

**isc Silicon NPN Power Transistor**

**BUV39**

**DESCRIPTION**

- Low Collector Saturation Voltage-  
:  $V_{CE(sat)} = 0.8V$  (Max.) @  $I_C = 7.5A$
- High Switching Speed

**APPLICATIONS**

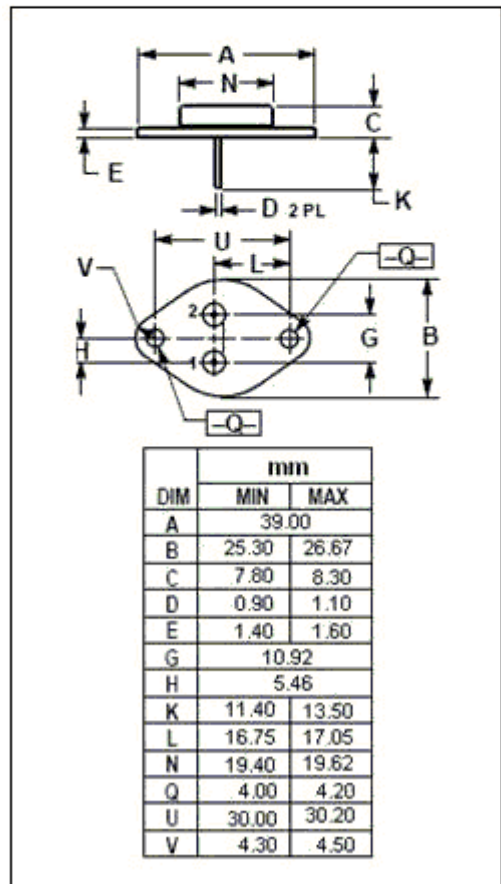
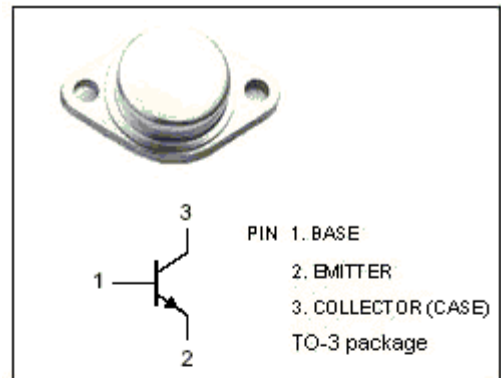
- Designed for high current, high speed, high power applications.

**Absolute maximum ratings(Ta=25°C)**

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CEV}$	Collector-Emitter Voltage $V_{BE} = -1.5V$	160	V
$V_{CEO}$	Collector-Emitter Voltage	90	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current-Continuous	25	A
$I_{CM}$	Collector Current-Peak	45	A
$I_B$	Base Current-Continuous	6	A
$I_{BM}$	Base Current- Peak	9	A
$P_C$	Collector Power Dissipation @ $T_C = 25^\circ C$	120	W
$T_j$	Junction Temperature	200	°C
$T_{stg}$	Storage Temperature Range	-65~200	°C

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	1.46	°C/W



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## ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=0.2\text{A}; I_B=0; L=25\text{mH}$	90			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=50\text{mA}; I_C=0$	7			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=7.5\text{A}; I_B=0.375\text{A}$			0.8	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=15\text{A}; I_B=1.5\text{A}$			0.9	V
$V_{CE(sat)-3}$	Collector-Emitter Saturation Voltage	$I_C=20\text{A}; I_B=2.5\text{A}$			1.2	V
$V_{BE(sat)-1}$	Base-Emitter Saturation Voltage	$I_C=15\text{A}; I_B=1.5\text{A}$			1.7	V
$V_{BE(sat)-2}$	Base-Emitter Saturation Voltage	$I_C=20\text{A}; I_B=2.5\text{A}$			1.9	V
$I_{CER}$	Collector Cutoff Current	$V_{CE}=160\text{V}; R_{BE}=10\ \Omega$ $V_{CE}=160\text{V}; R_{BE}=10\ \Omega; T_C=100^{\circ}\text{C}$			1.0 5.0	mA
$I_{CEV}$	Collector Cutoff Current	$V_{CE}=160\text{V}; V_{BE}=-1.5\text{V}$ $V_{CE}=160\text{V}; V_{BE}=-1.5\text{V}; T_C=100^{\circ}\text{C}$			1.0 5.0	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			1.0	mA

## Switching Times, Resistive Load

$t_r$	Rise Time	$I_C=20\text{A}; I_{B1}=2.5\text{A}; V_{CC}=72\text{V};$ $R_{B2}=1\ \Omega; V_{BB}=-5\text{V}; t_p=30\ \mu\text{s}$			1.1	$\mu\text{s}$
$t_s$	Storage Time				1.0	$\mu\text{s}$
$t_f$	Fall Time				0.25	$\mu\text{s}$