

# isc Silicon NPN Power Transistor

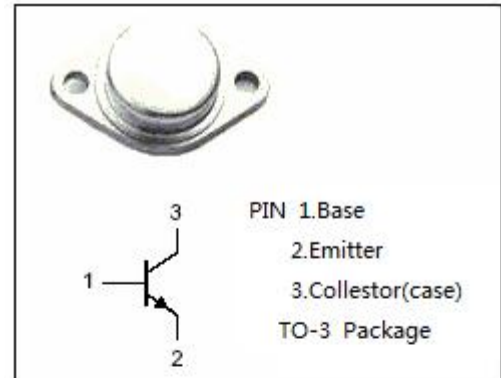
# 2N3902

### DESCRIPTION

- Excellent Safe Operating Area
- Low Collector-Emitter Saturation Voltage
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation.

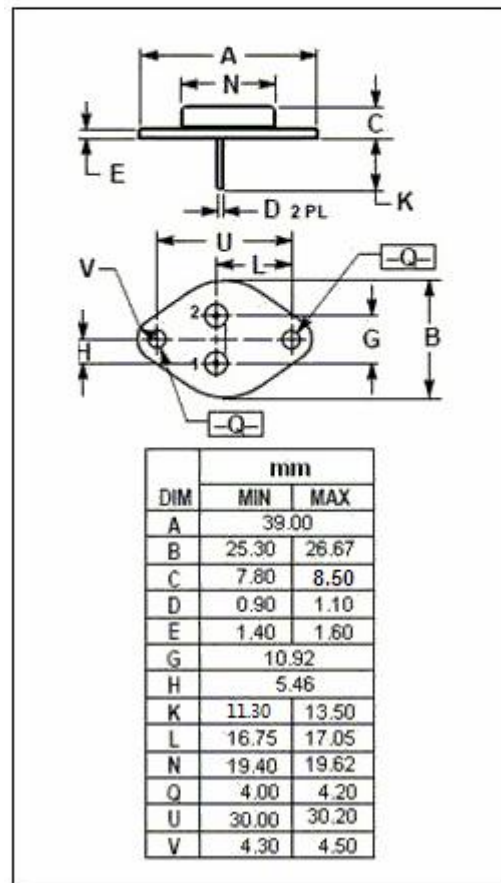
### APPLICATIONS

- Designed for general-purpose switching and amplifier applications



### ABSOLUTE MAXIMUM RATINGS(T<sub>a</sub>=25°C)

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CEX</sub>	Collector-Emitter Voltage	700	V
V <sub>CEO</sub>	Collector-Emitter Voltage	400	V
V <sub>EBO</sub>	Emitter-Base Voltage	5	V
I <sub>c</sub>	Collector Current-Continuous	3.5	A
P <sub>C</sub>	Collector Power Dissipation@T <sub>C</sub> =25°C	100	W
T <sub>J</sub>	Operating Temperature Range	-65~+150	°C
T <sub>stg</sub>	Storage Junction Temperature Range	-65~+200	°C



### THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal Resistance, Junction to Case	0.75	°C/W

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## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V <sub>CEO(SUS)</sub> *	Collector-Emitter Sustaining Voltage	I <sub>C</sub> =100mA ; I <sub>B</sub> =0	325		V
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 1A; I <sub>B</sub> = 0.1A		0.8	V
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 2.5A; I <sub>B</sub> = 0.5A		2.5	V
V <sub>BE(sat)-1</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 1A; I <sub>B</sub> = 0.1A		1.5	V
V <sub>BE(sat)-2</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 2.5A; I <sub>B</sub> = 0.5A		2.0	V
I <sub>CEO</sub>	Collector Cutoff Current	V <sub>CE</sub> = 400V; I <sub>B</sub> =0		0.25	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5.0V; I <sub>C</sub> =0		5.0	mA
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = 2.5A ; V <sub>CE</sub> = 5V	10		
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 1A ; V <sub>CE</sub> = 5V	30	90	
f <sub>T</sub>	Current Gain-Bandwidth Product	I <sub>C</sub> = 0.2A ; V <sub>CE</sub> = 10V;f=1.0MHz	2.8		MHz

\*:Pulse test:Pulse width=300us,duty cycle≤2%

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