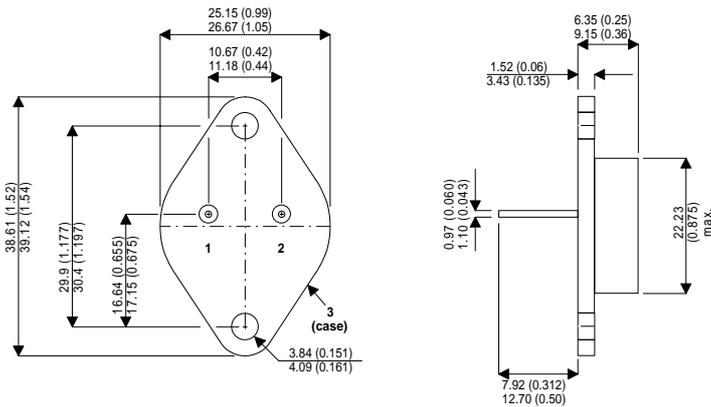


**MECHANICAL DATA**

Dimensions in mm(inches)

**NPN SILICON POWER TRANSISTOR**



**TO-3(TO204AA)**

PIN 1 — Base    PIN 2 — Emitter    Case is Collector

**FEATURES**

- HIGH GAIN
- LOW SATURATION VOLTAGES
- HIGH RELIABILITY

**APPLICATIONS**

- POWER SWITCHING CIRCUITS
- MOTOR DRIVE APPLICATIONS

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

$V_{CBO}$	Collector – Base Voltage ( $I_E = 0$ )	100V
$V_{CEO}$	Collector – Emitter Voltage ( $I_B = 0$ )	80V
$V_{EBO}$	Emitter – Base Voltage ( $I_C = 0$ )	10V
$I_C$	Collector Current	7.5A
$I_B$	Base Current	4A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25^{\circ}C$	115W
$T_{stg}$	Storage Temperature	-65 to 200°C
$T_j$	Junction Temperature	200°C

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{CEO(BR)}$ Collector - Emitter Breakdown Voltage	$I_C = 100mA$	80			V
$V_{BE}$ Base - Emitter Voltage	$I_C = 5A$ $V_{CE} = 5V$		1.0	1.4	V
$I_{CEX}$ Collector Cut-off Current	$V_{CE} = 80V$ $V_{BE} = -1.0V$ $T_{CASE} = 150^{\circ}C$			0.1	mA
				1.0	
$I_{EBO}$ Emitter Cut-off Current	$V_{EB} = 10V$ $I_C = 0$			0.25	mA
$I_{CEO}$ Collector Cut-off Current	$V_{CE} = 60V$ $I_B = 0$			1.0	mA
$V_{CBO(BR)}$ Collector Base Breakdown Voltage	$I_C = 1.0A$ $I_E = 0$	100			V
$V_{CE(sat)}$ Collector - Emitter Saturation Voltage	$I_C = 5A$ $I_B = 0.5A$		0.8	1.5	V
$V_{BE(sat)}$ Base - Emitter Saturation Voltage	$I_C = 5A$ $I_B = 0.5A$		1.0	1.5	V
$h_{FE}$ DC Current Gain	$I_C = 0.5A$ $V_{CE} = 5V$	40	85		—
	$I_C = 5.0A$ $V_{CE} = 5V$	40	75	120	
$h_{fe}$ Small Signal Current Gain	$I_C = 0.5A$ $V_{CE} = 10V$ $f = 1$ KHz	40		200	—
	$I_C = 0.5A$ $V_{CE} = 10V$ $f = 10$ MHz	1.0	1.6		
$C_{cbo}$ Collector Base Capacitance	$V_{CB} = 10V$ $f = 0.1$ MHz		260	400	pF
$t_d + t_r$ Delay Time + Rise Time	$V_{CC} = 25V$ $I_C = 5.0A$ $I_{B1} = -I_{B2} = 0.5A$		0.15	0.35	$\mu s$
$t_s$ Storage Time			0.9	2.0	
$t_f$ Fall Time			0.15	0.35	

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