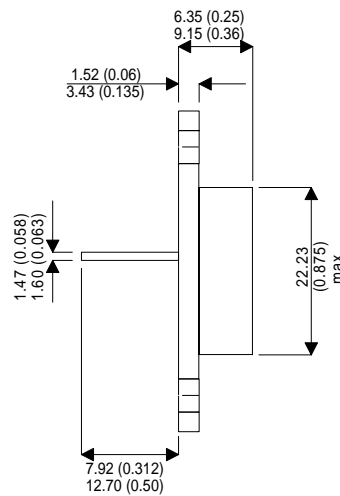
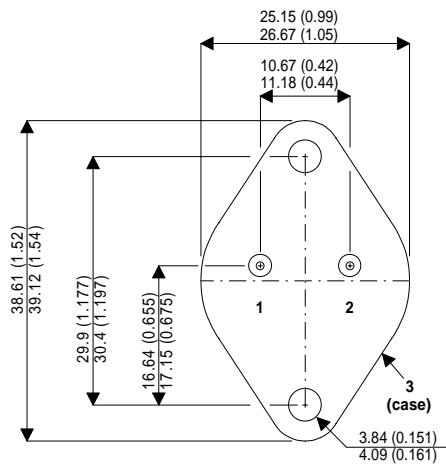


**MECHANICAL DATA**

Dimensions in mm(inches)



**TO3 (TO204AE)**

Pin 1 = Base Pin 2 = Emitter Case = Collector

**HIGH CURRENT  
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 ( $I_E = 0V$ )	350V
$V_{CEO}$	Collector – Emitter Voltage ( $I_B = 0V$ )	250V
$V_{EBO}$	Collector – Emitter Voltage ( $I_C = 0V$ )	10V
$I_C$	Collector Current	60A
$I_{CM}$	Peak Collector Current ( $t_p = 10$ ms)	80A
$I_B$	Base Current	16A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25^{\circ}C$	350W
$T_{stg}$	Storage Temperature	-65°C to +200°C
$T_j$	Max. Operating Junction Temperature	200°C
$R_{\theta JC}$	Junction to Case Thermal Resistance	0.5°C/W

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)CEO}^*$ Collector - Emitter Breakdown Voltage	$I_C = 200mA$ $I_B = 0$	250			V
$V_{(BR)EBO}$ Emitter – Base Breakdown Voltage	$I_C = 0$ $I_E = 10mA$	10			V
$I_{CEO}$ Collector Emitter Cut-off Current	$V_{CE} = 250V$ $I_B = 0$			1.0	mA
$I_{CBO}$ Collector -Base Cut-off Current	$V_{CE} = 350V$ $I_E = 0$ $T_C = 125^{\circ}C$			0.2	mA
				2	
$I_{EBO}$ Emitter–Base Cut-off Current	$I_C = 0$ $V_{EB} = 7V$			0.2	mA
$V_{CE(sat)}^*$ Collector – Emitter Saturation Voltage	$I_C = 25A$ $I_B = 2A$			1.0	V
	$I_C = 40A$ $I_B = 4A$		0.7	1.5	
$V_{BE(sat)}^*$ Base – Emitter Saturation Voltage	$I_C = 25A$ $I_B = 2A$			1.8	V
	$I_C = 40A$ $I_B = 4A$		1.5	2	
$h_{FE}$ DC Current Gain	$I_C = 5A$ $V_{CE} = 4V$	20		100	—
	$I_C = 40A$ $V_{CE} = 4V$	15			
$I_{S/b}$ Second Breakdown Collector Current	$V_{CE} = 20V$ $t = 1s$	17.5			A
$f_t$ Transition Frequency	$I_C = 1.0A$ $V_{CE} = 5V$ $f = 1MHz$		10	16	MHz
$t_{on}$ Turn–On Time	$I_C = 40A$ $I_B = 4A$ $V_{CC} = 100V$		0.3	1.0	$\mu s$
$t_f$ Fall Time	$I_C = 40A$ $I_{B1} = 4A$ $I_{B2} = 4A$ $V_{CC} = 100V$		0.2	0.6	
$t_s$ Storage Time	$I_C = 40A$ $I_{B1} = 4A$ $I_{B2} = 4A$ $V_{CC} = 100V$		1.2	2	

\*Pulsed  $t_p = 300\mu s$  @ < 1%