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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 ($T_C \le +25°C$), P_{tot} 150W
Maximum Operating Junction Temperature, T_J . . . . . +200°C
Storage Temperature Range, T_{stg} . . . . . –65° to +200°C
Maximum Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 1.17°C/W

Electrical Characteristics: (T_C = +25°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°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°C unless otherwise specified)

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

Note 1. Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2%.