

isc Silicon NPN Power Transistor
MJE13009
DESCRIPTION

- Collector–Emitter Sustaining Voltage
: $V_{CEO(SUS)} = 400V(\text{Min.})$
- Collector Saturation Voltage
: $V_{CE(sat)} = 1.5 (\text{Max}) @ I_C = 8.0A$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

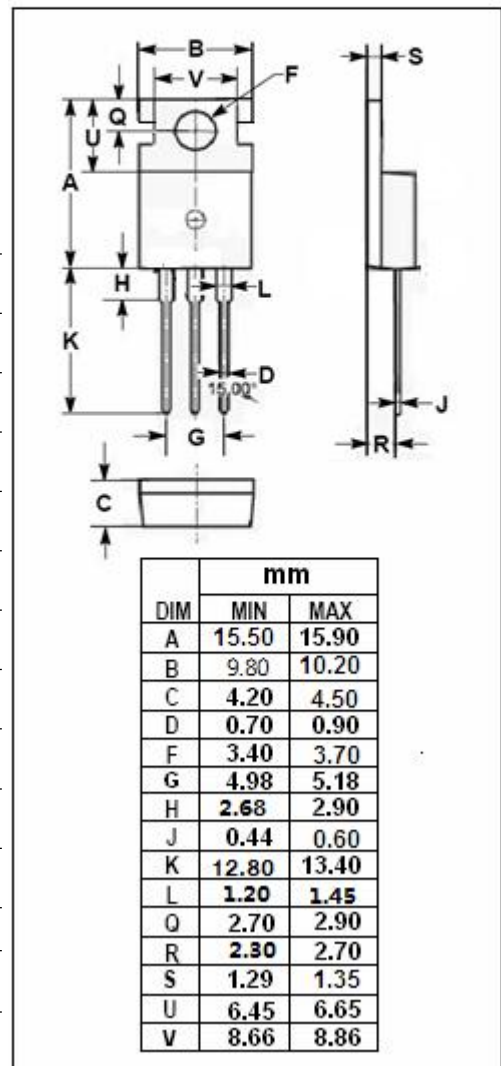
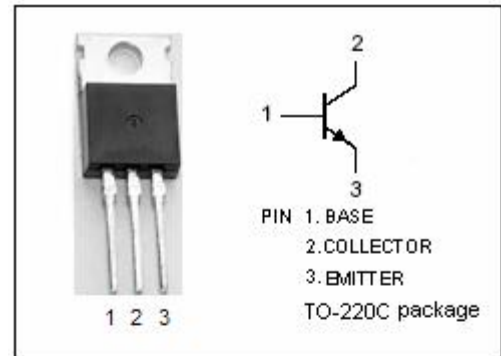
- Designed for use in high-voltage, high-speed, power switching in inductive circuit, they are particularly suited for 115 and 220V switchmode applications such as switching regulators, inverters, Motor controls, Solenoid/Relay drivers and deflection circuits.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CEV}	Collector-Emitter Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current-Continuous	12	A
I_B	Base Current	6	A
I_E	Emitter Current	18	A
I_{EM}	Emitter Current-Peak	36	A
P_C	Collector Power Dissipation $T_C=25^\circ\text{C}$	100	W
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

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



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ELECTRICAL CHARACTERISTICS

T_c =25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CE0(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 10mA; I _B = 0	400			V
V _{CE(sat)-1}	Collector-Emitter Saturation Voltage	I _C = 5A ;I _B = 1A			1.0	V
V _{CE(sat)-2}	Collector-Emitter Saturation Voltage	I _C = 8A ;I _B = 1.6A T _C = 100°C			1.5 2.0	V
V _{CE(sat)-3}	Collector-Emitter Saturation Voltage	I _C = 12A ;I _B = 3A			3.0	V
V _{BE(sat)-1}	Base-Emitter Saturation Voltage	I _C = 5A ;I _B = 1A			1.2	V
V _{BE(sat)-2}	Base-Emitter Saturation Voltage	I _C = 8A ;I _B = 1.6A T _C = 100°C			1.6 1.5	V
I _{CBO}	Collector Cutoff Current	V _{CB} = 700V; I _E =0 T _C = 100°C			1 5	mA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 9V; I _C = 0			1	mA
h _{FE-1}	DC Current Gain	I _C = 5A; V _{CE} = 5V	8		40	
h _{FE-2}	DC Current Gain	I _C = 8A; V _{CE} = 5V	6		30	

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