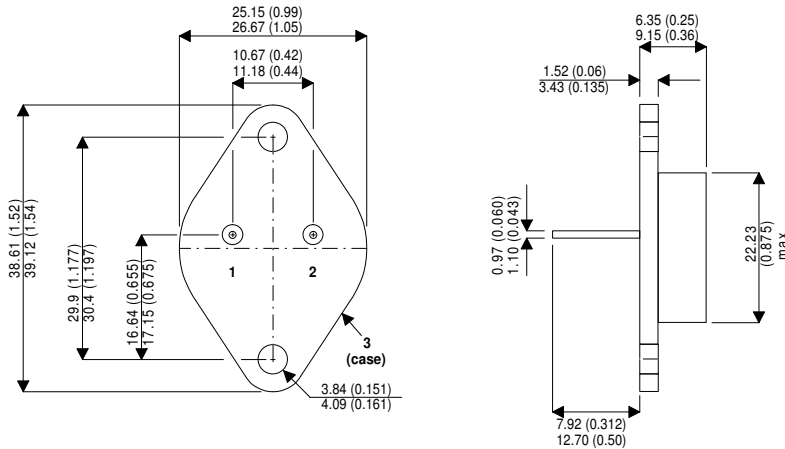


## MECHANICAL DATA

Dimensions in mm (inches)



### TO3 (TO204AA)

Pin 1 = Base      Pin 2 = Emitter      Case = Collector

## HIGH CURRENT NPN SILICON TRANSISTOR

### FEATURES

- HIGH SWITCHING CURRENTS
- HIGH RELIABILITY
- CECC SCREENING OPTIONS
- SPACE QUALITY LEVELS OPTIONS
- JAN LEVEL SCREENING OPTIONS

### APPLICATIONS

- SWITCHING REGULATORS
- LINEAR APPLICATIONS

## ABSOLUTE MAXIMUM RATINGS

$T_{CASE} = 25^{\circ}C$  unless otherwise stated

$V_{CBO}$	Collector - Base Voltage	300V
$V_{CEO}$	Collector - Emitter Voltage	180V
$V_{EBO}$	Emitter - Base Voltage	10V
$I_C$	Continuous Collector Current	6A
$I_B$	Base Current	3A
$P_{tot}$	Total Power Dissipation at $T_{case} = 25^{\circ}C$ Derate above $25^{\circ}C$	50W 0.29 W/ $^{\circ}C$
$T_J$	Junction Temperature	200 $^{\circ}C$
$T_{stg}$	Storage Temperature	-65 to 200 $^{\circ}C$

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.

**THERMAL CHARACTERISTICS**

		<b>Max</b>	<b>Unit</b>
$R_{th(j-case)}$	Thermal resistance to case	3.5	$^{\circ}C/W$

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CEO}$	Collector Cut-Off Current $V_{CE} = 140V$ $I_B = 0$			1.0	mA
$I_{CES}$	Collector Cut-Off Current $V_{CE} = 180V$ $V_{BE} = 0$			1.0	
$I_{EBO}$	Emitter Cut-Off Current $V_{EB} = 10V$ $I_C = 0$			1.0	
$V_{(BR)CEO}^*$	Collector-Emitter Breakdown Voltage $I_C = 50mA$ $I_B = 0$	180			V
$V_{(BR)CBO}^*$	Collector-Base Breakdown Voltage $I_C = 3mA$	300			
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage $I_C = 2.0A$ $I_B = 0.25A$			0.6	
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage $I_C = 2.0A$ $I_B = 0.25A$			1.2	
$h_{FE}^*$	Forward-current transfer ratio	$I_C = 1.0A$ $V_{CE} = 4.0V$		90	
		$I_C = 2.0A$ $V_{CE} = 4.0V$	75	82	

**DYNAMIC CHARACTERISTICS**

$C_{obo}$	Output Capacitance	$I_E = 0$ $f = 1.0MHz$	$V_{CB} = 10V$		65	120	pF
$F_T$	Transition Frequency	$I_C = 0.5A$ $f = 10.0MHz$	$V_{CE} = 15V$	10			MHz
$T_{on}$	Turn-on time	$I_C = 5.0A$	$I_{B1} = 1.0A$			1.0	$\mu s$
$T_{off}$	Turn-off time	$I_C = 5.0A$	$I_{B1} = -I_{B2} = 1.0A$			6	

\* Pulse test  $t_p = 300\mu s$ ,  $\delta < 2\%$

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