

Silicon NPN Power Transistors

2SC4059

DESCRIPTION

- With TO-247 package
- High voltage;high speed
- Switching power transistor

PINNING

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

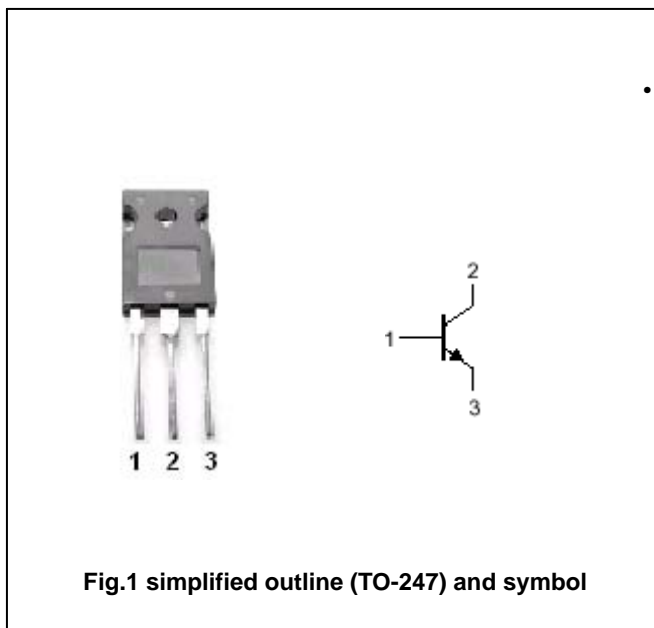


Fig.1 simplified outline (TO-247) and symbol

Absolute maximum ratings(Tc=25°C)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	600	V
$V_{CEO}$	Collector-emitter voltage	Open base	450	V
$V_{EBO}$	Emitter-base voltage	Open collector	7	V
$I_C$	Collector current (DC)		15	A
$I_{CM}$	Collector current-Peak		30	A
$I_B$	Base current		6	A
$I_{BM}$	Base current-Peak		12	A
$P_D$	Total power dissipation	$T_C=25^\circ C$	130	W
$T_j$	Junction temperature		150	°C
$T_{stg}$	Storage temperature		-55~150	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal resistance junction to case	0.96	°C/W

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## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CE0(SUS)</sub>	Collector-emitter sustaining voltage	I <sub>C</sub> =0.2A; I <sub>B</sub> =0	450			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =7.5A; I <sub>B</sub> =1.5A			1.0	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =7.5A; I <sub>B</sub> =1.5A			1.5	V
I <sub>CBO</sub>	Collector cut-off current	At rated voltage			0.1	mA
I <sub>CEO</sub>	Collector cut-off current					
I <sub>EBO</sub>	Emitter cut-off current	At rated voltage			0.1	mA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =7.5A; V <sub>CE</sub> =5V	10			
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =1mA; V <sub>CE</sub> =5V	5			
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =1.5A; V <sub>CE</sub> =10V		20		MHz

Switching times resistive load

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =7.5A I <sub>B1</sub> =1.5A; I <sub>B2</sub> =3.0A V <sub>BB2</sub> =4V, R <sub>L</sub> =20Ω			0.5	μs
t <sub>s</sub>	Storage time				2.0	μs
t <sub>f</sub>	Fall time				0.2	μs

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PACKAGE OUTLINE

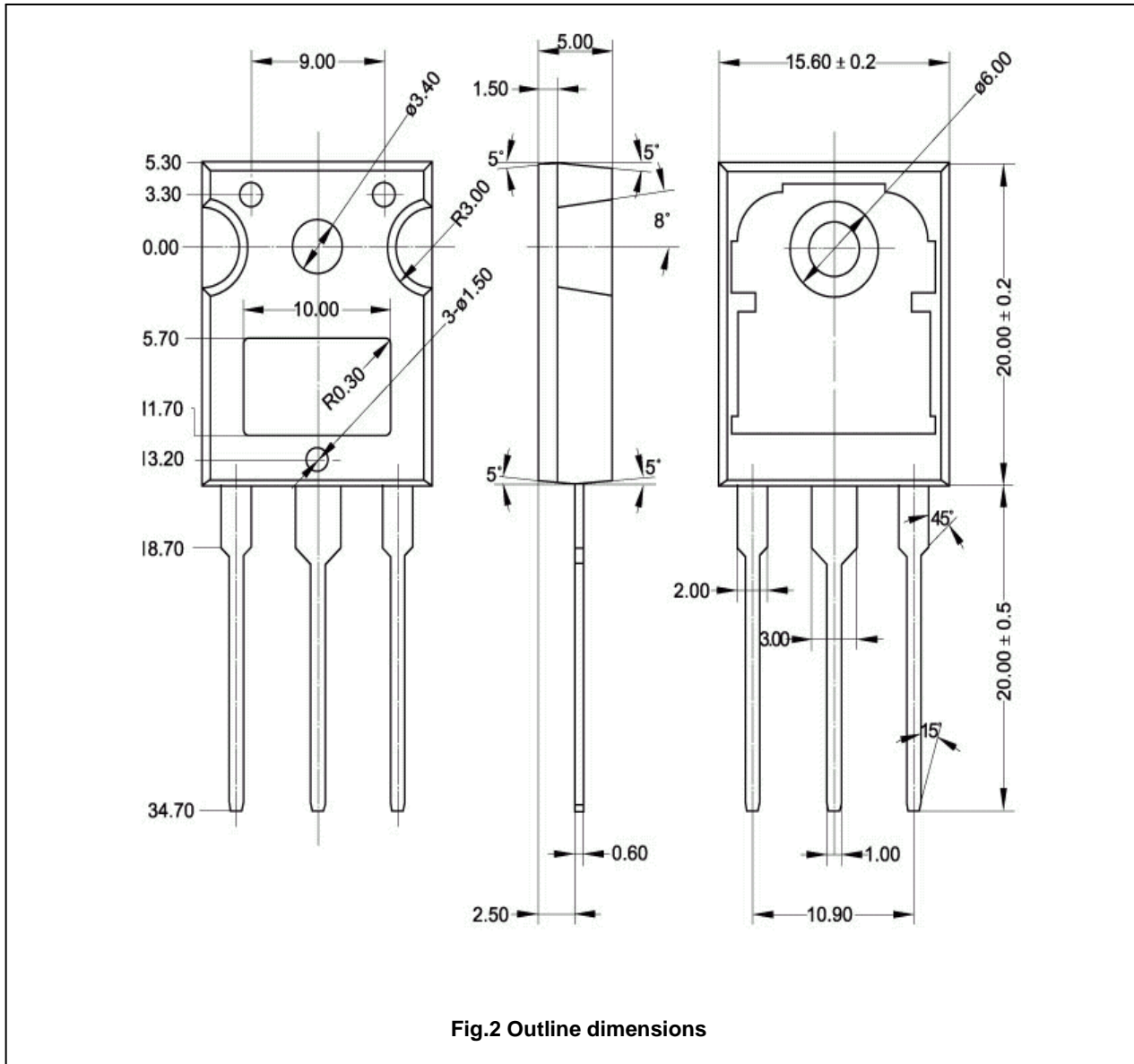


Fig.2 Outline dimensions