

**isc Silicon NPN Power Transistor**
**MJE18004G**
**DESCRIPTION**

- Collector-Base Breakdown Voltage-  
:  $V_{(BR)CBO} = 1000V(\text{Min})$
- High Switching Speed
- G:Pb-Free Package
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

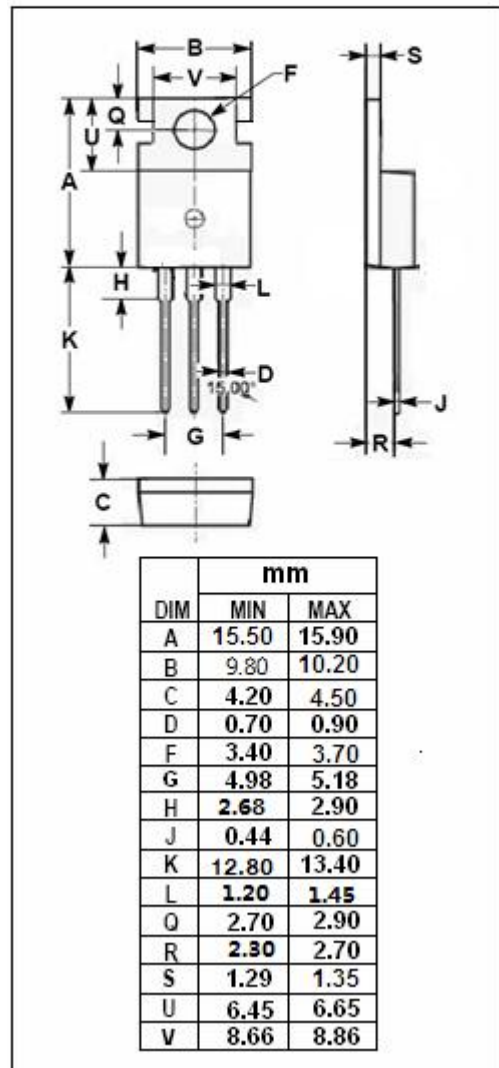
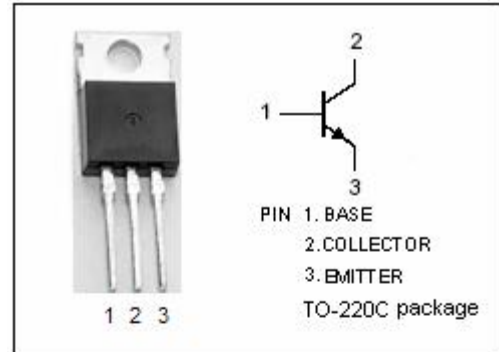
- Designed for use in 220V line-operated switch mode power supplies and electronic light ballasts

**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	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@ $T_c=25^\circ\text{C}$	75	W
$T_j$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-65~150	$^\circ\text{C}$

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Rresistance, Junction to Case	1.65	$^\circ\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	62.5	$^\circ\text{C/W}$



**ELECTRICAL CHARACTERISTICS**

 T<sub>j</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V <sub>CE0(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 30mA; I <sub>B</sub> =0	450			V
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 1 A ; I <sub>B</sub> = 0.1A T <sub>C</sub> =125°C			0.5 0.6	V
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 2A ; I <sub>B</sub> = 0.4 A T <sub>C</sub> =125°C			0.45 0.8	V
V <sub>CE(sat)-3</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 2.5A ; I <sub>B</sub> = 0.5 A			0.75	V
V <sub>BE(sat)-1</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 1A; I <sub>B</sub> = 0.1A			1.1	V
V <sub>BE(sat)-2</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 2A; I <sub>B</sub> = 0.4A			1.25	V
I <sub>CES</sub>	Collector Cutoff Current	V <sub>CE</sub> = Rated V <sub>CE</sub> ; V <sub>EB</sub> = 0 T <sub>C</sub> =125°C			0.1 0.5	mA
		V <sub>CE</sub> = 800V T <sub>C</sub> =125°C			0.1	
I <sub>CEO</sub>	Collector Cutoff Current	V <sub>CE</sub> = Rated V <sub>CE0</sub> ; I <sub>B</sub> = 0			0.1	mA
I <sub>EBO</sub>	Emitter Cutoff 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> = 0.3A ; V <sub>CE</sub> = 5V	14		34	
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> = 10mA; V <sub>CE</sub> = 5V	10			
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> = 0.5A; V <sub>CE</sub> = 10V; f <sub>test</sub> =1.0MHz		13		MHz
C <sub>OB</sub>	Output Capacitance	I <sub>E</sub> = 0; V <sub>CB</sub> = 10V; f <sub>test</sub> =1.0MHz		50		pF

## Switching Times Resistive Load

t <sub>on</sub>	Turn-on Time	V <sub>CC</sub> =250V , I <sub>C</sub> =2.5A I <sub>B1</sub> =I <sub>B2</sub> =0.5 A		450	800	ns
t <sub>s</sub>	Storage Time			2.0	3.0	μs
t <sub>f</sub>	Turn-off Time			275	400	ns

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