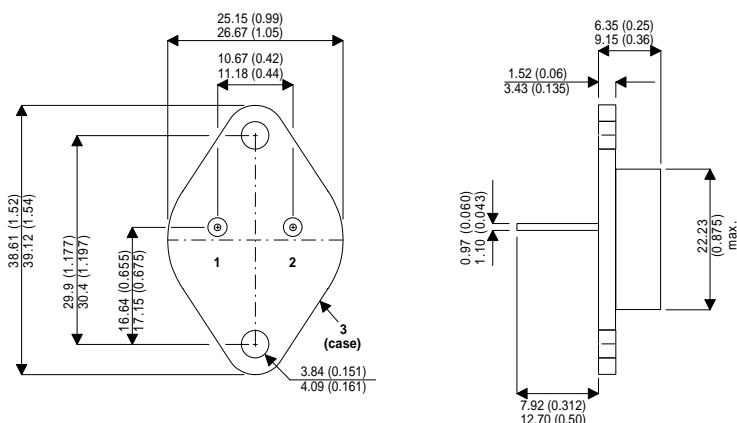


**MECHANICAL DATA**  
Dimensions in mm (inches)

**NPN BIPOLAR  
POWER DARLINGTON  
TRANSISTOR**



**TO-3 (TO-204AA)**

**Underside View**

1 = Emitter                      2 = Base                      3 = Collector

**FEATURES**

- FAST SWITCHING
- CECC SCREENING OPTIONS
- SPACE QUALITY LEVELS OPTIONS
- JAN LEVEL SCREENING OPTIONS

**APPLICATIONS**

- HIGH SPEED SWITCHING CIRCUITS
- POWER AMPLIFIERS

**ABSOLUTE MAXIMUM RATINGS** ( $T_C = 25^\circ\text{C}$  unless otherwise stated)

$V_{CBO}$	Collector – Base Voltage ( $I_E = 0$ )	120V
$V_{CEO}$	Collector – Emitter Voltage ( $I_B = 0$ )	120V
$V_{EBO}$	Emitter – Base Voltage ( $I_C = 0$ )	7V
$I_B$	Base Current	250mA
$I_C$	Collector Current	15A
$P_D$	Power Dissipation @ $T_C = 25^\circ\text{C}$	120W
$R_{\theta JC}$	Thermal Resistance Junction to Case	1.46°C/W
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-65 to +200°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.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$BV_{CEO}$	Collector – Emitter Breakdown Voltage $I_C = 200\text{mA}$	120			V
$I_{CBO}$	Collector – Base Cut-off Current $V_{CB} = 120\text{V}$			500	$\mu\text{A}$
$I_{CEV}$	Collector – Emitter Cut-off Current $V_{CEV} = 120\text{V}$ $V_{BE(off)} = 1.5\text{V}$			5.0	mA
$I_{CER}$	Collector – Emitter Cut-off Current $V_{CER} = 120\text{V}$ $R_{BE} = 10\text{k}\Omega$ $T_C = 150^\circ\text{C}$			5.0	
$I_{CEO}$	Collector – Base Cut-off Current $V_{CE} = 120\text{V}$			1.0	
$V_{CE(sat)}$	Collector – Emitter Saturation Voltage	$I_C = 10\text{A}$ $I_B = 100\text{mA}$		2.8	V
		$I_C = 15\text{A}$ $I_B = 150\text{mA}$		4.0	
$V_{BE(sat)}$	Base – Emitter On Voltage	$I_C = 10\text{A}$ $I_B = 100\text{mA}$		3.5	
		$I_C = 15\text{A}$ $I_B = 150\text{mA}$		4.5	
$h_{FE}$	DC Current Gain	$I_C = 0.4\text{A}$ $V_{CE} = 3\text{V}$	200		—
		$I_C = 4.0\text{A}$ $V_{CE} = 3\text{V}$	2000	20000	
		$I_C = 10\text{A}$ $V_{CE} = 3\text{V}$	500	5000	
		$I_C = 15\text{A}$ $V_{CE} = 4\text{V}$	100		
$V_F$	Forward Voltage $I_{EC} = 15\text{A}$	4.5			V
$[h_{fe}]$	Small Signal Current Gain $V_{CE} = 3\text{V}$ $I_C = 3\text{A}$ $f = 1.0\text{MHz}$	10		200	—
$t_d$	Delay Time $I_C = 10\text{A}$ $V_{CC} = 30\text{V}$			0.15	$\mu\text{s}$
$t_r$	Rise time $I_{B1} = 100\text{mA}$			1.0	
$t_s$	Storage Time $I_C = 10\text{A}$ $V_{CC} = 30\text{V}$			2.0	
$t_f$	Fall Time $I_{B1} = -I_{B2} = 100\text{mA}$			7.0	

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