

**Silicon NPN Power Transistors**

**2SC5439**

**DESCRIPTION**

- With TO-220F package
- High collector breakdown voltage
- Excellent switching times

**APPLICATIONS**

- Switching regulator applications
- High voltage switching applications
- DC-DC converter applications
- Inverter lighting applications

**PINNING**

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

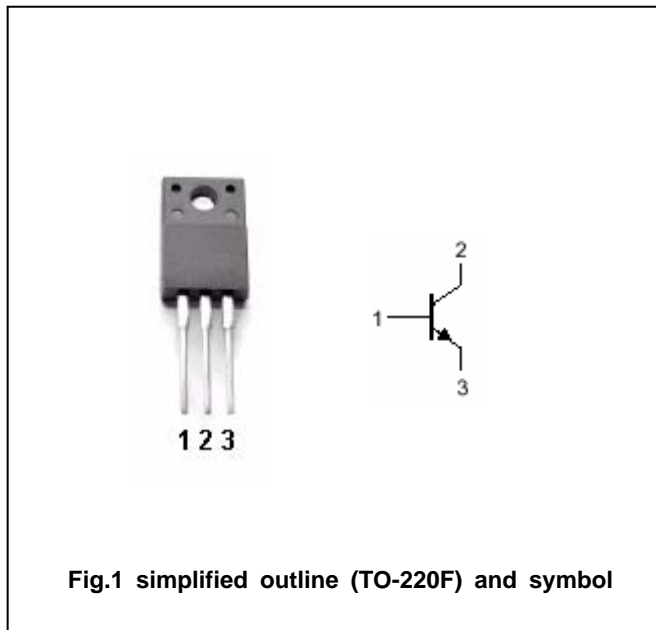


Fig.1 simplified outline (TO-220F) and symbol

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	1000	V
$V_{CEO}$	Collector-emitter voltage	Open base	450	V
$V_{EBO}$	Emitter-base voltage	Open collector	9	V
$I_C$	Collector current		8	A
$I_{CM}$	Collector current-peak		16	A
$I_B$	Base current		1	A
$P_C$	Collector power dissipation	$T_a=25$	2	W
		$T_C=25$	30	
$T_j$	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	I <sub>C</sub> =10mA; I <sub>B</sub> =0	450			V
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =1mA; I <sub>E</sub> =0	1000			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =3.2A; I <sub>B</sub> =0.64 A			1.0	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =3.2A; I <sub>B</sub> =0.64 A			1.5	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =1000V; I <sub>E</sub> =0			100	μA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =7V; I <sub>C</sub> =0			10	μA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =1mA; V <sub>CE</sub> =5V	10			
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =1A; V <sub>CE</sub> =5V	14		34	

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>B1</sub> =0.64A; I <sub>B2</sub> =1.28A V <sub>CC</sub> 200V; R <sub>L</sub> =62.5		0.2		μs
t <sub>s</sub>	Storage time			2.0	3.5	μs
t <sub>f</sub>	Fall time			0.15		μs

