

## isc Silicon NPN Power Transistor

MJ431

## DESCRIPTION

- Collector-Emitter Voltage-  
:  $V_{CEX} = 400V(\text{Min})$
- DC Current Gain-  
:  $h_{FE} = 15-35 @ I_C = 2.5A$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

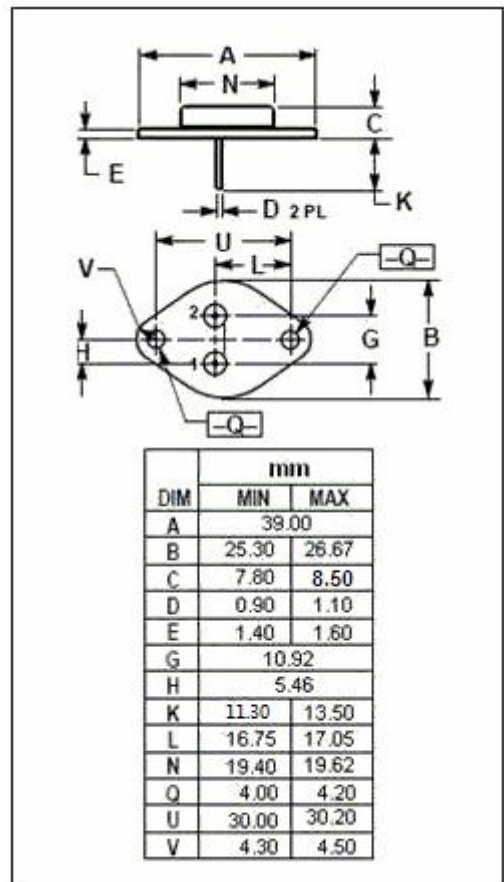
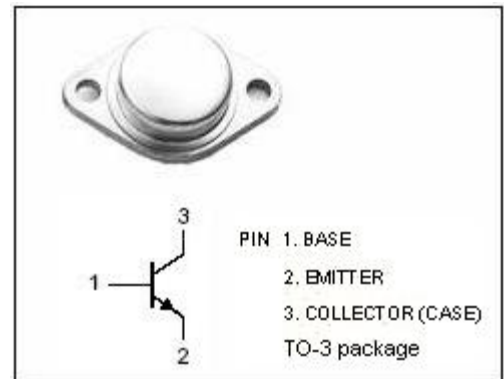
- Designed for medium-to-high-voltage inverters, converters, regulators and switching circuits.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	400	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	10	A
$I_B$	Base Current-Continuous	2	A
$P_C$	Collector Power Dissipation@ $T_C=25^\circ\text{C}$	125	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-65~200	$^\circ\text{C}$

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	1.0	$^\circ\text{C/W}$



**isc Silicon NPN Power Transistor****MJ431****ELECTRICAL CHARACTERISTICS****T<sub>C</sub>=25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 50mA ; I <sub>B</sub> = 0	325			V
V <sub>CE(sat)</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 2.5A; I <sub>B</sub> = 0.5A			0.7	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 2.5A; I <sub>B</sub> = 0.5A			1.5	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> =400V; I <sub>E</sub> = 0 V <sub>CB</sub> =400V; I <sub>E</sub> = 0; T <sub>C</sub> =125°C			2.5 5.0	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5V; I <sub>C</sub> = 0			2.0	mA
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = 2.5A ; V <sub>CE</sub> = 5V	15		35	
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 3A ; V <sub>CE</sub> = 5V	10			
f <sub>T</sub>	Current Gain-Bandwidth Product	I <sub>C</sub> = 0.2A ; V <sub>CE</sub> = 10V; f <sub>test</sub> =1MHz	2.5			

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