

Silicon NPN Power Transistors

MJE18002

DESCRIPTION

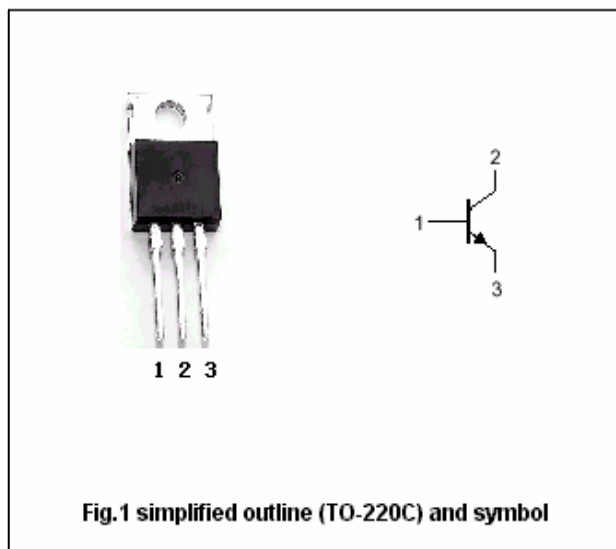
- With TO-220 package
- High voltage ,high speed

APPLICATIONS

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

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

Absolute maximum ratings($T_c=25^\circ\text{C}$)

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)		2	A
I_{CM}	Collector current-Peak		5	A
I_B	Base current		0.5	A
I_{BM}	Base current-Peak		1.0	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

Tj=25 unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS		MIN	TYP.	MAX	UNIT
V _{CEQ(SUS)}	Collector-emitter sustaining voltage	I _C =0.1A; L=25mH		450			V
V _{CEsat-1}	Collector-emitter saturation voltage	I _C =0.4A ;I _B =40mA T _C =125				0.5 0.5	V
V _{CEsat-2}	Collector-emitter saturation voltage	I _C =1A ;I _B =0.2A T _C =125				0.5 0.6	V
V _{BEsat-1}	Base-emitter saturation voltage	I _C =0.4A ;I _B =40mA				1.1	V
V _{BEsat-2}	Base-emitter saturation voltage	I _C =1A ;I _B =0.2A				1.25	V
I _{CES}	Collector cut-off current	V _{CES} =RatedV _{CES} ; V _{EB} =0	T _C =125			0.1	mA
		0.5					
		0.1					
I _{CEO}	Collector cut-off current	V _{CE} =RatedV _{CEO} ; I _B =0				0.1	mA
I _{EBO}	Emitter cut-off current	V _{EB} =9V; I _C =0				0.1	mA
h _{FE-1}	DC current gain	I _C =0.2A ; V _{CE} =5V		14		34	
h _{FE-2}	DC current gain	I _C =0.4A ; V _{CE} =1V		11			
h _{FE-3}	DC current gain	I _C =1A ; V _{CE} =1V		6			
h _{FE-4}	DC current gain	I _C =10mA ; V _{CE} =5V		10			
f _T	Transition frequency	I _C =0.5A ; V _{CE} =10V;f=1.0MHz			6.5		MHz
C _{OB}	Collector outoput capacitance	I _E =0 ; V _{CB} =10V;f=1.0MHz			35		pF

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

t_{on}	Turn-on time	$V_{CC}=300V$, $I_C=0.4A$ $I_{B1}=40mA$; $I_{B2}=0.2A$		200	300	ns
t_{off}	Turn-off time			1.2	2.5	μs
t_{on}	Turn-on time	$V_{CC}=300V$, $I_C=1.0A$ $I_{B1}=0.2A$; $I_{B2}=0.5A$		85	150	ns
t_{off}	Turn-off time			1.7	2.5	μs

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PACKAGE OUTLINE

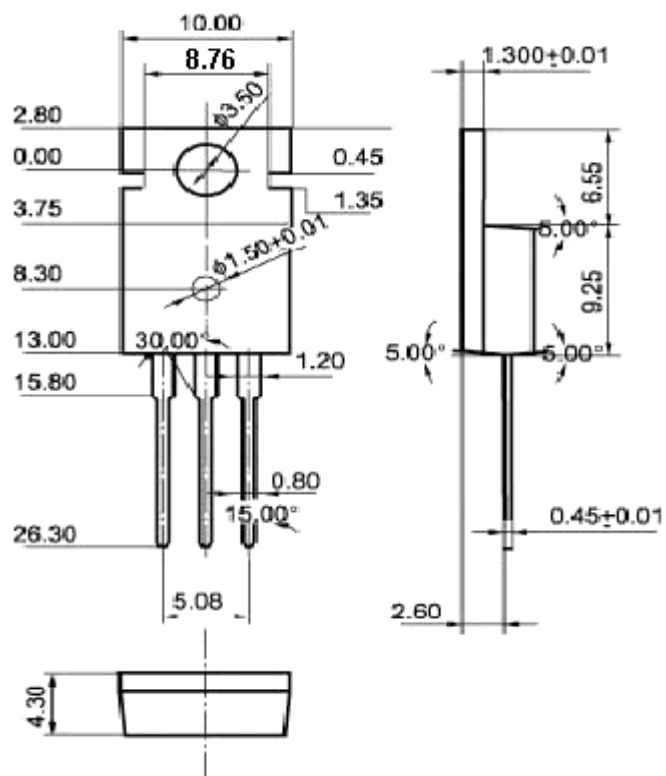


Fig.2 Outline dimensions (unindicated tolerance: $\pm 0.10\text{mm}$)