

Silicon NPN Power Transistors

TIP47/48/49/50

DESCRIPTION

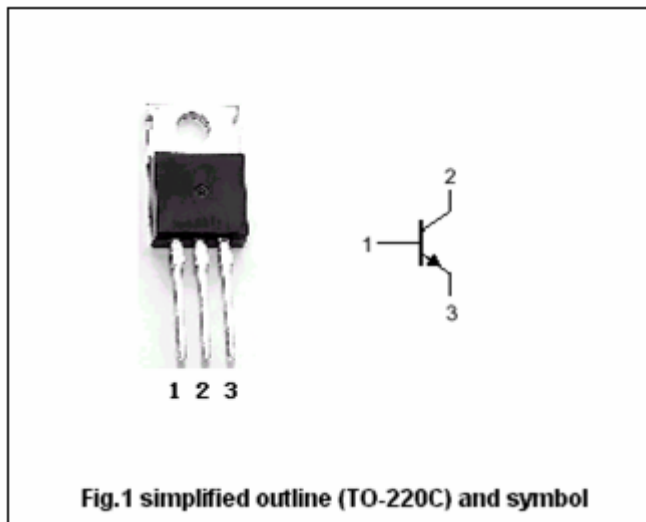
- With TO-220C package
- High sustaining voltage
: $V_{CEO(sus)} = 250\sim 400V$
- 1A rated collector current

APPLICATIONS

- High voltage and switching applications

PINNING

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



ABSOLUTE MAXIMUM RATINGS($T_c=25^\circ C$)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	TIP47	350	V
		TIP48	400	
		TIP49	450	
		TIP50	500	
V_{CEO}	Collector-emitter voltage	TIP47	250	V
		TIP48	300	
		TIP49	350	
		TIP50	400	
V_{EBO}	Emitter-base voltage	Open collector	5	V
I_C	Collector current (DC)		1	A
I_{CM}	Collector current-Pulse		2	A
I_B	Base current		0.6	A
P_C	Collector power dissipation	$T_c=25^\circ C$	40	W
		$T_a=25^\circ C$	2	
T_j	Junction temperature		150	$^\circ C$
T_{stg}	Storage temperature		-65~150	$^\circ C$

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CHARACTERISTICS

T_j=25 °C unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CEO(SUS)}	Collector-emitter sustaining voltage	TIP47	I _C =30mA; I _B =0	250			V
		TIP48		300			
		TIP49		350			
		TIP50		400			
V _{CE(sat)}	Collector-emitter saturation voltage		I _C =1A; I _B =0.2A			1.0	V
V _{BE}	Base-emitter on voltage		I _C =1A; V _{CE} =10V			1.5	V
I _{CEX}	Collector cut-off current	TIP47	V _{CE} =350V; V _{BE} =0			1	mA
		TIP48	V _{CE} =400V; V _{BE} =0				
		TIP49	V _{CE} =450V; V _{BE} =0				
		TIP50	V _{CE} =500V; V _{BE} =0				
I _{CEO}	Collector cut-off current	TIP47	V _{CE} =150V; I _B =0			1	mA
		TIP48	V _{CE} =200V; I _B =0				
		TIP49	V _{CE} =250V; I _B =0				
		TIP50	V _{CE} =300V; I _B =0				
I _{EBO}	Emitter cut-off current		V _{EB} =5V; I _C =0			1	mA
h _{FE-1}	DC current gain		I _C =0.3A; V _{CE} =10V	30		150	
h _{FE-2}	DC current gain		I _C =1A; V _{CE} =10V	10			
f _T	Transition frequency		I _C =0.2A; V _{CE} =10V	10			MHz

Switching times

t _{on}	Turn-on time	V _{CC} =400V; 5I _{B1} = -2.5I _{B2} = I _C = 6A R _L = 66.7Ω			0.5	μs
t _{stg}	Storage time				3.0	
t _f	Fall time				0.3	