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PACKAGE OUTLINE

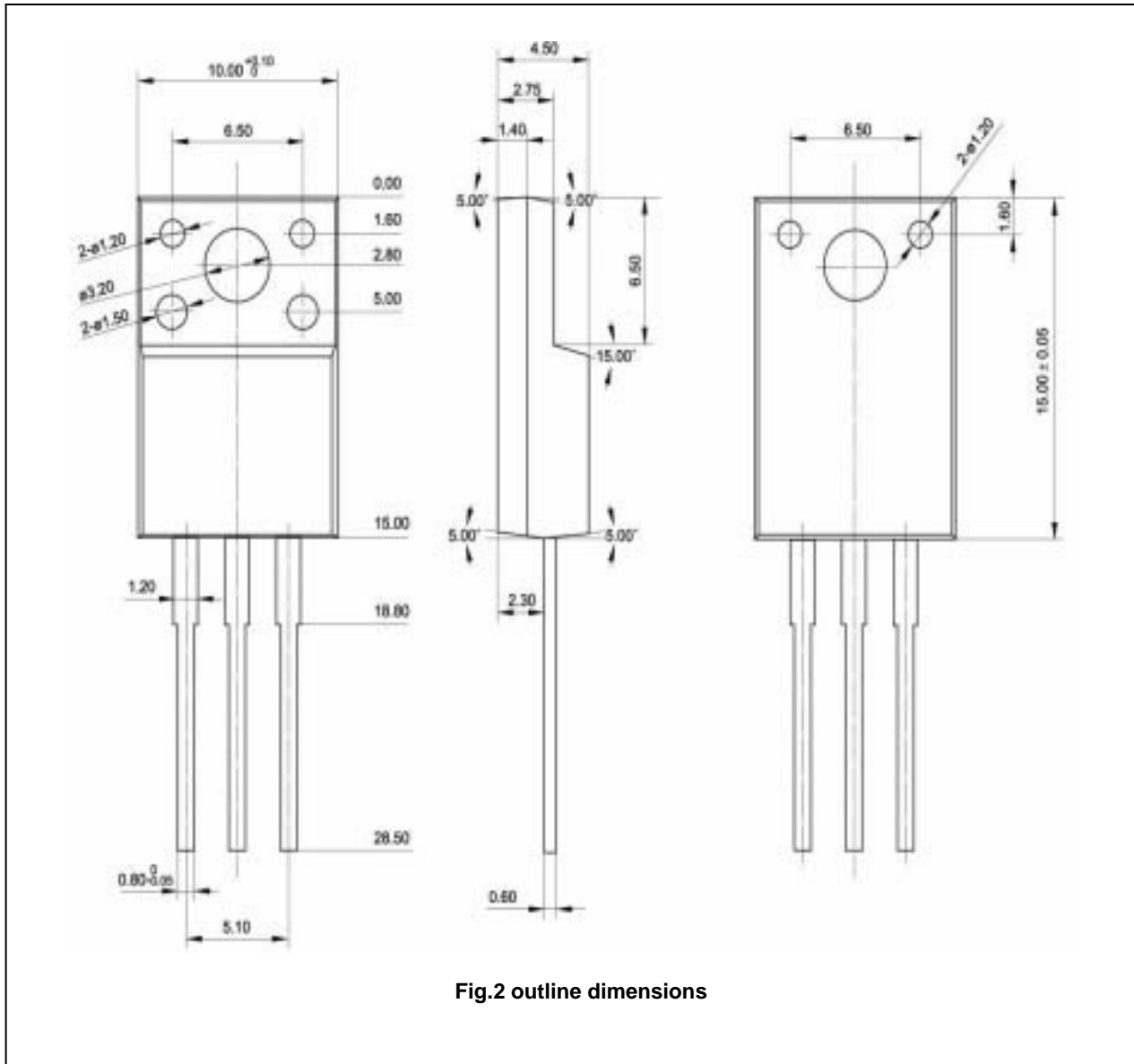


Fig.2 outline dimensions

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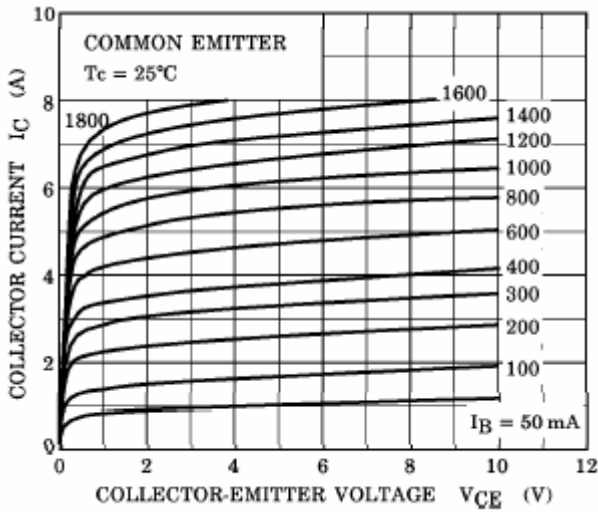


