

## Silicon NPN Power Transistors

## BUT56 BUT56A

## DESCRIPTION

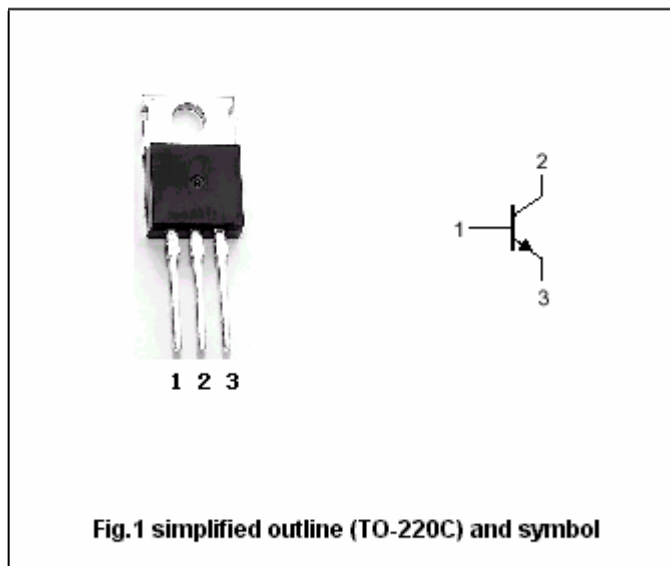
- With TO-220C package
- High voltage;high speed
- High power dissipation

## APPLICATIONS

- Switching mode power supply

## PINNING

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



## Absolut maximum ratings (Ta=25 )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	BUT56	800	V
		BUT56A	1000	
$V_{CEO}$	Collector-emitter voltage	BUT56	400	V
		BUT56A	450	
$V_{EBO}$	Emitter-base voltage	Open collector	6	V
$I_C$	Collector current		8	A
$I_{CM}$	Collector current-peak		10	A
$I_{BM}$	Base current-peak		4	A
$P_{tot}$	Total power dissipation	$T_C=25$	100	W
$T_j$	Junction temperature		150	
$T_{stg}$	Storage temperature		-65~150	

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal resistance junction to mounting case	1.25	K/W

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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	BUT56	I <sub>C</sub> =100mA ; L <sub>C</sub> =125mH	400			V
		BUT56A		450			
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage		I <sub>E</sub> =1mA ; I <sub>C</sub> =0	6			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =4A ; I <sub>B</sub> =0.8A			5.0	V
V <sub>BEsat</sub>	Base-emitter saturation voltage		I <sub>C</sub> =4A ; I <sub>B</sub> =0.8A			2.0	V
I <sub>CES</sub>	Collector cut-off current	BUT56	V <sub>CE</sub> =800V ; V <sub>BE</sub> =0 T <sub>j</sub> =150			1.0 2.0	mA
		BUT56A	V <sub>CE</sub> =1000V ; V <sub>BE</sub> =0 T <sub>j</sub> =150			1.0 2.0	
h <sub>FE-1</sub>	DC current gain		I <sub>C</sub> =1A ; V <sub>CE</sub> =5V	15		45	
h <sub>FE-2</sub>	DC current gain	BUT56	I <sub>C</sub> =4A ; V <sub>CE</sub> =5V	5.5			
		BUT56A	I <sub>C</sub> =3A ; V <sub>CE</sub> =2V	4			
f <sub>T</sub>	Transition frequency		I <sub>C</sub> =0.5A ; V <sub>CE</sub> =10V ; f=1.0MHz		10		MHz
Switching times							
t <sub>off</sub>	Turn-off time		I <sub>C</sub> =4A ; I <sub>B1</sub> =-I <sub>B2</sub> =1.25A t <sub>p</sub> =20 μs			4	μs
t <sub>f</sub>	Fall time					1	μs

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PACKAGE OUTLINE

