

NPN BUX41N

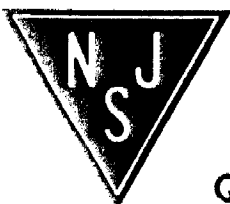
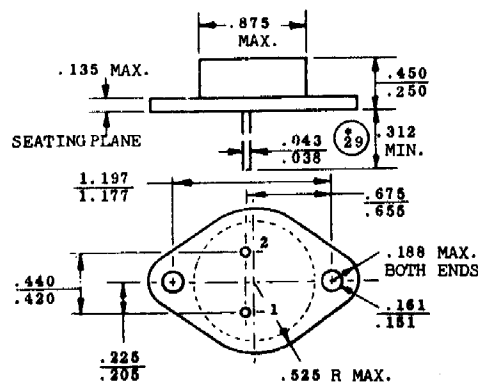
**HIGH CURRENT, HIGH SPEED,
 HIGH POWER TRANSISTOR**

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
V_{CEO}	Collector-Emitter Voltage	$I_B = 0$	160	V
V_{CBO}	Collector-Base Voltage	$I_E = 0$	220	V
V_{CEX}	Collector-Emitter Voltage	$V_{BE} = -1.5$ V	220	V
V_{EBO}	Emitter-Base Voltage	$I_C = 0$	7	V
I_C	Collector Current		18	A
I_{CM}	Collector Peak Current	$t_p = 10$ ms	25	A
I_B	Base Current		3.6	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

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage (*)	$I_C = 200 \text{ mA}$	160	-	-	V
V_{EBO}	Emitter-Base Voltage	$I_C = 0 \text{ A}, I_E = 50 \text{ mA}$	7	-	-	V
I_{CEO}	Collector Cutoff Current	$V_{CE} = 130 \text{ V}, I_B = 0 \text{ A}$	-	-	1	mA
I_{CEX}	Collector Cutoff Current	$V_{CE} = 220 \text{ V}, V_{BE} = -1.5 \text{ V}$ $V_{CE} = 220 \text{ V}, V_{BE} = -1.5 \text{ V}$ $T_{case} = 125^\circ\text{C}$	-	-	5	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 5.0 \text{ V}, I_C = 0 \text{ A}$	-	-	1	mA
h_{FE}	DC Current Gain (*)	$I_C = 8 \text{ A}, V_{CE} = 4.0 \text{ V}$ $I_C = 12 \text{ A}, V_{CE} = 4.0 \text{ V}$	15 8	-	45 -	-
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = 8 \text{ A}, I_B = 0.8 \text{ A}$ $I_C = 12 \text{ A}, I_B = 1.5 \text{ A}$	-	0.5 0.75	1.2 1.6	V
$V_{BE(SAT)}$	Base-Emitter saturation Voltage (*)	$I_C = 12 \text{ A}, I_B = 1.5 \text{ A}$	-	1.5	2	
$I_{S/B}$	Second breakdown collector current	$V_{CE} = 30 \text{ V}, t_s = 1 \text{ s}$ $V_{CE} = 100 \text{ V}, t_s = 1 \text{ s}$	4 0.27	-	-	A
$E_{S/B}$	Clamped $E_{S/B}$ Collector current	$V_{clamp} = 160 \text{ V}$ $L = 500 \mu\text{H}$	12	-	-	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	$I_C = 12 \text{ A}, I_B = 1.5 \text{ A}$ $V_{CC} = 30 \text{ V}$	-	0.35	1.3	μs
t_s	Storage time	$I_C = 12 \text{ A}, V_{CC} = 30 \text{ V}$	-	0.85	1.5	
t_f	File time	$I_{B1} = -I_{B2} = 1.5 \text{ A}$	-	0.14	0.8	

(*) Pulse Duration = 300 μs , Duty Cycle $\leq 2\%$