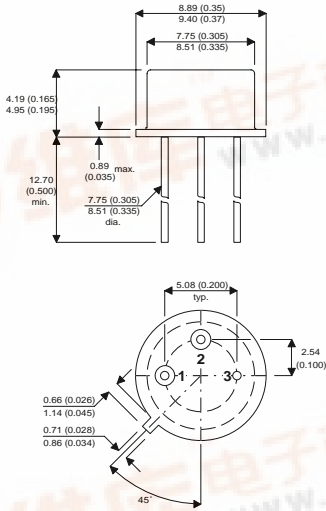


BUX51

MECHANICAL DATA

Dimensions in mm(inches)



TO39

Pin 1 = Emitter Pin 2 = Base Pin 3 = Collector

NPN SILICON TRANSISTOR

FEATURES

- FAST SWITCHING
- HIGH PULSE POWER

APPLICATIONS

- POWER SWITCHING CIRCUITS
- MOTOR CONTROL

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

V_{CBO}	Collector – Base Voltage	300V
V_{CEX}	Collector – Emitter Voltage ($V_{BE} = -1.5V$)	300V
V_{CEO}	Collector – Emitter Voltage	200V
V_{ER}	Collector – Emitter Voltage $R_{BE} = 100\Omega$	260V
V_{EBO}	Emitter – Base Voltage	7V
I_C	Collector Current	3.5A
I_{CM}	Peak Collector Current ($t_p = 10\text{ ms}$)	5A
I_B	Base Current	0.7A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^{\circ}C$	10W
T_{stg}	Storage Temperature	200°C
	Junction Temperature	-65°C to +200°C



ELECTRICAL CHARACTERISTICS ($T_{\text{case}} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{\text{CEO(sus)}}$ Collector - Emitter Sustaining Voltage	$I_{\text{C}} = 200\text{mA}$ $I_{\text{B}} = 0.5\text{A}$ $L = 25\text{mH}$	200			V
$V_{(\text{BR})\text{EBO}}$ Emitter – Base Breakdown Voltage	$I_{\text{C}} = 0$ $I_{\text{E}} = 5\text{mA}$	7			V
I_{CEO} Collector Emitter Cut-off Current	$V_{\text{CE}} = 160\text{V}$ $I_{\text{B}} = 0$			0.5	mA
I_{CEX} Collector Emitter Cut-off Current	$V_{\text{CE}} = 250\text{V}$ $V_{\text{BE}} = -1.5\text{V}$ $T_{\text{C}} = 125^{\circ}\text{C}$			0.1 0.5	mA
I_{EBO} Emitter–Base Cut-off Current	$I_{\text{C}} = 0$ $V_{\text{EB}} = 5\text{V}$			0.5	mA
$V_{\text{CE(sat)}}$ * Collector – Emitter Saturation Voltage	$I_{\text{C}} = 1\text{A}$ $I_{\text{B}} = 0.1\text{A}$		0.15	0.5	V
	$I_{\text{C}} = \text{A}$ $I_{\text{B}} = 0.2\text{A}$		0.3	1	
$V_{\text{BE(sat)}}$ * Base – Emitter Saturation Voltage	$I_{\text{C}} = 2\text{A}$ $I_{\text{B}} = 0.2\text{A}$		0.9	1.3	V
$I_{\text{S/b}}$ Second Breakdown Collector Current	$V_{\text{CE}} = 40\text{V}$ $t = 1\text{s}$	0.25			A
f_{t} Transition Frequency	$I_{\text{C}} = 0.5\text{A}$ $f = 10\text{MHz}$ $V_{\text{CE}} = 10\text{V}$	8			MHz
$t_{\text{d} + \text{tr}}$ Turn–On Time	$I_{\text{C}} = 2\text{A}$ $I_{\text{B}} = 0.2\text{A}$		0.45	0.8	μs
t_{f} Fall Time	$I_{\text{C}} = 2\text{A}$ $I_{\text{B}2} = 0.2\text{A}$ $I_{\text{B}1} = 0.2\text{A}$		0.2	0.5	
Carrier Storage Time	$I_{\text{C}} = 2\text{A}$ $I_{\text{B}2} = 0.2\text{A}$ $I_{\text{B}1} = 0.2\text{A}$		1.2	2.5	

*Pulsed $t_{\text{p}} = 300\mu\text{s}$ @ < 1%

THERMAL CHARACTERISTICS

$R_{\theta\text{JC}}$ Junction to Case Thermal Resistance			17.5	$^{\circ}\text{C/W}$
$R_{\theta\text{JA}}$ Junction to Ambient Thermal Resistance			175	$^{\circ}\text{C/W}$