

Silicon NPN Power Transistor

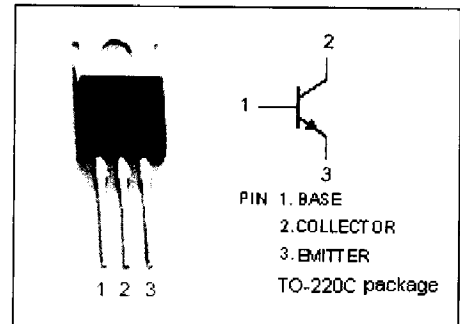
MJE18006

DESCRIPTION

- Collector-Base Breakdown Voltage-
: $V_{(BR)CBO} = 1000V(\text{Min})$
- High Switching Speed

APPLICATIONS

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

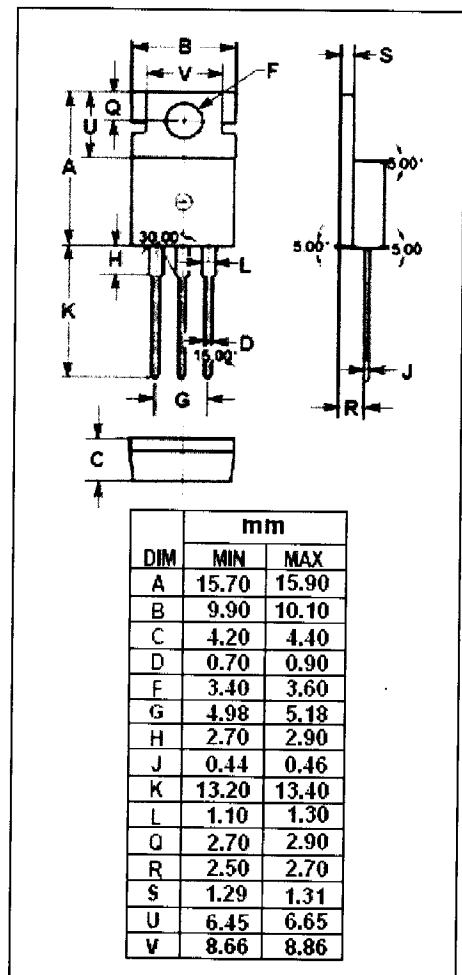


ABSOLUTE MAXIMUM RATINGS($T_a=25^\circ\text{C}$)

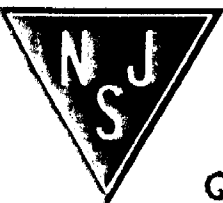
SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	1000	V
V_{CEO}	Collector-Emitter Voltage	450	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current -Continuous	6	A
I_{CM}	Collector Current-Peak	15	A
I_B	Base Current	4	A
I_{BM}	Base Current-Peak	8	A
P_D	Total Power Dissipation@ $T_c=25^\circ\text{C}$	100	W
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-65~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R_{thj-c}	Thermal Resistance, Junction to Case	1.25	$^\circ\text{C/W}$
R_{thj-a}	Thermal Resistance, Junction to Ambient	62.5	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

T_j=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V _{CEO(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 0.1A; L= 25mH	450			V
V _{CE(sat)-1}	Collector-Emitter Saturation Voltage	I _C = 1.5 A ; I _B = 0.15A T _C =125°C			0.6 0.65	V
V _{CE(sat)-2}	Collector-Emitter Saturation Voltage	I _C = 3A ; I _B = 0.6A T _C =125°C			0.7 0.8	V
V _{BE(sat)-1}	Base-Emitter Saturation Voltage	I _C = 1.5A; I _B = 0.15A			1.2	V
V _{BE(sat)-2}	Base-Emitter Saturation Voltage	I _C = 3A; I _B = 0.6A			1.3	V
I _{CES}	Collector Cutoff Current	V _{CES} =RatedV _{CES} ; V _{EB} = 0 T _C =125°C			0.1 0.5	mA
		V _{CES} = 800V T _C =125°C			0.1	
I _{CEO}	Collector Cutoff Current	V _{CE} = RatedV _{CEO} ; I _B =0			0.1	mA
I _{EBO}	Emitter Cutoff 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 = 1.5 A ; V _{CE} = 1V	11			
h _{FE-4}	DC Current Gain	I _C = 10mA; V _{CE} = 5V	10			
f _T	Current-Gain—Bandwidth Product	I _C = 0.5A; V _{CE} =10V; f _{test} =1.0MHz		14		MHz
C _{OB}	Output Capacitance	I _E = 0; V _{CB} = 10V; f _{test} =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	180	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