

isc Silicon NPN Power Transistor

BUX42

DESCRIPTION

- Low Collector Saturation Voltage-  
:  $V_{CE(sat)} = 1.2V$  (Max.) @  $I_C = 4A$
- Fast Switching Speed

APPLICATIONS

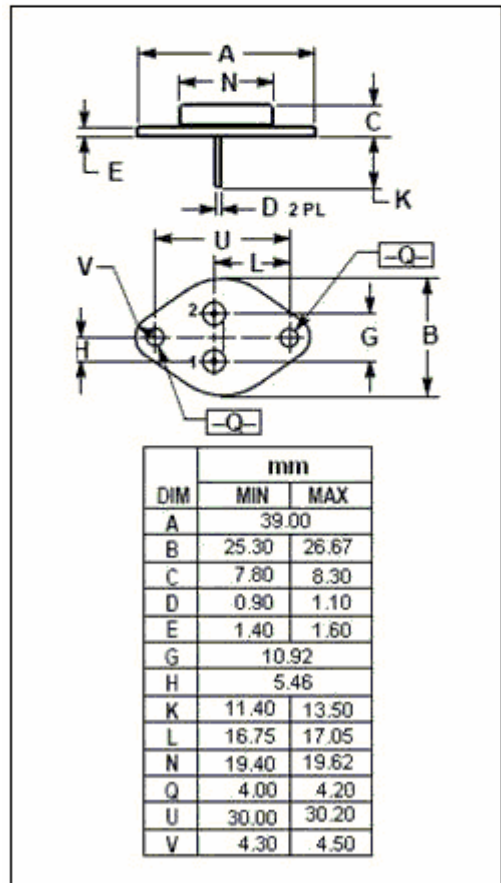
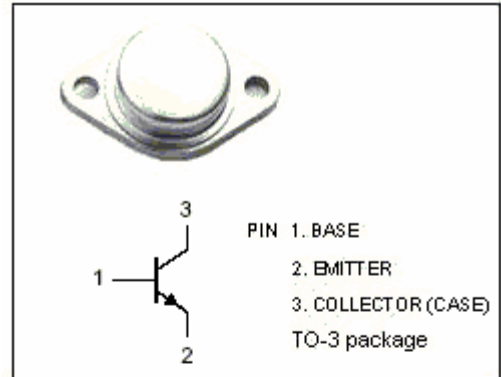
- Designed for use in switching and linear applications in military and industrial equipment.

Absolute maximum ratings( $T_a = 25^\circ C$ )

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CEO}$	Collector-Emitter Voltage	250	V
$V_{CEX}$	Collector-Emitter Voltage $V_{BE} = -1.5V$	300	V
$V_{CBO}$	Collector-Base Voltage	300	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current-Continuous	12	A
$I_{CM}$	Collector Current-Peak	15	A
$I_B$	Base Current-Continuous	2.4	A
$P_C$	Collector Power Dissipation @ $T_C = 25^\circ C$	120	W
$T_j$	Junction Temperature	200	$^\circ C$
$T_{stg}$	Storage Temperature Range	-65~200	$^\circ C$

THERMAL CHARACTERISTICS

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



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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	$I_C=0.2A$ ; $I_B=0$	250			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=50mA$ ; $I_C=0$	7			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=4A$ ; $I_B=0.4A$			1.2	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=6A$ ; $I_B=0.75A$			1.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=6A$ ; $I_B=0.75A$			2.0	V
$I_{CEO}$	Collector Cutoff Current	$V_{CE}=200V$ ; $I_B=0$			1.0	mA
$I_{CEX}$	Collector Cutoff Current	$V_{CE}=300V$ ; $V_{BE}=-1.5V$ $V_{CE}=300V$ ; $V_{BE}=-1.5V$ ; $T_C=125^{\circ}\text{C}$			1.0 5.0	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5V$ ; $I_C=0$			1	mA
$h_{FE-1}$	DC Current Gain	$I_C=4A$ ; $V_{CE}=4V$	15		45	
$h_{FE-2}$	DC Current Gain	$I_C=6A$ ; $V_{CE}=4V$	8			
$f_T$	Current-Gain—Bandwidth Product	$I_C=1A$ ; $V_{CE}=15V$ , $f_{test}=10\text{MHz}$	8			MHz

## Switching Times

$t_{on}$	Turn-on Time	$I_C=6A$ ; $I_{B1}=0.75A$ ; $V_{CC}=150V$		0.23	1.0	$\mu\text{s}$
$t_s$	Storage Time	$I_C=6A$ ; $I_{B1}=-I_{B2}=0.75A$ ; $V_{CC}=150V$		1.5	2.0	$\mu\text{s}$
$t_f$	Fall Time			0.2	1.2	$\mu\text{s}$