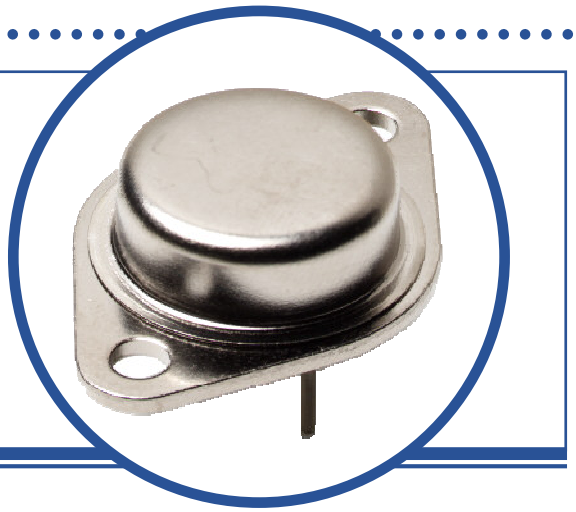
SILICON EPITAXIAL NPN TRANSISTOR

TT electronics
Semelab Limited

BUX39

- High Current Capability.
- Hermetic TO3 Metal package.
- Ideally suited for Motor Control, Switching and Linear Applications
- Screening Options Available



ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise stated)

V_{CBO}	Collector – Base Voltage		120V
V_{CEX}	Collector – Emitter Voltage	V_{BE} = -1.5V	120V
V_{CER}	Collector – Emitter Voltage	R_{BE} = 100Ω	110V
V_{CEO}	Collector – Emitter Voltage		90V
V_{EBO}	Emitter – Base Voltage		7V
I_C	Continuous Collector Current		30A
I_{CM}	Peak Collector Current	t_p = 10ms	40A
I_B	Base Current		6A
P_D	Total Power Dissipation at	T_C = 25°C	120W
		Derate Above 25°C	0.68W/°C
T_J	Junction Temperature Range		-65 to +200°C
T_{stg}	Storage Temperature Range		-65 to +200°C

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	1.46	°C/W

SEMELAB
A subsidiary of TT electronics plc.

Semelab Limited Coventry Road, Lutterworth, Leicestershire, LE17 4JB
Telephone +44 (0) 1455 556565 Fax +44 (0) 1455 552612 Email: sales@semelab-tt.com Website: http://www.semelab-tt.com

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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions		Min.	Typ	Max.	Units
I_{CEO}	Collector Cut-Off Current	V_{CE} = 70V	I_B = 0			1.0	mA
I_{CEX}	Collector Cut-Off Current	V_{CE} = 100V	V_{BE} = -1.5V			1.0	
		T_C = 125°C				5	
I_{EBO}	Emitter Cut-Off Current	V_{EB} = 5V	I_C = 0			1.0	
$V_{(BR)CEO}$ (1)	Collector-Emitter Breakdown Voltage	I_C = 10mA	I_B = 0	90			V
$V_{(BR)EBO}$ (1)	Emitter-Base Breakdown Voltage	I_E = 50mA	I_C = 0	7			
$V_{CE(sat)}$ (1)	Collector-Emitter Saturation Voltage	I_C = 12A	I_B = 1.2A		0.4	1.2	
		I_C = 20A	I_B = 2.5A		0.7	1.6	
$V_{BE(sat)}$ (1)	Base-Emitter Saturation Voltage	I_C = 20A	I_B = 2.5A		1.3	2.5	
h_{FE} (1)	Forward-current transfer ratio	I_C = 12A	V_{CE} = 4V	15		45	
		I_C = 20A	V_{CE} = 4V	8			
$I_{S/B}$	Second Breakdown Collector Current	V_{CE} = 45V	t = 1.0s	1.0			A
		V_{CE} = 30V		4			

