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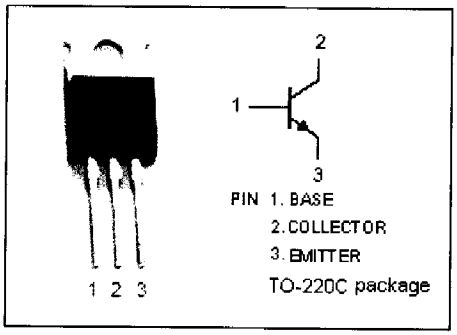
Silicon NPN Power Transistor

MJE18004

DESCRIPTION

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



APPLICATIONS

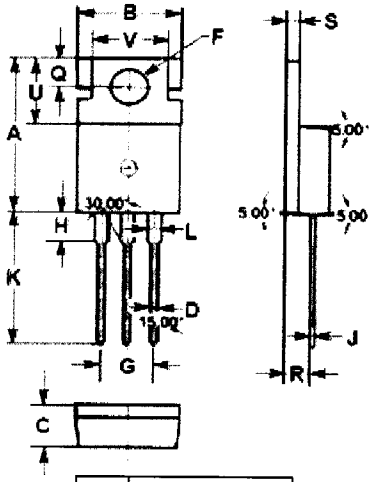
- Designed for use in 220V line-operated switchmode power supplies and electronic light ballasts

ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

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	5	A
I_{CM}	Collector Current-Peak	10	A
I_B	Base Current	2	A
I_{BM}	Base Current-Peak	4	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
$R_{th\ j\text{-}c}$	Thermal Rresistance,Junction to Case	1.25	℃/W
$R_{th\ j\text{-}a}$	Thermal Resistance, Junction to Ambient	62.5	℃/W



DIM	mm MIN	MAX
A	15.70	15.90
B	9.90	10.10
C	4.20	4.40
D	0.70	0.90
F	3.40	3.60
G	4.98	5.18
H	2.70	2.90
J	0.44	0.46
K	13.20	13.40
L	1.10	1.30
Q	2.70	2.90
R	2.50	2.70
S	1.29	1.31
U	6.45	6.65
V	8.66	8.86

ELECTRICAL CHARACTERISTICS

Tj=25℃ 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 A ;I_B= 0.1A T_C=125℃			0.5 0.6	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	I_C= 2A ;I_B= 0.4 A T_C=125℃			0.45 0.8	V
$V_{CE(sat)-3}$	Collector-Emitter Saturation Voltage	I_C= 2.5A ;I_B= 0.5 A			0.75	V
$V_{BE(sat)-1}$	Base-Emitter Saturation Voltage	I_C= 1A; I_B= 0.1A			1.1	V
$V_{BE(sat)-2}$	Base-Emitter Saturation Voltage	I_C= 2A; I_B= 0.4A			1.25	V
$V_{BE(sat)-3}$	Base-Emitter Saturation Voltage	I_C= 2.5A; I_B= 0.5 A			1.3	V
I_{CES}	Collector Cutoff Current	V_{CES}= RatedV_{CES};V_{EB}= 0 T_C=125℃			0.05 0.5	mA
		V_{CES}= 800V T_C=125℃			0.01 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= 1A ; V_{CE}= 2.5V	12			
h_{FE-2}	DC Current Gain	I_C= 1A ; V_{CE}= 5V	14		36	
h_{FE-3}	DC Current Gain	I_C= 2A ; V_{CE}= 1V	6			
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		13		MHz
C_{OB}	Output Capacitance	I_E= 0; V_{CB}= 10V; f_{test}=1.0MHz		45		pF

Switching Times Resistive Load,Duty Cycle≤10%,Pulse Width=20μs

t_{on}	Turn-on Time	V_{CC}=250V ,I_C=2.5A I_{B1}=I_{B2}=0.5 A		450	600	ns
t_S	Storage Time			2	3	μs
t_f	Turn-off Time			0.275	0.4	μs