

## Silicon PNP Power Transistors

## 2SA1859 2SA1859A

**DESCRIPTION**

- With TO-220F package
- Complement to type 2SC4883/4883A

**APPLICATIONS**

- For audio output driver and TV velocity-modulation applications

**PINNING**

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

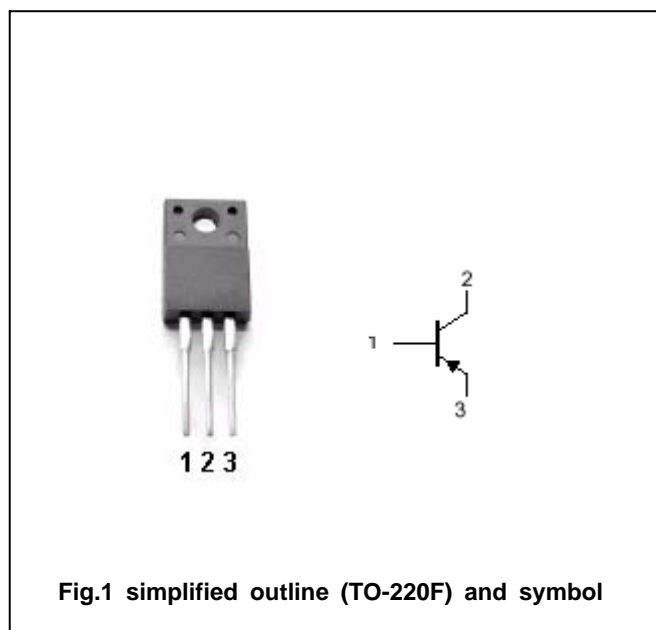


Fig.1 simplified outline (TO-220F) and symbol

**Absolute maximum ratings (Ta=25 °C)**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	2SA1859	-150	V
		2SA1859A	-180	
$V_{CEO}$	Collector-emitter voltage	2SA1859	-150	V
		2SA1859A	-180	
$V_{EBO}$	Emitter-base voltage	Open collector	-6	V
$I_C$	Collector current		-2	A
$I_B$	Base current		-1	A
$P_C$	Collector dissipation	$T_C=25$	20	W
$T_j$	Junction temperature		150	
$T_{stg}$	Storage temperature		-55~150	

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## CHARACTERISTICS

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

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	2SA1859	I <sub>C</sub> =-10mA ; I <sub>B</sub> =0	-150			V
		2SA1859A		-180			
V <sub>CEsat</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =-0.7A; I <sub>B</sub> =-70mA			-1.0	V
I <sub>CBO</sub>	Collector cut-off current	2SA1859	V <sub>CB</sub> =-150V; I <sub>E</sub> =0			-10	μA
		2SA1859A	V <sub>CB</sub> =-180V; I <sub>E</sub> =0			-10	μA
I <sub>EBO</sub>	Emitter cut-off current		V <sub>EB</sub> =-6V; I <sub>C</sub> =0			-10	μA
h <sub>FE</sub>	DC current gain		I <sub>C</sub> =-0.7A ; V <sub>CE</sub> =-10V	60		240	
f <sub>T</sub>	Transition frequency		I <sub>C</sub> =-0.7A ; V <sub>CE</sub> =-12V		60		MHz
C <sub>OB</sub>	Output capacitance		I <sub>E</sub> =0 ; V <sub>CB</sub> =-10V; f=1MHz		30		pF

## Switching time

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =-1A ; I <sub>B1</sub> =-I <sub>B2</sub> =-0.1A V <sub>CC</sub> =-20V , R <sub>L</sub> =20		0.50		μs
t <sub>s</sub>	Storage time			1.00		μs
t <sub>f</sub>	Fall time			0.50		μs



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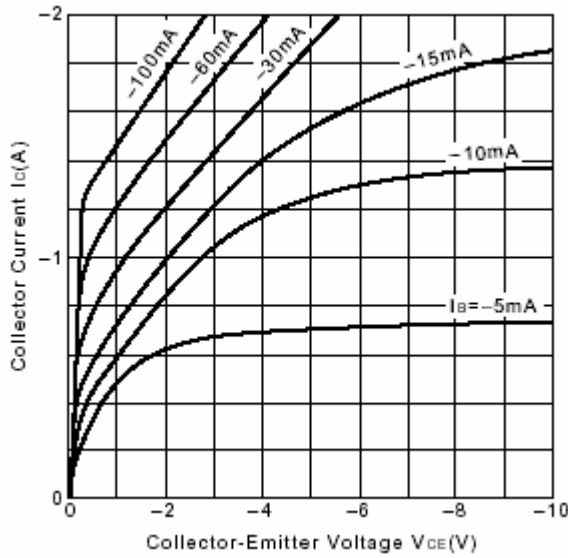