DYNAMIC CHARACTERISTICS

f_T	Transition Frequency	I_C = 1.0A f = 5MHz	V_{CE} = 15V	8			MHz
t_{on}	Turn-On Time	I_C = 20A I_{B1} = 2.5A	V_{CC} = 30V		0.8	1.5	µs
t_s	Storage Time	I_C = 20A	V_{CC} = 30V		0.55	1.0	
t_f	Fall Time	I_{B1} = -IB2 = 2.5A			0.15	0.3	

Notes
(1) Pulse Width ≤ 300us, δ ≤ 2%

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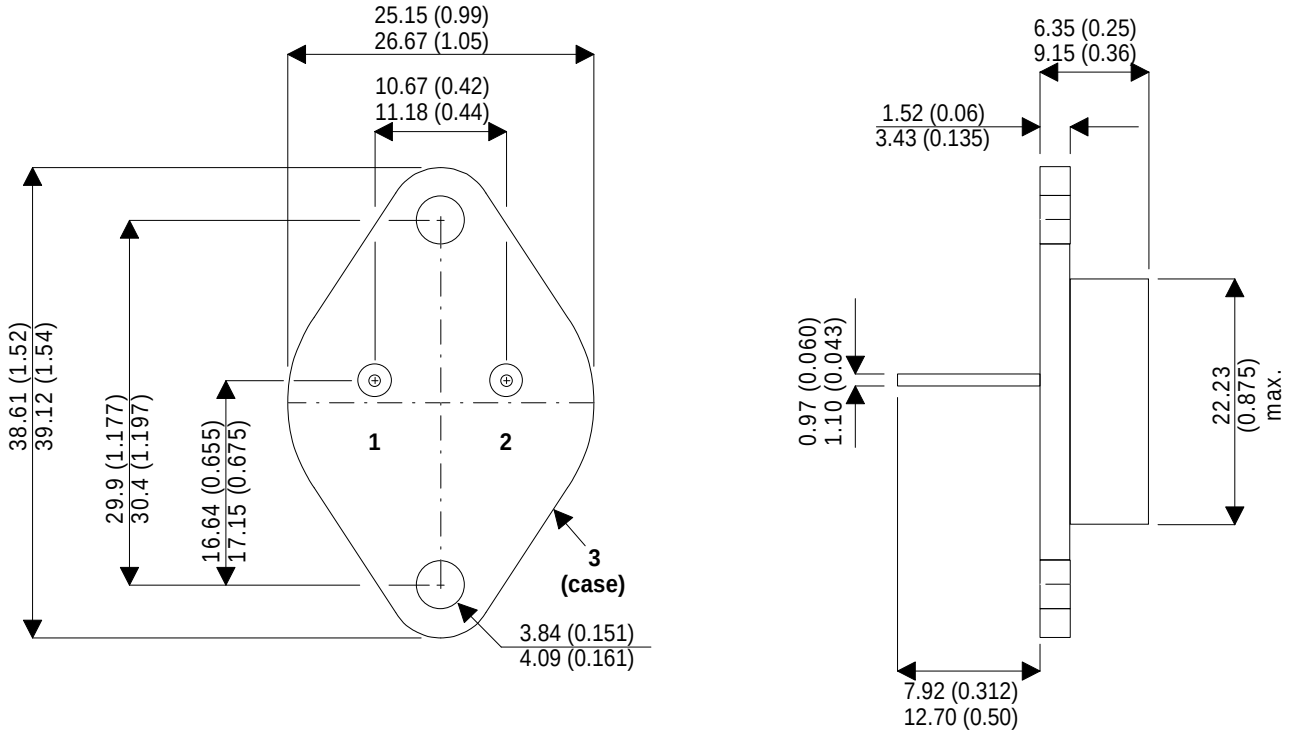
MECHANICAL DATA

Dimensions in mm (inches)



TO3 (TO-204AA) METAL PACKAGE

Underside View

Pin 1 - Base Pin 2 - Emitter Case - Collector