

## isc Silicon NPN Power Transistor

## MJF13009

## 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

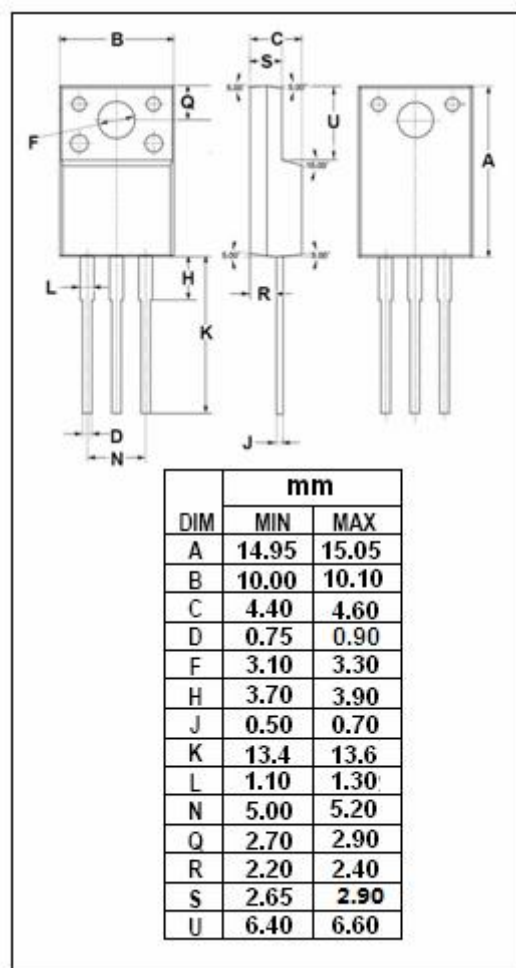
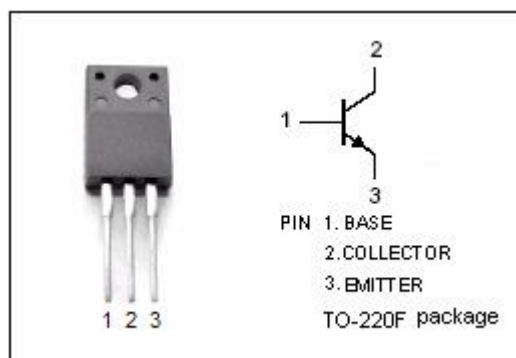
- Designed for use in high-voltage, high-speed, power switching in inductive circuit, they are particularly suited for 115 and 220V switchmode applications such as switching regulators, inverters, Motor controls, Solenoid/Relay drivers and deflection circuits.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector- Base Voltage	700	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	9	V
$I_C$	Collector Current-Continuous	12	A
$I_{CM}$	Collector Current-peak	24	A
$I_B$	Base Current	6	A
$I_{BM}$	Base Current-Peak	12	A
$P_C$	Collector Power Dissipation $T_C=25^\circ\text{C}$	50	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	2.5	$^\circ\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	62.5	$^\circ\text{C/W}$



**isc Silicon NPN Power Transistor****MJF13009****ELECTRICAL CHARACTERISTICS****T<sub>C</sub> =25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CE(sus)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 10mA; I <sub>B</sub> = 0	400			V
V <sub>CE(sat)</sub> -1	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 5A ;I <sub>B</sub> = 1A			1.0	V
V <sub>CE(sat)</sub> -2	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 8A ;I <sub>B</sub> = 1.6A			1.5	V
V <sub>CE(sat)</sub> -3	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 12A ;I <sub>B</sub> = 3A			3.0	V
V <sub>BE(sat)</sub> -1	Base-Emitter Saturation Voltage	I <sub>C</sub> = 5A ;I <sub>B</sub> = 1A			1.2	V
V <sub>BE(sat)</sub> -2	Base-Emitter Saturation Voltage	I <sub>C</sub> = 8A ;I <sub>B</sub> = 1.6A			1.6	V
I <sub>CEV</sub>	Collector Cutoff Current	V <sub>CEV</sub> = 700V; V <sub>BE(off)</sub> = 1.5V T <sub>C</sub> = 100°C			1 5	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 9V; I <sub>C</sub> = 0			1	mA
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = 5A; V <sub>CE</sub> = 5V	8		40	
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 8A; V <sub>CE</sub> = 5V	6		30	

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