Fig.3 Static Characteristic

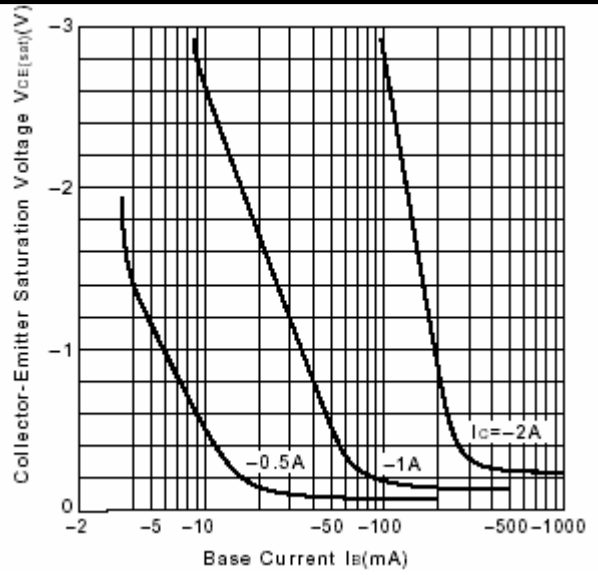


Fig.4 Vce(sat)-Ib Characteristics

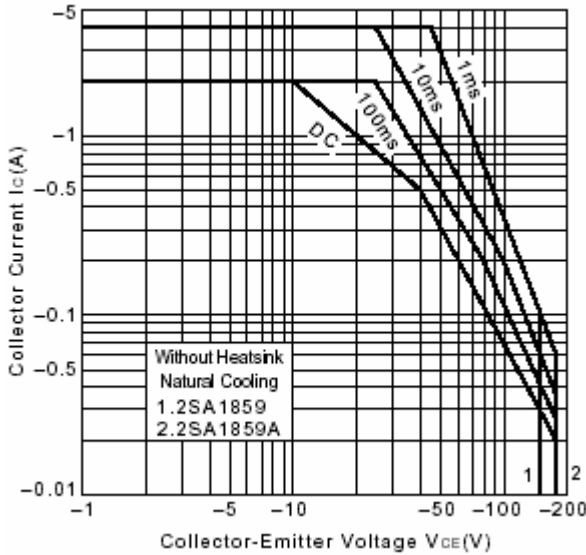


Fig.5 Safe Operating Area

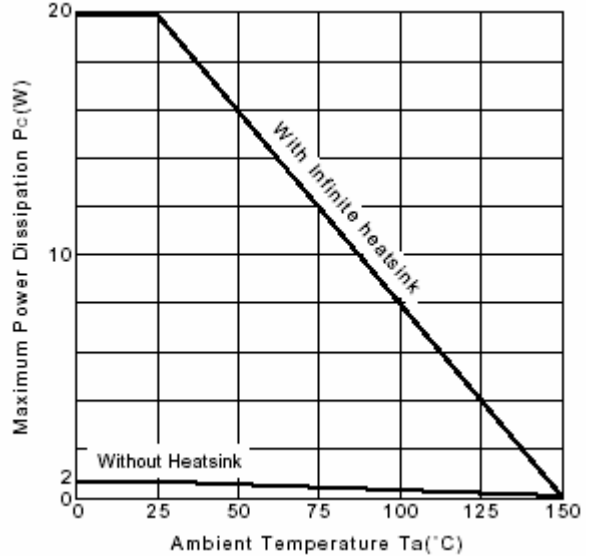


Fig.6 Power Derating

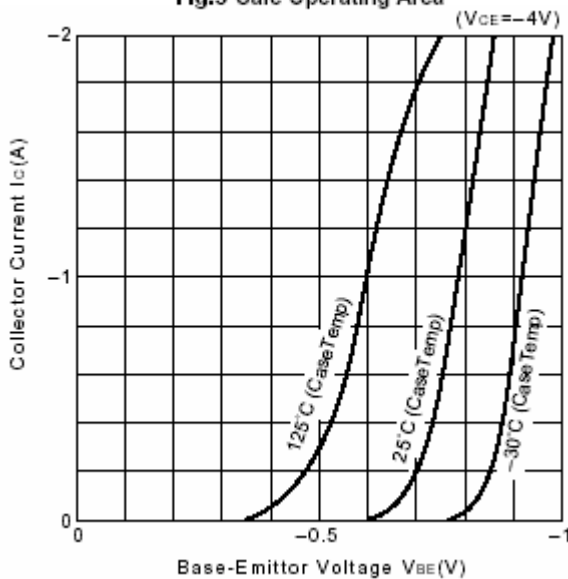


Fig.7 Ic-Vbe

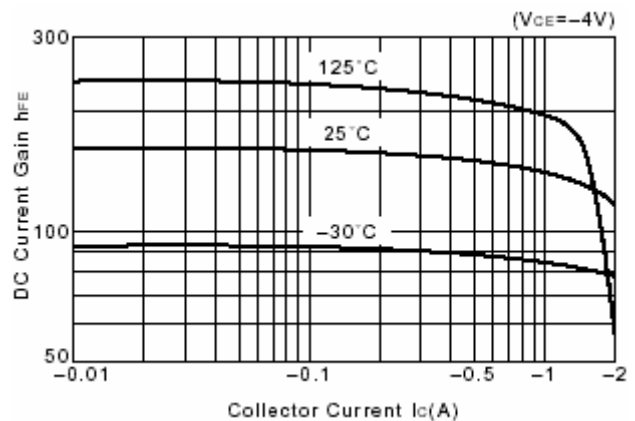


Fig.8 DC current Gain