

**Silicon NPN Power Transistors**

**MJE18006**

**DESCRIPTION**

- With TO-220C package
- High voltage ,high speed
- Improved efficiency due to low base drive requirements:
  - High and flat DC current gain  $h_{FE}$
  - Fast switching

**APPLICATIONS**

- Designed for use in 220V line-operated switchmode power supplies and electronic light ballasts.

**PINNING**

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

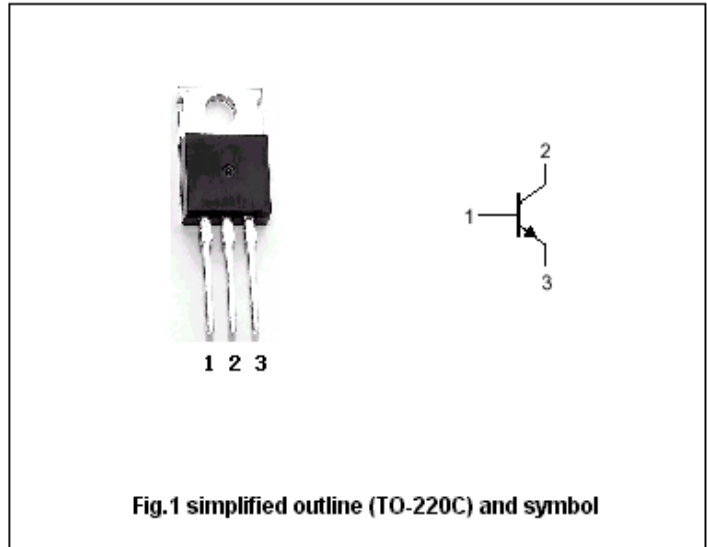


Fig.1 simplified outline (TO-220C) and symbol

**Absolute maximum ratings(Tc=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 (DC)		6	A
$I_{CM}$	Collector current-Peak		15	A
$I_B$	Base current		4	A
$I_{BM}$	Base current-Peak		8	A
$P_D$	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 case	1.25	/W
$R_{th j-A}$	Thermal resistance junction to ambient	62.5	/W

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## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT	
V <sub>CE0(SUS)</sub>	Collector-emitter sustaining voltage	I <sub>C</sub> =0.1A; L=25mH	450			V	
V <sub>CEsat-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =1.3A ; I <sub>B</sub> =0.13A T <sub>C</sub> =125			0.6	V	
					0.65		
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =3A ; I <sub>B</sub> =0.6A T <sub>C</sub> =125			0.7	V	
					0.8		
V <sub>BEsat-1</sub>	Emitter-base saturation voltage	I <sub>C</sub> =1.3A; I <sub>B</sub> =0.13A			1.2	V	
V <sub>BEsat-2</sub>	Emitter-base saturation voltage	I <sub>C</sub> =3A; I <sub>B</sub> =0.6A			1.3	V	
I <sub>CES</sub>	Collector cut-off current	V <sub>CE</sub> =RatedV <sub>CE</sub> ; V <sub>EB</sub> =0	T <sub>C</sub> =125			0.1	mA
						0.5	
		V <sub>CE</sub> =800V				0.1	
I <sub>CEO</sub>	Collector cut-off current	V <sub>CE</sub> =RatedV <sub>CE0</sub> ; I <sub>B</sub> =0			0.1	mA	
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =9V; I <sub>C</sub> =0			0.1	mA	
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =0.5A ; V <sub>CE</sub> =5V	14		34		
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =3A ; V <sub>CE</sub> =1V	6				
h <sub>FE-3</sub>	DC current gain	I <sub>C</sub> =1.3A ; V <sub>CE</sub> =1V	11				
h <sub>FE-4</sub>	DC current gain	I <sub>C</sub> =10mA ; V <sub>CE</sub> =5V	10				
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =0.5A ; V <sub>CE</sub> =10V;f=1.0MHz		14		MHz	
C <sub>OB</sub>	Collector outoput capacitance	f=1MHz ; V <sub>CB</sub> =10V;f=1.0MHz		75		pF	

Switching times resistive load,Duty Cycle 10%,Pulse Width=20 μs

t <sub>on</sub>	Turn-on time	V <sub>CC</sub> =300V ,I <sub>C</sub> =3A I <sub>B1</sub> =0.6A; I <sub>B2</sub> =1.5A		90		ns
t <sub>off</sub>	Turn-off time			1.7	2.5	μs
t <sub>on</sub>	Turn-on time	V <sub>CC</sub> =300V ,I <sub>C</sub> =1.3A I <sub>B1</sub> =0.13A; I <sub>B2</sub> =0.65A		0.2	0.3	μs
t <sub>off</sub>	Turn-off time			1.2	2.5	μs

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PACKAGE OUTLINE

