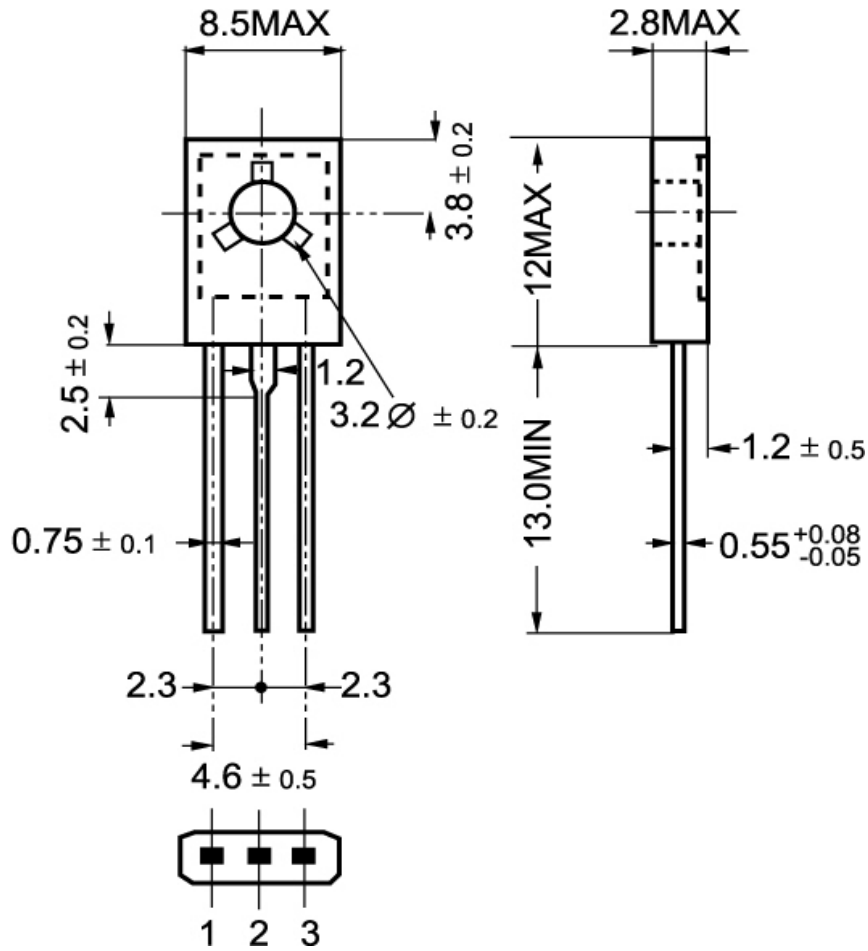


Fig.2 Outline dimensions

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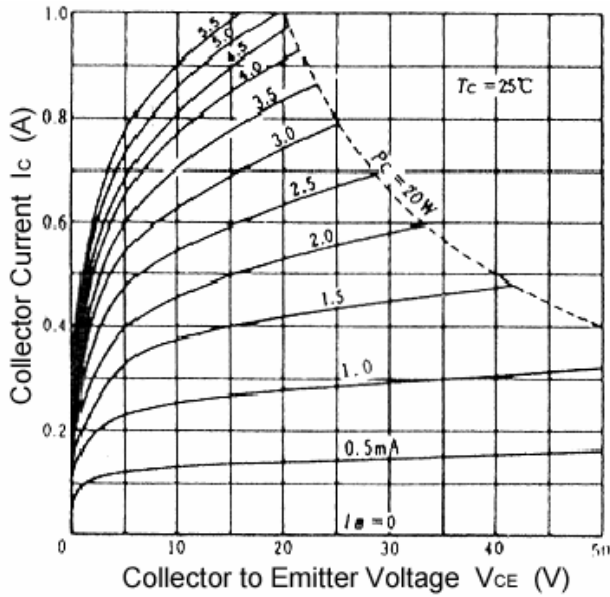


