

Silicon NPN Power Transistors

MJE18004

DESCRIPTION

- With TO-220 package
- High voltage ,high speed

APPLICATIONS

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

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

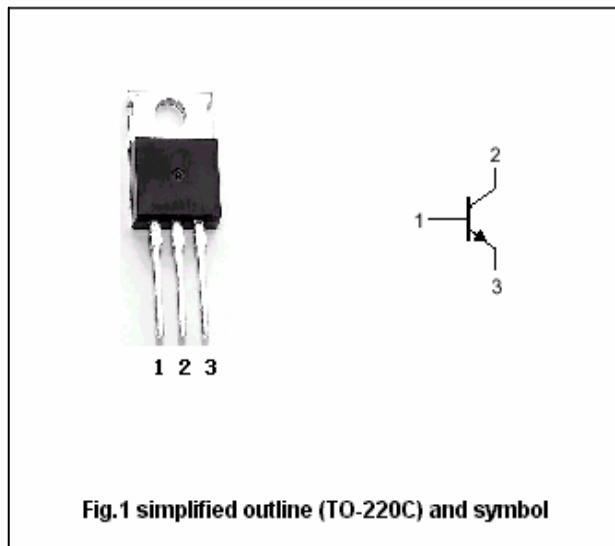


Fig.1 simplified outline (TO-220C) and symbol

Absolute maximum ratings(Tc=25 )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	Open emitter	1000	V
V <sub>CEO</sub>	Collector-emitter voltage	Open base	450	V
V <sub>EBO</sub>	Emitter-base voltage	Open collector	9	V
I <sub>C</sub>	Collector current (DC)		5	A
I <sub>CM</sub>	Collector current-Peak		10	A
I <sub>B</sub>	Base current		2	A
I <sub>BM</sub>	Base current-Peak		4	A
P <sub>D</sub>	Total power dissipation	T <sub>C</sub> =25	100	W
T <sub>j</sub>	Junction temperature		150	
T <sub>stg</sub>	Storage temperature		-65~150	

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-C</sub>	Thermal resistance junction to case	1.25	/W
R <sub>th j-A</sub>	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>CEQ(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> =1A ;I <sub>B</sub> =0.1A T <sub>C</sub> =125			0.5 0.6	V
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =2A ;I <sub>B</sub> =0.4A T <sub>C</sub> =125			0.45 0.8	V
V <sub>CEsat-3</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =2.5A ;I <sub>B</sub> =0.5A			0.75	V
V <sub>BEsat-1</sub>	Base-emitter saturation voltage	I <sub>C</sub> =1A ;I <sub>B</sub> =0.1A			1.1	V
V <sub>BEsat-2</sub>	Base-emitter saturation voltage	I <sub>C</sub> =2A ;I <sub>B</sub> =0.4A			1.25	V
V <sub>BEsat-3</sub>	Base-emitter saturation voltage	I <sub>C</sub> =2.5A ;I <sub>B</sub> =0.5A			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>CE</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> =1A ; V <sub>CE</sub> =2.5V	12			
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =1A ; V <sub>CE</sub> =5V	14		36	
h <sub>FE-3</sub>	DC current gain	I <sub>C</sub> =2A ; V <sub>CE</sub> =1V	6			
h <sub>FE-4</sub>	DC current gain	I <sub>C</sub> =5mA ; 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		13		MHz
C <sub>OB</sub>	Collector outoput capacitance	I <sub>E</sub> =0 ; V <sub>CB</sub> =10V;f=1.0MHz		45		pF

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

t <sub>on</sub>	Turn-on time	V <sub>CC</sub> =250V ,I <sub>C</sub> =2.5A I <sub>B1</sub> =0.5A; I <sub>B2</sub> =0.5A			0.6	μs
t <sub>s</sub>	Storage time				3.0	μs
t <sub>f</sub>	Fall time				0.4	μs

PACKAGE OUTLINE

