



## NPN BUX40

### HIGH CURRENT, HIGH SPEED, HIGH POWER TRANSISTOR

The BUX41 is silicon multiepitaxial planar NPN transistor in Jedec TO-3. They are intended for use in switching and linear applications in military and industrial equipment. Compliance to RoHS.

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
$V_{CEO}$	Collector-Emitter Voltage	$I_B = 0$	125	V
$V_{CBO}$	Collector-Base Voltage	$I_E = 0$	160	V
$V_{EBO}$	Emitter-Base Voltage	$I_C = 0$	7	V
$V_{CEX}$	Collector-Emitter Voltage	$V_{BE} = -1.5V$	160	V
$V_{CER}$	Collector-Emitter Voltage	$R_{BE} = 100\Omega$	150	V
$I_C$	Collector Current		20	A
$I_{CM}$	Collector Peak Current	$t_p = 10ms$	28	A
$I_B$	Base Current		4	A
$P_t$	Total Power Dissipation	@ $T_C = 25^\circ$	120	Watts
$T_J$	Junction Temperature		200	$^\circ C$
$T_{Stg}$	Storage Temperature		-65 to +200	$^\circ C$

#### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
$R_{thJC}$	Thermal Resistance, Junction to Case	1.46	$^\circ C/W$

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### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

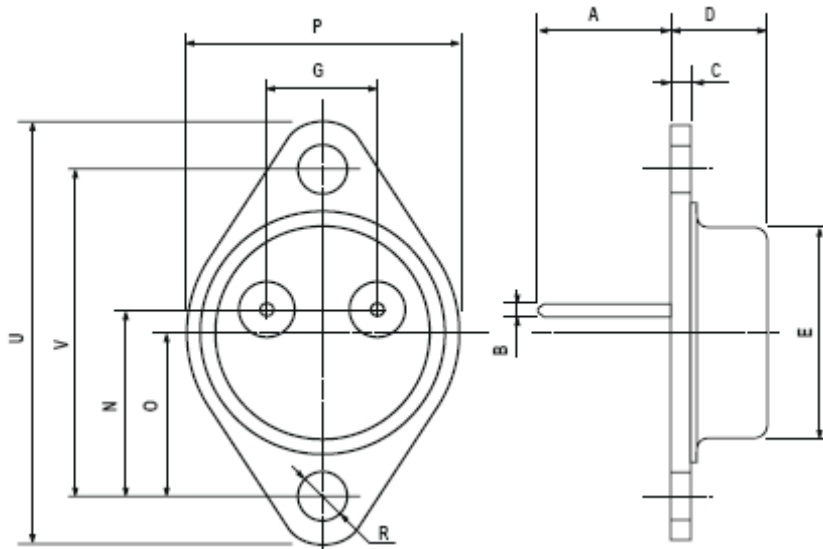
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage (*)	$I_C=200\text{ mA}$	125	-	-	V
$V_{EB0}$	Emitter-Base Voltage	$I_C=0\text{ A}, I_E=50\text{ mA}$	7	-	-	V
$I_{CEO}$	Collector Cutoff Current	$V_{CE}=100\text{ V}, I_B=0\text{ A}$	-	-	1	mA
$I_{CEX}$	Collector Cutoff Current	$V_{CE}=V_{CEX}, V_{BE}=-1.5\text{ V}$	-	-	1	mA
		$V_{CE}=V_{CEX}, V_{BE}=-1.5\text{ V}$ $T_{case} = 125^\circ\text{C}$	-	-	5	
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5.0\text{ V}, I_C=0$	-	-	1	mA
$h_{FE}$	DC Current Gain (*)	$I_C=10\text{ A}, V_{CE}=4.0\text{ V}$	15	-	45	-
		$I_C=15\text{ A}, V_{CE}=4.0\text{ V}$	8	-	-	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C=10\text{ A}, I_B=1\text{ A}$	-	0.6	1.2	V
		$I_C=15\text{ A}, I_B=1.88\text{ A}$	-	0.9	1.6	
$V_{BE(SAT)}$	Base-Emitter saturation Voltage (*)	$I_C=15\text{ A}, I_B=1.88\text{ A}$	-	1.7	2	
$I_{S/B}$	Second breakdown collector current	$V_{CE}=30\text{ V}, t_s = 1\text{ s}$	4	-	-	A
		$V_{CE}=50\text{ V}, t_s = 1\text{ s}$	1	-	-	
$E_{S/B}$	Clamped $E_{S/B}$ Collector current	$V_{clamp}=125\text{ V}$ $L=500\text{ }\mu\text{H}$	15	-	-	A
$f_T$	Transition frequency	$V_{CE}=15\text{ V}, I_C=1\text{ A}$ $f=10\text{ MHz}$	8	-	-	MHz
$t_{on}$	Turn-on time	$I_C=15\text{ A}, I_B=1.88\text{ A}$ $V_{CC}=30\text{ V}$	-	0.35	1.2	$\mu\text{s}$
$t_s$	Storage time	$I_C=15\text{ A}, V_{CC}=30\text{ V}$	-	0.85	1	
$t_f$	File time	$I_{B1} = -I_{B2} = 1.88\text{ A}$	-	0.14	0.4	

(\*) Pulse Duration = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2\%$

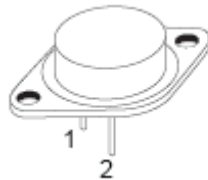
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### MECHANICAL DATA CASE TO-3

DIMENSIONS (mm)		
	min	max
A	11	13.10
B	0.97	1.15
C	1.5	1.65
D	8.32	8.92
F	19	20
G	10.70	11.1
N	16.50	17.20
P	25	26
R	4	4.09
U	38.50	39.30
V	30	30.30



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector



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