Fig.3 Static Characteristic

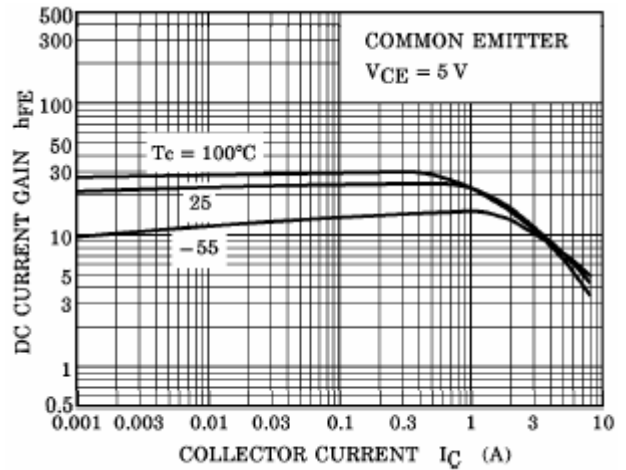


Fig.4 DC current Gain

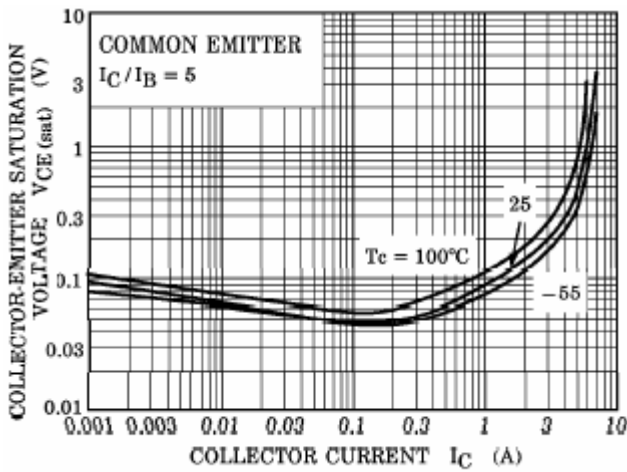


Fig.5 Collector-Emitter Saturation Voltage

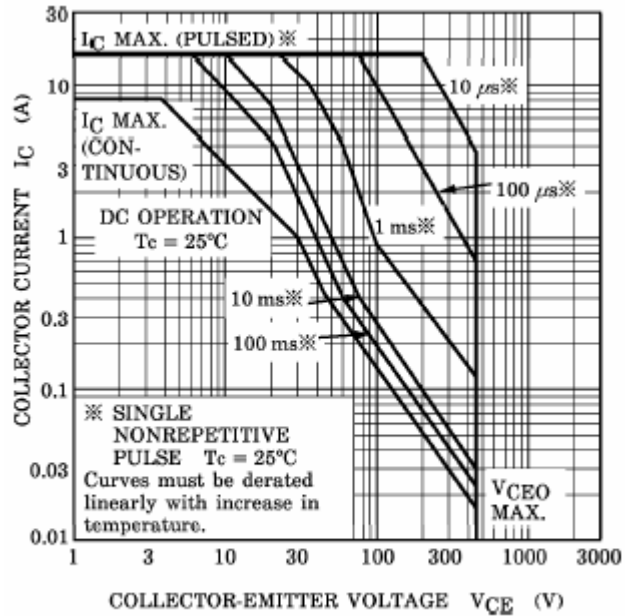


Fig.7 Safe Operating Area

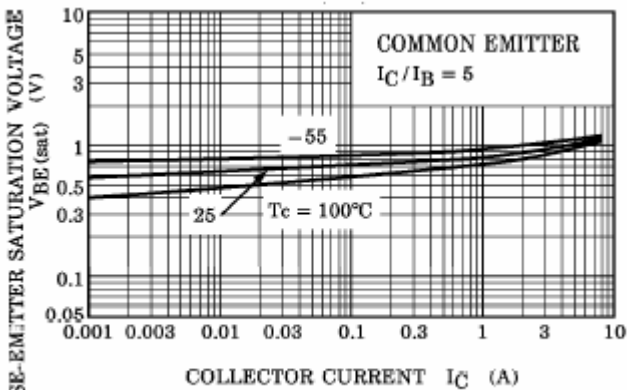


Fig.6 Base-Emitter Saturation Voltage