

# isc Silicon NPN Power Transistor

# BUV48FI

## DESCRIPTION

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

## APPLICATIONS

Designed for high-voltage, high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for line-operated switchmode applications such as:

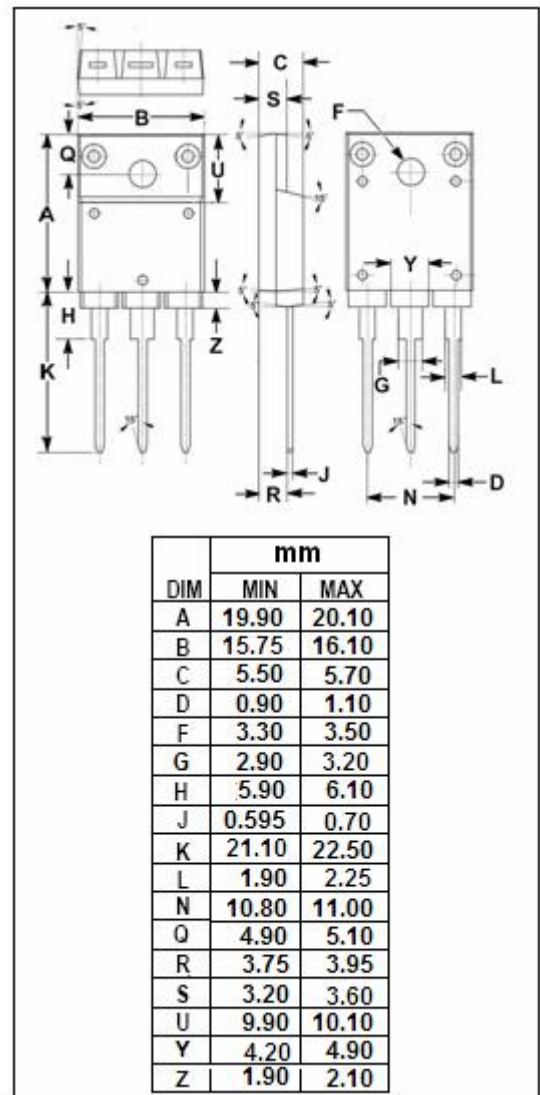
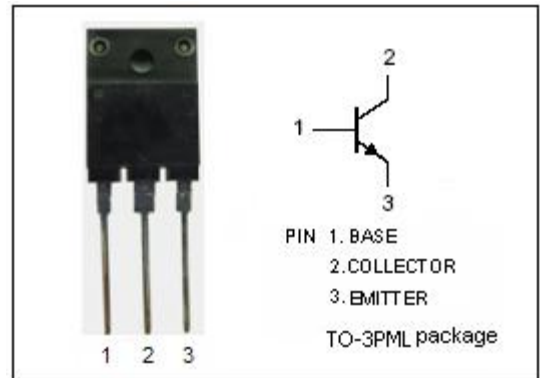
- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits

## Absolute maximum ratings(Ta=25°C)

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CEX</sub>	Collector-Emitter Voltage (V <sub>BE</sub> = -1.5V)	850	V
V <sub>CEO</sub>	Collector-Emitter Voltage	400	V
V <sub>EBO</sub>	Emitter-Base Voltage	7	V
I <sub>C</sub>	Collector Current-Continuous	15	A
I <sub>CM</sub>	Collector Current-Peak	30	A
I <sub>B</sub>	Base Current-Continuous	5	A
I <sub>BM</sub>	Base Current-peak	20	A
P <sub>C</sub>	Collector Power Dissipation @T <sub>C</sub> =25°C	55	W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature Range	-65~150	°C

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal Resistance, Junction to Case	2.2	°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> = 50mA ; I <sub>B</sub> = 0	400		V
V <sub>(BR)EBO</sub>	Emitter-Base Breakdown Voltage	I <sub>E</sub> = 50mA; I <sub>C</sub> = 0	7		V
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 10A; I <sub>B</sub> = 2A I <sub>C</sub> = 10A; I <sub>B</sub> = 2A; T <sub>C</sub> = 100°C		1.5 2.0	V
V <sub>CE (sat)-2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 15A ;I <sub>B</sub> = 3A		5.0	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 10A; I <sub>B</sub> = 2A I <sub>C</sub> = 10A; I <sub>B</sub> = 2A; T <sub>C</sub> = 100°C		1.6 1.6	V
I <sub>CER</sub>	Collector Cutoff Current	V <sub>CE</sub> =rated V <sub>CE</sub> ; R <sub>BE</sub> = 10 Ω V <sub>CE</sub> =rated V <sub>CE</sub> ; R <sub>BE</sub> = 10 Ω ; T <sub>C</sub> =125°C		0.5 3.0	mA
I <sub>CEx</sub>	Collector Cutoff Current	V <sub>CE</sub> =rated V <sub>CE</sub> ; V <sub>BE(off)</sub> = 1.5V V <sub>CE</sub> =rated V <sub>CE</sub> ; V <sub>BE(off)</sub> = 1.5V; T <sub>C</sub> =125°C		0.2 2.0	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5V; I <sub>C</sub> = 0		0.1	mA
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = 10A ; V <sub>CE</sub> = 5V	8		
C <sub>OB</sub>	Output Capacitance	I <sub>E</sub> = 0; V <sub>CB</sub> = 10V, f <sub>test</sub> = 1MHz		350	pF

Switching times Resistive Load

t <sub>on</sub>	Turn-on Time	I <sub>C</sub> = 10A ; I <sub>B1</sub> =-I <sub>B2</sub> = 2A; V <sub>CC</sub> = 300V V <sub>BE(off)</sub> = 5V, Duty Cycle ≤ 2%		0.9	μs
t <sub>s</sub>	Storage Time			2.0	μs
t <sub>f</sub>	Fall Time			0.4	μs

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