

Silicon NPN Power Transistors

MJF18006

DESCRIPTION

- With TO-220F 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
3	Emitter

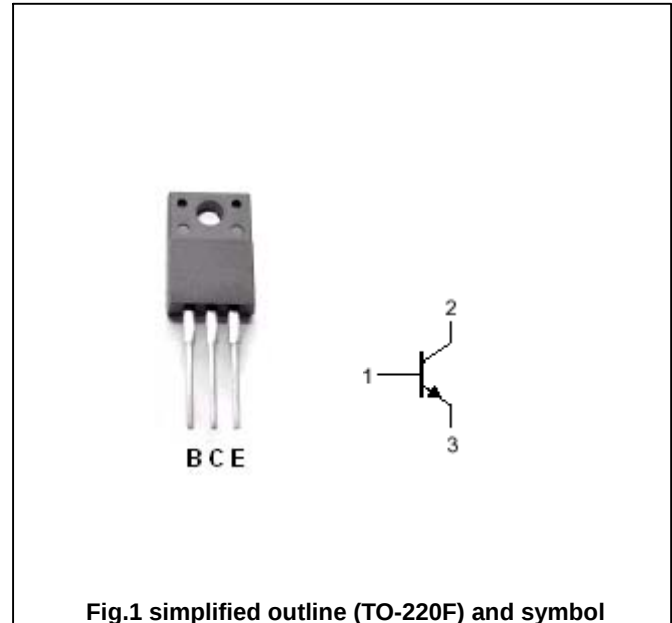


Fig.1 simplified outline (TO-220F) and symbol

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)		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	$T_c=25$	40	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	3.125	/W
$R_{th j-A}$	Thermal resistance junction to ambient	62.5	/W

Silicon NPN Power Transistors

MJF18006

CHARACTERISTICS

T_j=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 =1.3A ;I _B =0.13A T _C =125				0.6 0.65	V
V _{CEsat-2}	Collector-emitter saturation voltage	I _C =3A ;I _B =0.6A T _C =125				0.7 0.8	V
V _{BESat-1}	Emitter-base saturation voltage	I _C =1.3A; I _B =0.13A				1.2	V
V _{BESat-2}	Emitter-base saturation voltage	I _C =3A; I _B =0.6A				1.3	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 =0.5A ; V _{CE} =5V		14		34	
h _{FE-2}	DC current gain	I _C =3A ; V _{CE} =1V		6			
h _{FE-3}	DC current gain	I _C =1.3A ; V _{CE} =1V		11			
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			14		MHz
C _{OB}	Collector outoput capacitance	f=1MHz ; V _{CB} =10V;f=1.0MHz			75		pF

Switching times resistive load,Duty Cycle ≤ 10%,Pulse Width=20 μ s

t _{on}	Turn-on time	V _{CC} =300V ,I _C =3A I _{B1} =0.6A; I _{B2} =1.5A		90		ns
t _{off}	Turn-off time			1.7	2.5	μ s
t _{on}	Turn-on time	V _{CC} =300V ,I _C =1.3A I _{B1} =0.13A; I _{B2} =0.65A		0.2	0.3	μ s
t _{off}	Turn-off time			1.2	2.5	μ s

Silicon NPN Power Transistors

MJF18006

PACKAGE OUTLINE

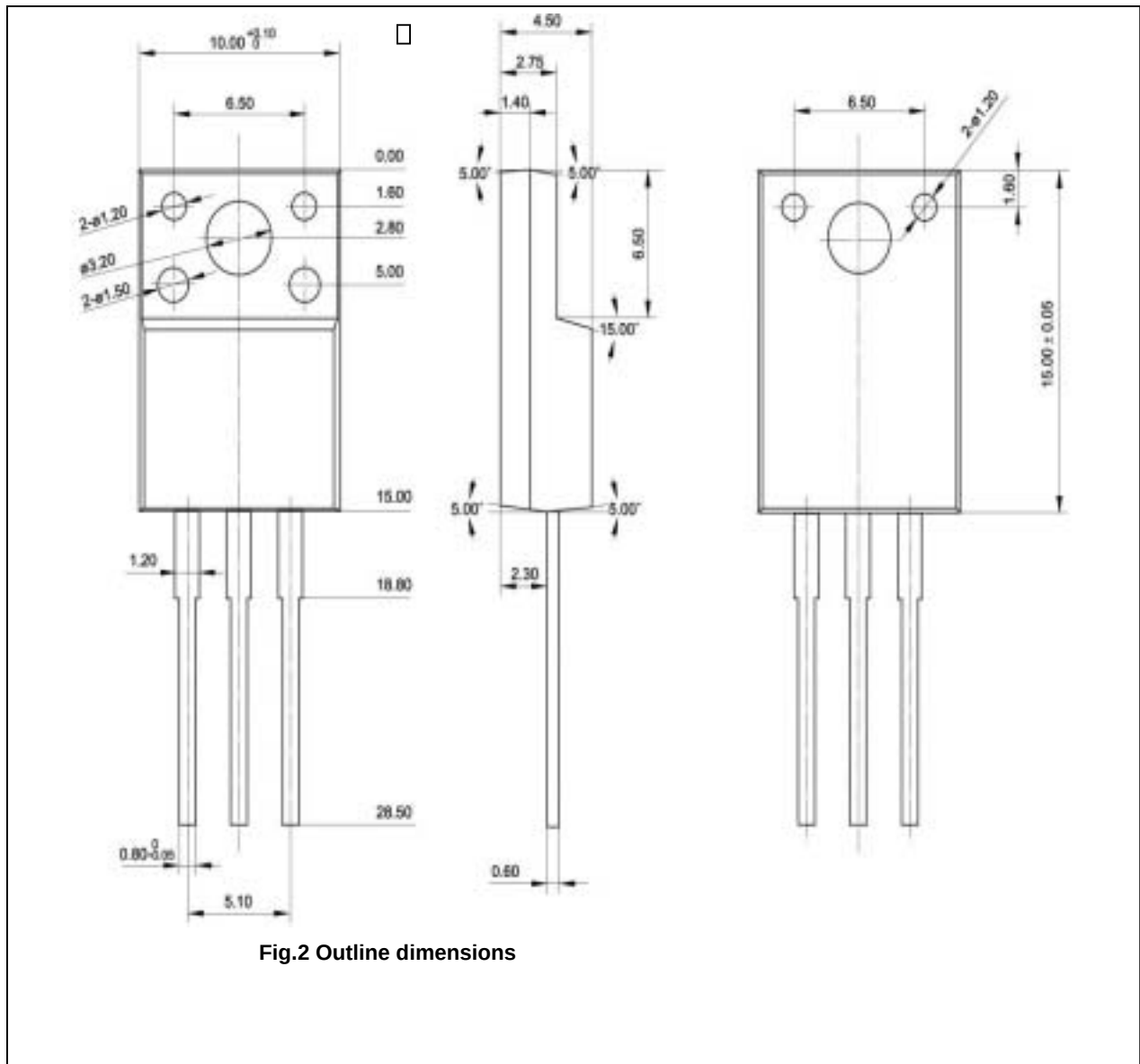


Fig.2 Outline dimensions