

SILICON NPN TRANSISTOR

BDY54

- High Power
- Hermetic TO-3 Metal Package
- Ideally suited for Switching and Amplifier Applications
- Screening Options Available



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

V_{CBO}	Collector – Base Voltage	180V
V_{CEO}	Collector – Emitter Voltage	120V
V_{EBO}	Emitter – Base Voltage	7V
I_C	Continuous Collector Current	12A
I_B	Base Current	5A
P_D	Total Power Dissipation at $T_C = 25^\circ\text{C}$ Derate Above 25°C	60W 0.35W/ $^\circ\text{C}$
T_J	Junction Temperature Range	-65 to +200 $^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65 to +200 $^\circ\text{C}$

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	2.9	$^\circ\text{C/W}$

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

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
I_{CEX}	Collector Cut-Off Current	$V_{CE} = 150\text{V}$ $V_{BE} = -1.5\text{V}$ $T_C = 150^\circ\text{C}$			15	mA
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 7\text{V}$ $I_C = 0$			3	
$V_{(BR)CEO}^{(1)}$	Collector – Emitter Breakdown Voltage	$I_C = 100\text{mA}$ $I_B = 0$	120			V
$h_{FE}^{(1)}$	Static Forward-Current Transfer Ratio	$V_{CE} = 1.5\text{V}$ $I_C = 2\text{A}$	20		60	-
$V_{CE(sat)}^{(1)}$	Collector – Emitter Saturation Voltage	$I_C = 4\text{A}$ $I_B = 0.4\text{A}$			1.1	V
		$I_C = 7\text{A}$ $I_B = 1.4\text{A}$			2.2	
$V_{BE(sat)}^{(1)}$	Base – Emitter Saturation Voltage	$I_C = 4\text{A}$ $I_B = 0.4\text{A}$			2	
		$I_C = 7\text{A}$ $I_B = 1.4\text{A}$			2.5	

DYNAMIC CHARACTERISTICS

f_T	Transition Frequency	$V_{CE} = 4\text{V}$ $I_C = 0.5\text{A}$ $f = 10\text{MHz}$	20			MHz
t_{on}	Turn-On Time	$I_C = 5\text{A}$ $I_B = 1.0\text{A}$		0.15		μs
t_{off}	Turn-Off Time	$I_C = 5\text{A}$ $I_{B1} = 1.0\text{A}$ $I_{B2} = -1.0\text{A}$		1.2		

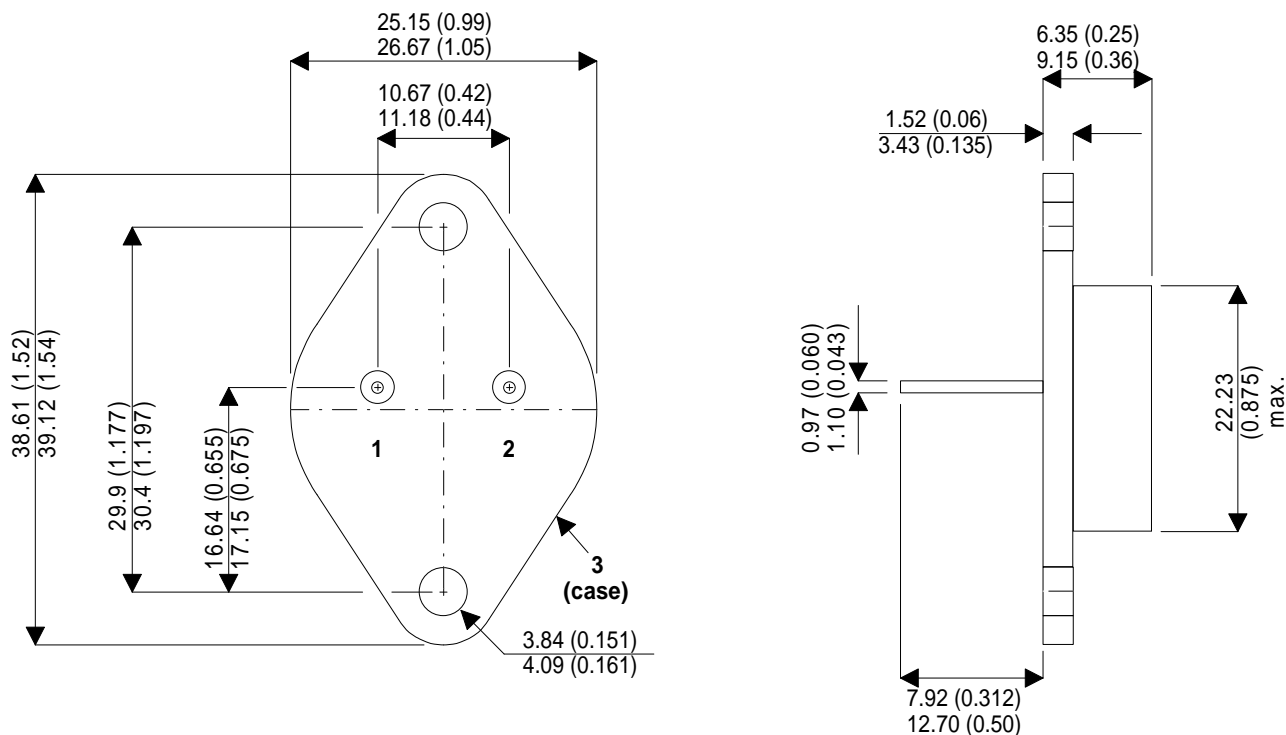
Notes

(1) Pulse Width $\leq 380\mu\text{s}$, $\delta \leq 2\%$

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MECHANICAL DATA

Dimensions in mm (inches)



TO3 (TO-204AA) METAL PACKAGE Underside View

Pin 1 - Base

Pin 2 - Emitter

Case - Collector