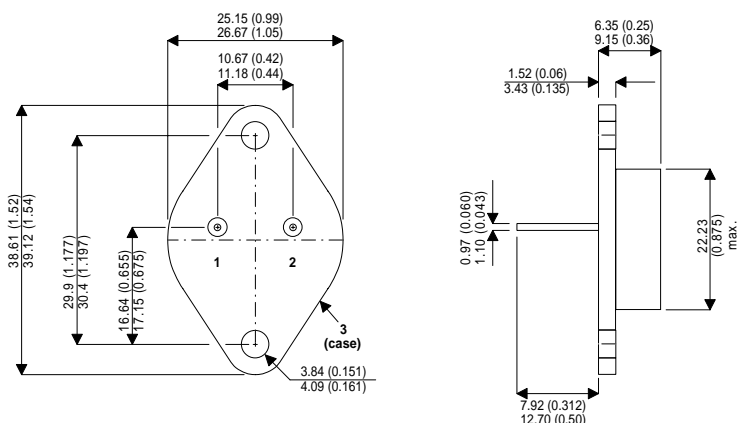


MECHANICAL DATA
Dimensions in mm (inches)

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

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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	μA
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	μs
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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