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PACKAGE OUTLINE

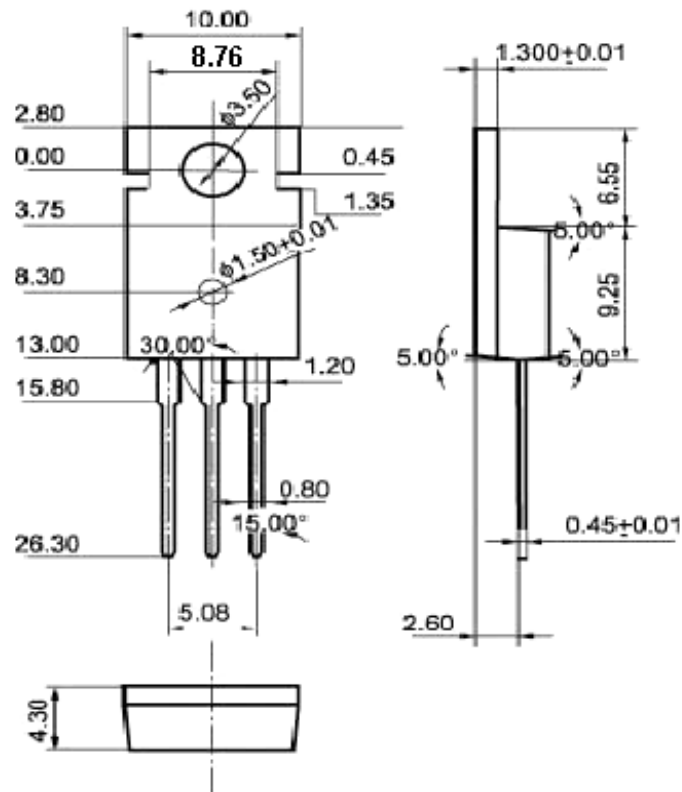


Fig.2 Outline dimensions (unindicated tolerance:±0.10 mm)

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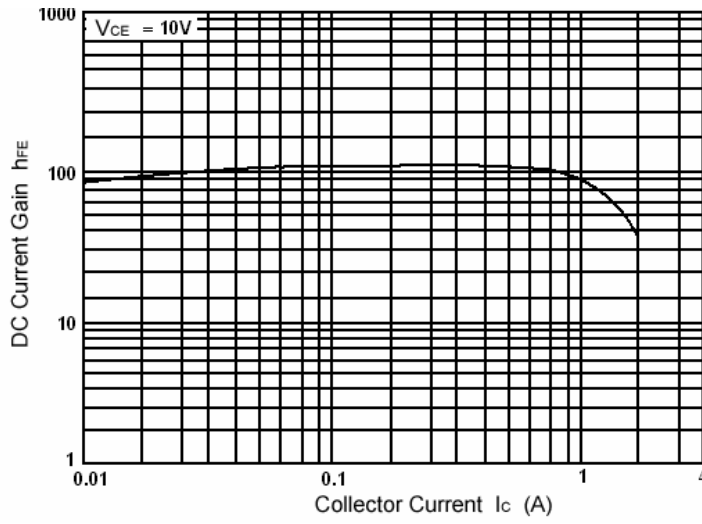


Fig.3 DC current Gain

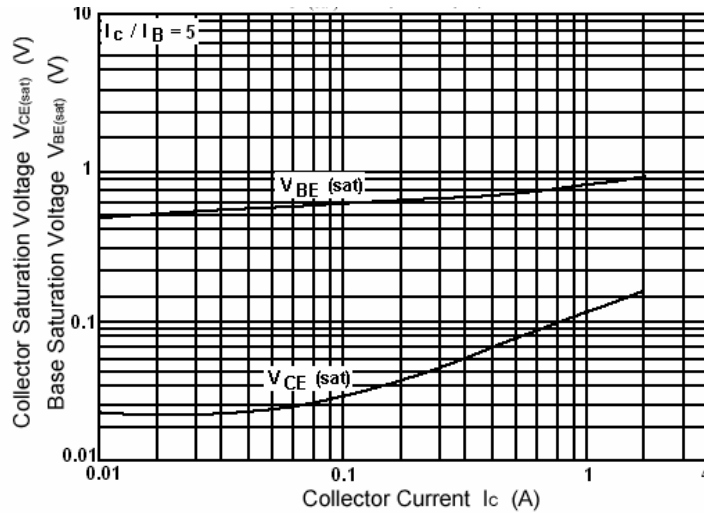


Fig.4 Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

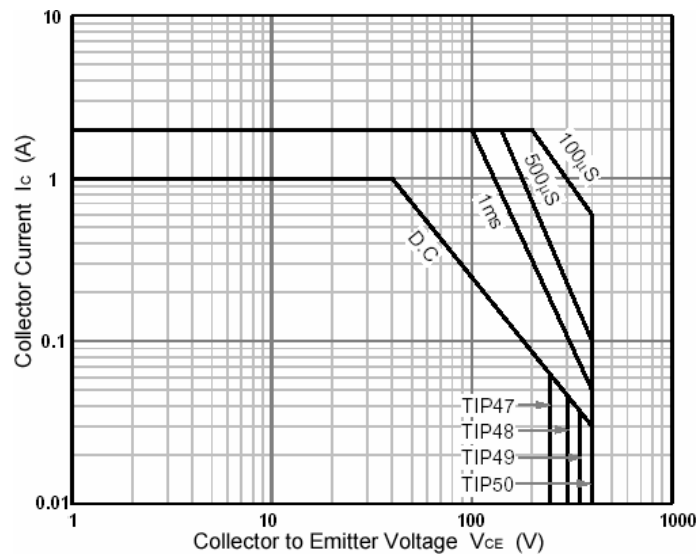


Fig.5 Safe Operating Area