

**isc Silicon NPN Power Transistor**

**BUX33**

**DESCRIPTION**

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 400V(\text{Min.})$
- High Switching Speed

**APPLICATIONS**

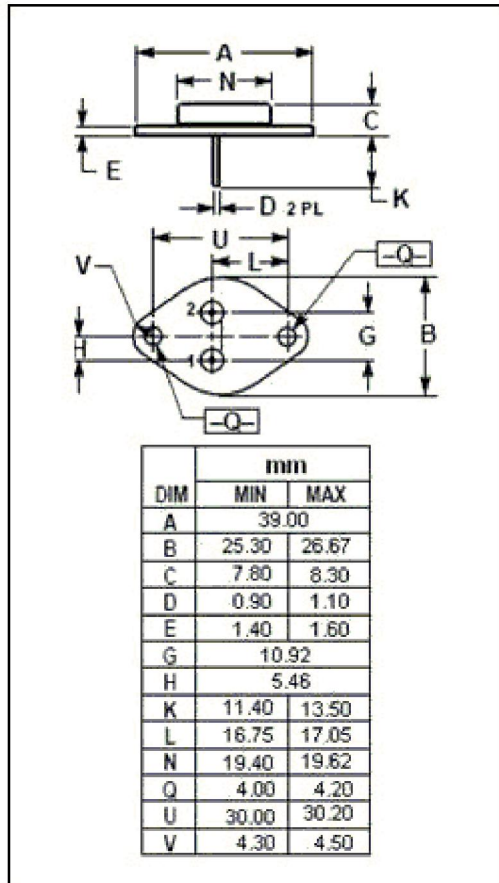
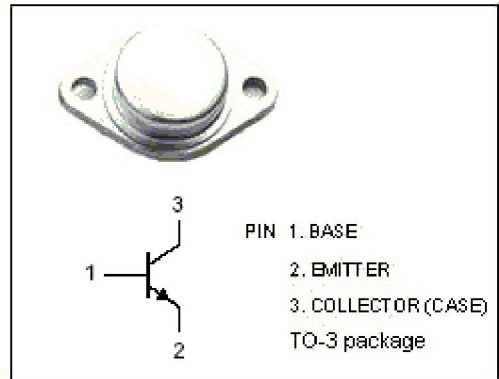
- Converters
- Inverters
- Switching regulators
- Motor controls

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

SYMBOL	PARAMETER	MAX	UNIT
$V_{CEV}$	Collector-Emitter Voltage $V_{BE} = 1.5V$	800	V
$V_{CER}$	Collector-Emitter Voltage $R_{BE} = 10 \Omega$	800	V
$V_{CEX}$	Collector-Emitter Voltage $V_{BE} = -1.5V$	450	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	8	V
$I_C$	Collector Current-Continuous	12	A
$I_{CM}$	Collector Current-Peak	15	A
$I_B$	Base Current	4	A
$P_C$	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	150	W
$T_j$	Junction Temperature	200	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-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

## BUX33

## 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	$I_C=0.2\text{A}; I_B=0$	400			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=8\text{A}; I_B=2\text{A}$			1.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=12\text{A}; I_B=3\text{A}$			4.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=8\text{A}; I_B=2\text{A}$			1.3	V
$I_{CEX}$	Collector Cutoff Current	$V_{CE}=800\text{V}; V_{BE}=-1.5\text{V}$ $V_{CE}=800\text{V}; V_{BE}=-1.5\text{V}; T_C=100^{\circ}\text{C}$			0.1 1.0	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=8\text{V}; I_C=0$			2.0	mA
$h_{FE}$	DC Current Gain	$I_C=8\text{A}; V_{CE}=3\text{V}$	6		40	
$f_T$	Current-Gain—Bandwidth Product	$I_C=0.2\text{A}; V_{CE}=10\text{V}$	15		60	MHz

## Switching Times

$t_d$	Delay Time	$I_C=8\text{A}; I_{B1}=2\text{A}; V_{CC}=240\text{V},$ $t_p=20\mu\text{s}$			0.1	$\mu\text{s}$
$t_r$	Rise Time				0.45	$\mu\text{s}$
$t_s$	Storage Time	$I_C=8\text{A}; I_{B2}=-2\text{A}; V_{CC}=240\text{V},$ $t_p=20\mu\text{s}$			3.0	$\mu\text{s}$
$t_f$	Fall Time				0.4	$\mu\text{s}$