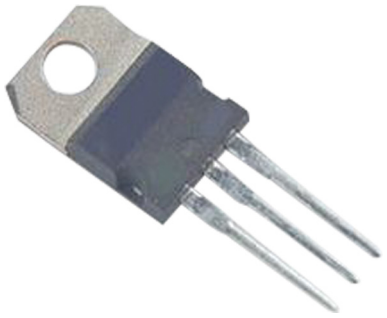
Power Transistor



Description:

Switch mode Series NPN Power Transistors are designed for use in high-voltage, highspeed, power switching regulators, converters, inverters, motor control system application.

Features:

- Collector-Emitter Sustaining Voltage - $V_{CEO(sus)}$ = 400V (Min.)
- Collector-Emitter Saturation Voltage - $V_{CE(sat)}$ = 1V (Max.) at I_C = 1A, I_B = 0.2A
- Switching Time- t_f = 0.6µs (Max.) at I_C = 1A

Maximum Ratings

Characteristic	Symbol	BU406	Unit
Collector-Emitter Voltage	V_{CEO}	400	V
Collector-Emitter Voltage (V_{BE} = 0)	V_{CES}	800	
Emitter-Base Voltage	V_{EBO}	10	
Collector Current-Continuous -Peak	I_C I_{CM}	2 3	A
Base Current	I_B	0.75	
Total Power Dissipation at T_C = 25°C Derate above 25°C	P_D	40 0.32	W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150	°C

Thermal Characteristics

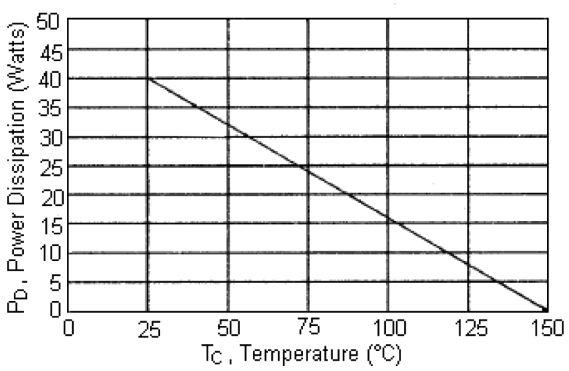
Characteristic	Symbol	Max.	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	3.125	°C/W

Electrical Characteristics (T_C = 25°C unless otherwise noted)

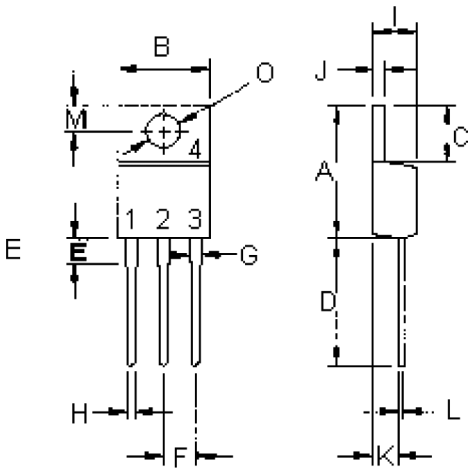
Characteristic	Symbol	Min.	Max.	Unit
OFF Characteristics				
Collector-Emitter Sustaining Voltage I_C = 0.2A, I_B = 0, L = 25mH	$V_{CEO(sus)}$	400	-	V
Collector Cut off Current V_{CE} = V_{CES}, V_{BE} = 0 V_{CE} = V_{CES}, V_{BE} = 0, T_C = 125°C	I_{CES}	-	0.2 1.5	mA
Emitter Cut off Current V_{EB} = 5V, I_C = 0	I_{EBO}	-	1	
ON Characteristics (1)				
DC Current Gain I_C = 100mA, V_{CE} = 5V	h_{FE}	30 (Typ.)	-	-
Collector-Emitter Saturation Voltage I_C = 0.3A, I_B = 30mA I_C = 1A, I_B = 0.2A	$V_{CE\ (sat)}$	-	0.8 1	V
Base-Emitter Saturation Voltage I_C = 1A, I_B = 0.2A	$V_{BE(sat)}$	-	1.1	
Dynamic Characteristics				
Current Gain-Bandwidth Product I_C = 0.2A, V_{CE} = 10V, f = 1MHz	f_T	20 (Typ.)	-	MHz
Switching Characteristics				
Turn On Time	V_{CC} = 250V, I_C = 1A I_{B1} = 0.2A, I_{B2} = -0.4A	t_{on}	-	0.5	µs
Storage Time		t_s	-	3.5	
Fall Time		t_f	-	0.6	

(1) Pulse Test: Pulse Width = 300µs, Duty Cycle ≤2%

Figure - 1 Power Derating



Power Transistor



Pin Configuration:
1. Base
2. Collector
3. Emitter
4. Collector(Case)

Dimensions	Min.	Max.
A	14.68	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.2	2.97
L	0.33	0.55
M	2.48	2.98
O	3.7	3.9

Dimensions : Millimetres

Part Number Table

Description	Part Number
Transistor, NPN, TO-220	BUX84