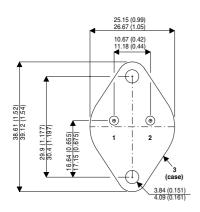
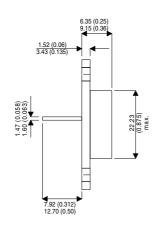




### **MECHANICAL DATA**

Dimensions in mm(inches)





## TO-3(TO204AE)

PIN 1 — Base Case is Collector PIN 2 — Emitter

# **NPN SILICON POWER TRANSISTOR**

#### **FEATURES**

- HIGH CURRENT
- LOW SATURATION VOLTAGES
- HIGH RELIABILITY

## **APPLICATIONS**

- POWER SWITCHING CIRCUITS
- POWER AMPLIFIER APPLICATIONS

# ABSOLUTE MAXIMUM RATINGS (T<sub>case</sub> = 25°C unless otherwise stated)

$\overline{V_{CBO}}$	Collector – Base Voltage (I <sub>E</sub> = 0)	60V
$V_{CEO}$	Collector – Emitter Voltage (I <sub>B</sub> = 0)	60V
$V_{EBO}$	Emitter – Base Voltage $(I_C = 0)$	5.0V
$I_{C}$	Collector Current	50A
$I_{B}$	Base Current	15A
$P_{tot}$	Total Power Dissipation at T <sub>case</sub> ≤ 25°C	300W
	Derate above 25°C	1.715 W/°C
T <sub>stg</sub> ,	Storage Temperature	−65 to 200°C
$T_j$	Junction Temperature	200°C

Semelab PIc 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.

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# **ELECTRICAL CHARACTERISTICS** (T<sub>case</sub> = 25°C unless otherwise stated)

	Parameter	Test Conditions		Min.	Тур.	Max.	Unit
V <sub>CEO(BR)*</sub>	Collector - Emitter Breakdown	I <sub>C</sub> = 200mA		60			V
	Voltage	1C = 2001114		00			\ \ \
I <sub>CEO</sub>	Collector Cut-off Current	V <sub>CE</sub> = 30V	I <sub>B</sub> = 0			1.0	mA
I <sub>CEX</sub>	Collector Cut-off Current	V <sub>CE</sub> = 60V	$V_{BE} = 1.5V$			2	mA
			T <sub>CASE</sub> =150°C			10	
I <sub>CBO</sub>	Collector Cut-off Current	V <sub>CB</sub> = 60V	$I_E = 0$			2	mA
I <sub>EBO</sub>	Emitter Cut-off Current	$V_{BE} = 5V$	I <sub>C</sub> = 0			5	mA
V <sub>CE(sat)*</sub>	Collector – Emitter Saturation	I <sub>C</sub> = 25A	I <sub>B</sub> = 2.5A			1.0	V
	Voltage	I <sub>C</sub> = 50A	I <sub>B</sub> = 10A			5.0	
V <sub>BE(sat)*</sub>	Base – Emitter	I <sub>C</sub> = 25A	I <sub>B</sub> = 2.5A			2	V
	Saturation Voltage	1C - 25A	IB – 2.5/4				
V <sub>BE(on)*</sub>	Emitter Base on Voltage	I <sub>C</sub> = 25A	V <sub>CE</sub> = 2V			2	V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 25A	V <sub>CE</sub> = 2V	15		60	
		I <sub>C</sub> = 50A	$V_{CE} = 5V$	5			
h <sub>fe</sub>	Small Signal Current Gain	$I_C = 10A$ $V_{CE} = 5V$	f = 1.0 kHz	15			_
C <sub>cbo</sub>	Collector Base Capacitance	V <sub>CB</sub> = 10V	I <sub>E</sub> = 0			1200	pF
		f =0.1 MHz				1200	Pir
f <sub>T</sub>	Current Gain Bandwidth product		/ f = 1.0 MHz	2			MHz
		C = 2V		۷.			1011 12

### THERMAL CHARACTERISTICS

$R_{\theta JC}$	Thermal Resistance Junction to Case	Max	0.584	°C/W

<sup>\*</sup> Pulse test  $t_p = 300 \mu s$  ,  $\delta = 1.5~\%$ 

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