

# SILICON EPITAXIAL NPN TRANSISTOR

## 2N4914

- Low Collector Saturation Voltage.
- Hermetic TO3 Metal Package.
- Designed For General Purpose, Switching and Power Amplifier Applications
- Screening Options Available



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

|           |                                                                                        |                                 |
|-----------|----------------------------------------------------------------------------------------|---------------------------------|
| $V_{CBO}$ | Collector – Base Voltage                                                               | 60V                             |
| $V_{CEO}$ | Collector – Emitter Voltage                                                            | 60V                             |
| $V_{EBO}$ | Emitter – Base Voltage                                                                 | 5V                              |
| $I_C$     | Continuous Collector Current                                                           | 5A                              |
| $I_B$     | Base Current                                                                           | 1.0A                            |
| $P_D$     | Total Power Dissipation at $T_C = 25^\circ\text{C}$<br>Derate Above $25^\circ\text{C}$ | 87.5W<br>0.5W/ $^\circ\text{C}$ |
| $T_J$     | Junction Temperature Range                                                             | -65 to $+200^\circ\text{C}$     |
| $T_{stg}$ | Storage Temperature Range                                                              | -65 to $+200^\circ\text{C}$     |

### THERMAL PROPERTIES

| Symbols         | Parameters                           | Min. | Typ. | Max. | Units              |
|-----------------|--------------------------------------|------|------|------|--------------------|
| $R_{\theta JC}$ | Thermal Resistance, Junction To Case |      |      | 2    | $^\circ\text{C/W}$ |

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

| Symbols             | Parameters                           | Test Conditions                               | Min. | Typ | Max. | Units |
|---------------------|--------------------------------------|-----------------------------------------------|------|-----|------|-------|
| $V_{(BR)CEO}^{(1)}$ | Collector-Emitter Breakdown Voltage  | $I_C = 10\text{mA}$                           | 60   |     |      | V     |
| $I_{CEV}$           | Collector Cut-Off Current            | $V_{CE} = 60\text{V}$ $V_{BE} = -1.5\text{V}$ |      |     | 1.0  | mA    |
|                     |                                      | $T_C = 150^\circ\text{C}$                     |      |     | 2    |       |
| $I_{CEO}$           | Collector Cut-Off Current            | $V_{CE} = 60\text{V}$ $I_B = 0$               |      |     | 1.0  |       |
| $I_{CBO}$           | Collector Cut-Off Current            | $V_{CB} = 60\text{V}$ $I_E = 0$               |      |     | 1.0  |       |
| $I_{EBO}$           | Emitter Cut-Off Current              | $V_{EB} = 5\text{V}$ $I_C = 0$                |      |     | 1.0  |       |
| $h_{FE}^{(1)}$      | Forward-current transfer ratio       | $I_C = 2.5\text{A}$ $V_{CE} = 2\text{V}$      | 25   |     | 100  |       |
|                     |                                      | $I_C = 5\text{A}$ $V_{CE} = 2\text{V}$        | 7    |     |      |       |
| $V_{BE(on)}^{(1)}$  | Base-Emitter Voltage                 | $I_C = 2.5\text{A}$ $V_{CE} = 2\text{V}$      |      |     | 1.4  | V     |
| $V_{CE(sat)}^{(1)}$ | Collector-Emitter Saturation Voltage | $I_C = 2.5\text{A}$ $I_B = 0.25\text{A}$      |      |     | 1.0  |       |
|                     |                                      | $I_C = 5\text{A}$ $I_B = 1.0\text{A}$         |      |     | 1.5  |       |

## DYNAMIC CHARACTERISTICS

|          |                           |                                                                   |    |  |  |     |
|----------|---------------------------|-------------------------------------------------------------------|----|--|--|-----|
| $h_{fe}$ | Small-Signal Current Gain | $I_C = 500\text{mA}$ $V_{CE} = 10\text{V}$<br>$f = 1.0\text{KHz}$ | 20 |  |  |     |
| $f_T$    | Transition Frequency      | $I_C = 1.0\text{A}$ $V_{CE} = 10\text{V}$<br>$f = 1.0\text{MHz}$  | 4  |  |  | MHz |

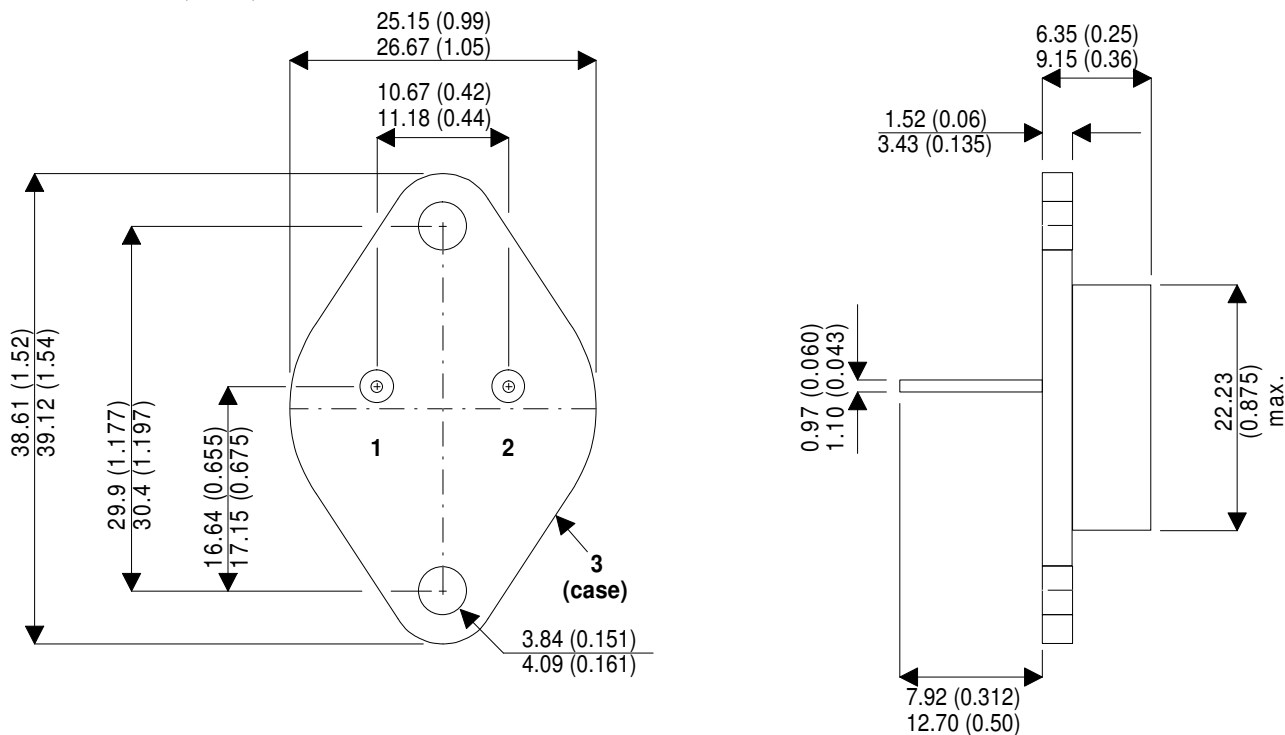
### Notes

(1) Pulse Width  $\leq 300\mu\text{s}$ ,  $\delta \leq 2\%$

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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