



## NPN BUX40

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

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

#### 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	$^\circ C/W$

#### ELECTRICAL CHARACTERISTICS

$T_C = 25^\circ C$  unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage (1)	$I_C = 200\text{ mA}$	125	-	-	V
$V_{EBO}$	Emitter-Base Voltage	$I_C = 0A, I_E = 50\text{ mA}$	7	-	-	V
$I_{CEO}$	Collector Cutoff Current	$V_{CE} = 100\text{ V}, I_B = 0A$	-	-	1	mA
$I_{CEX}$	Collector Cutoff Current	$V_{CE} = V_{CEX}, V_{BE} = -1.5V$	-	-	1	mA
		$V_{CE} = V_{CEX}, V_{BE} = -1.5V, T_{case} = 125^\circ C$	-	-	5	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 5.0\text{ V}, I_C = 0$	-	-	1	mA

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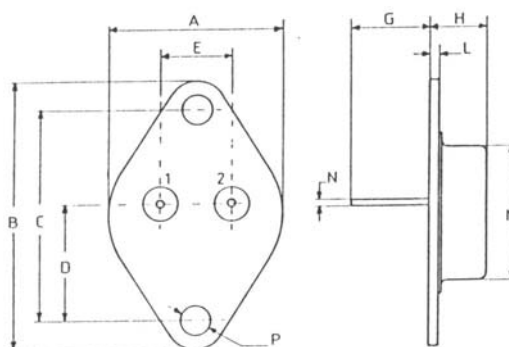
$h_{FE}$	DC Current Gain (1)	$I_C=10\text{ A}, V_{CE}=4.0\text{ V}$	15	-	45	-
		$I_C=15\text{ A}, V_{CE}=4.0\text{ V}$	8	-	-	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (1)	$I_C=10\text{ A}, I_B=1\text{ A}$	-	0.6	1.2	V
		$I_C=15\text{ A}, I_B=1.88\text{ A}$	-	0.9	1.6	
$V_{BE(SAT)}$	Base-Emitter saturation Voltage (1)	$I_C=15\text{ A}, I_B=1.88\text{ A}$	-	1.7	2	

Symbol	Ratings	Test Condition(s)Sec	Min	Typ	Mx	Unit
$I_{S/B}$	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	

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

### MECHANICAL DATA CASE TO-3

DIMENSIONS		
	mm	inches
A	25,51	1,004
B	38,93	1,53
C	30,12	1,18
D	17,25	0,68
E	10,89	0,43
G	11,62	0,46
H	8,54	0,34
L	1,55	0,6
M	19,47	0,77
N	1	0,04
P	4,06	0,16



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector

*Information furnished is believed to be accurate and reliable. However, CS assumes no responsibility for the consequences of use of such information nor for errors that could appear.*

Data are subject to change without notice.