

**isc Silicon NPN Power Transistor**
**BUY51A**
**DESCRIPTION**

- Low Collector Saturation Voltage
- High Switching Speed
- High Current Current Capability
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

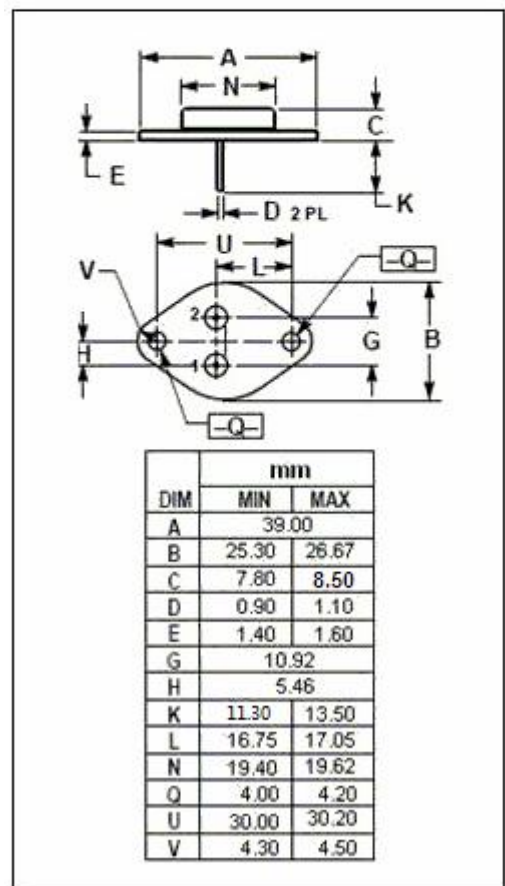
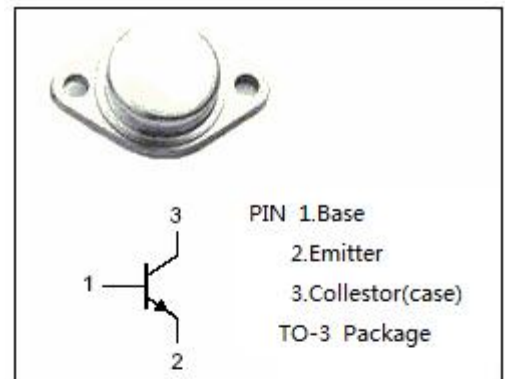
- Switching regulators
- Motor control
- High frequency and efficiency converters

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

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CB0</sub>	Collector-Base Voltage	60	V
V <sub>CEO</sub>	Collector-Emitter Voltage	60	V
V <sub>EBO</sub>	Emitter-Base Voltage	7	V
I <sub>C</sub>	Collector Current-Continuous	30	A
I <sub>CM</sub>	Collector Current-Peak	45	A
I <sub>B</sub>	Base Current-Continuous	8	A
P <sub>T</sub>	Total Power Dissipation @ T <sub>c</sub> ≤25°C	150	W
T <sub>J</sub>	Junction Temperature	200	°C
T <sub>stg</sub>	Storage Temperature Range	-65~200	°C

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal Resistance, Junction to Case	1.17	°C/W



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**ELECTRICAL CHARACTERISTICS**

 T<sub>C</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> = 50mA ; I <sub>B</sub> = 0	60			V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage	I <sub>E</sub> =1mA; I <sub>C</sub> = 0	7			V
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 20A; I <sub>B</sub> = 2A			1.0	V
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 30A; I <sub>B</sub> = 3A			1.5	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 30A; I <sub>B</sub> = 3A			2.0	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> =60V; I <sub>E</sub> =0			0.1	mA
I <sub>EBO</sub>	Emitter Cutoff current	V <sub>EB</sub> =6V; 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> = 4V	60		200	
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 15A ; V <sub>CE</sub> = 4V	20		150	
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> = 1A; V <sub>CE</sub> = 5V; f <sub>test</sub> = 1MHz	10			MHz

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