Fig.3 Static Characteristic

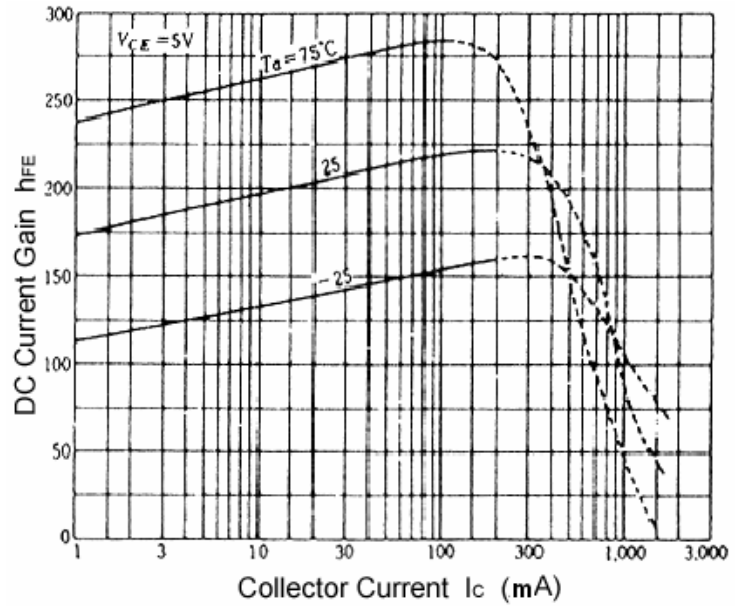


Fig.4 DC current Gain

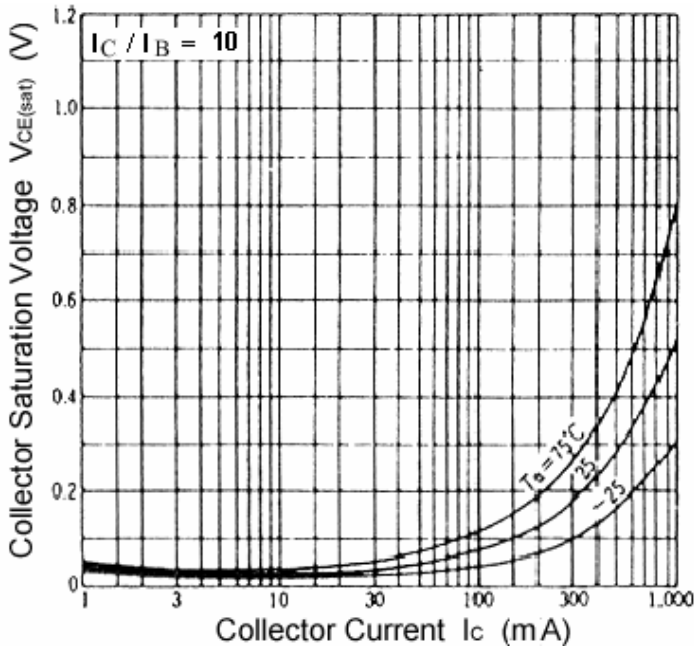


Fig.5 Collector-Emmitter Saturation Voltage

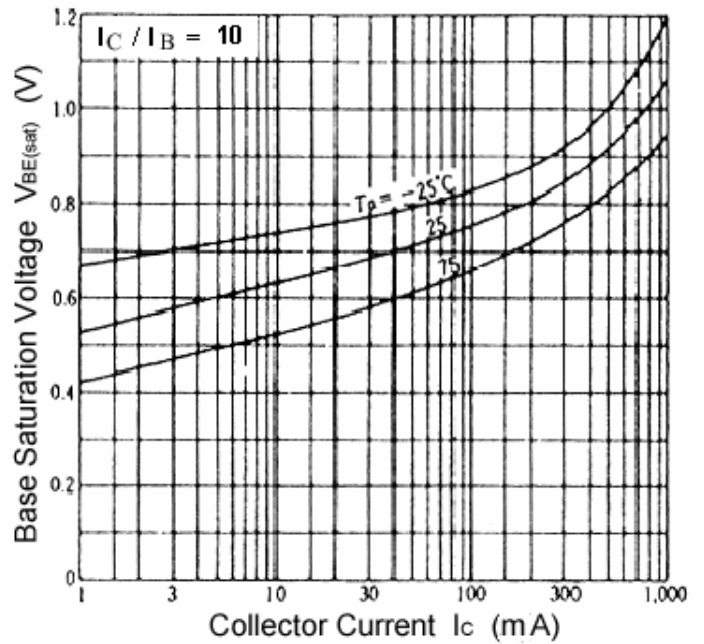


Fig.6 Base-Emmitter Saturation Voltage

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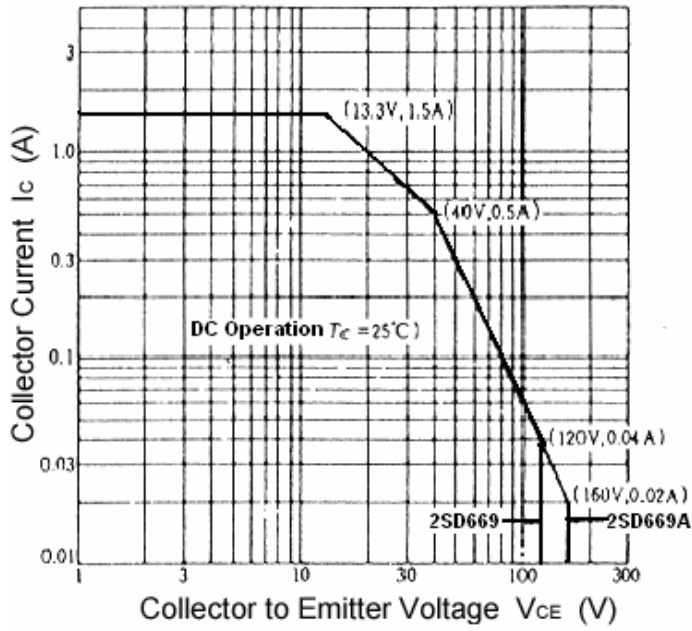


Fig.7 Safe Operating Area