



ELECTRONICS, INC.
 44 FARRAND STREET
 BLOOMFIELD, NJ 07003
 (973) 748-5089
<http://www.nteinc.com>

BUX10 Silicon NPN Transistor Power Amp, Switch TO-3 type Package

Description:

The BUX10 is a silicon multiepitaxial planar NPN transistor in a TO-3 type package designed for use in switching and linear applications in industrial equipment.

Features:

- High Current Capability
- Fast Switching Speed

Applications:

- Motor Control
- Linear and Switching Industrial Equipment

Absolute Maximum Ratings:

Collector-Emitter Voltage ($I_B = 0$), V_{CEO}	125V
Collector-Emitter Voltage ($V_{BE} = -1.5V$), V_{CEX}	160V
Collector-Base Voltage ($I_E = 0$), V_{CBO}	160V
Emitter-Base Voltage ($I_C = 0$), V_{EBO}	7V
Collector Current, I_C	
Continuous	25A
Peak (t_p 10ms)	30A
Base Current, I_B	5A
Total Power Dissipation ($T_C \leq +25^\circ C$), P_{tot}	150W
Maximum Operating Junction Temperature, T_J	$+200^\circ C$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ C$
Maximum Thermal Resistance, Junction-to-Case, R_{thJC}	$1.17^\circ C/W$

Electrical Characteristics: ($T_C = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CEX}	$V_{CE} = 160V, V_{EB(off)} = -1.5V$	-	-	1.5	mA
		$V_{CE} = 160V, V_{EB(off)} = -1.5V, T_C = +125^\circ C$	-	-	6.0	mA
	I_{CEO}	$V_{CE} = 100V, I_B = 0$	-	-	1.5	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5V, I_C = 0$	-	-	1.0	mA

Electrical Characteristics (Cont'd): ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 200\text{mA}, I_B = 0, \text{Note 1}$	125	–	–	V
Emitter–Base Voltage	V_{EBO}	$I_E = 50\text{mA}, I_E = 0$	7	–	–	V
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{A}, I_B = 1.0\text{A}, \text{Note 1}$	–	0.3	0.6	V
		$I_C = 20\text{A}, I_B = 2.0\text{A}, \text{Note 1}$	–	0.7	1.2	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 20\text{A}, I_B = 2.0\text{A}, \text{Note 1}$	–	1.6	2.0	V
DC Current Gain	h_{FE}	$V_{CE} = 2\text{V}, I_C = 10\text{A}$	20	–	60	
		$V_{CE} = 4\text{V}, I_C = 20\text{A}$	10	–	–	
Second Breakdown Collector Current	$I_{S/b}$	$V_{CE} = 30\text{V}, t = 1\text{s}$	5	–	–	A
		$V_{CE} = 48\text{V}, t = 1\text{s}$	1	–	–	A
Transistor Frequency	f_T	$V_{CE} = 15\text{V}, I_C = 1\text{A}, f = 10\text{MHz}$	8	–	–	MHz
Turn–On Time	t_{on}	$V_{CC} = 30\text{V}, I_C = 20\text{A}, I_{B1} = 2\text{A}$	–	0.5	1.5	μs
Storage Time	t_s	$V_{CC} = 30\text{V}, I_C = 20\text{A}, I_{B1} = -I_{B2} = 2\text{A}$	–	0.6	1.2	μs
Fall Time	t_f		–	0.15	0.3	μs
Clamped $E_{s/b}$ Collector Current		$V_{clamp} = 125\text{V}, L = 500\mu\text{H}$	20	–	–	A

Note 1. Pulse Test: Pulse Width = $300\mu\text{s}$, Duty Cycle $\leq 2\%$.

