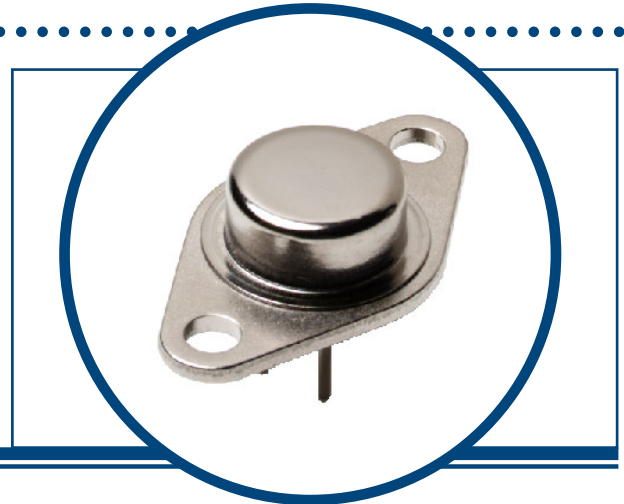


# SILICON EPITAXIAL NPN TRANSISTOR

## 2N4912

- Low Saturation Voltage Transistor In A Hermetic Metal Package
- Designed For Driver Circuits, Switching and Amplifier Applications
- Screening Options Available



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

|           |  |                                 |
|-----------|--|---------------------------------|
| $V_{CBO}$ | Collector - Base Voltage   | 80V                             |
| $V_{CEO}$ | Collector - Emitter Voltage  | 80V                             |
| $V_{EBO}$ | Emitter – Base Voltage   | 5V                              |
| $I_C$     | Continuous Collector Current   | 1.0A                            |
| $I_B$     | Base Current   | 1.0A                            |
| $P_D$     | Total Power Dissipation at $T_C = 25^\circ\text{C}$<br>Derate Above $25^\circ\text{C}$ | 25W<br>0.143W/ $^\circ\text{C}$ |
| $T_J$     | 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 |      |      | 7    | $^\circ\text{C}/\text{W}$ |

Semelab Limited 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.

# SILICON EPITAXIAL NPN TRANSISTOR 2N4912

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

| Symbols         | Parameters                           | Test Conditions  | Min. | Typ. | Max. | Units |
|-----------------|--------------------------------------|--|------|------|------|-------|
| $V_{(BR)CEO}^*$ | Collector-Emitter Breakdown Voltage  | $I_C = 10\text{mA}$ $I_B = 0$  | 80   |      |      | V     |
| $I_{CEO}$       | Collector-Emitter Cut-Off Current    | $V_{CE} = 40\text{V}$ $I_B = 0$  |      |      | 0.5  | mA    |
| $I_{CEX}$       | Collector-Emitter Cut-Off Current    | $V_{CE} = 80\text{V}$ $V_{BE} = -1.5\text{V}$                              |      |      | 0.1  |       |
|                 |                                      | $V_{CE} = 80\text{V}$ $V_{BE} = -1.5\text{V}$<br>$T_C = 150^\circ\text{C}$ |      |      | 1.0  |       |
| $I_{EBO}$       | Emitter-Base Cut-Off Current         | $V_{EB} = 5\text{V}$ $I_C = 0$   |      |      | 1.0  |       |
| $I_{CBO}$       | Collector-Base Cut-Off Current       | $V_{CB} = 80\text{V}$ $I_E = 0$  |      |      | 0.1  |       |
| $V_{BE}^*$      | Base-Emitter Voltage                 | $I_C = 1.0\text{A}$ $V_{CE} = 1.0\text{V}$                                 |      |      | 1.3  | V     |
| $V_{CE(sat)}^*$ | Collector-Emitter Saturation Voltage | $I_C = 1.0\text{A}$ $I_B = 100\text{mA}$                                   |      |      | 0.6  |       |
| $V_{BE(sat)}^*$ | Base-Emitter Saturated Voltage       | $I_C = 1.0\text{A}$ $I_B = 100\text{mA}$                                   |      |      | 1.3  |       |
| $h_{FE}^*$      | Forward-current transfer ratio       | $I_C = 50\text{mA}$ $V_{CE} = 1.0\text{V}$                                 | 40   |      |      |       |
|                 |                                      | $I_C = 500\text{mA}$ $V_{CE} = 1.0\text{V}$                                | 20   |      | 100  |       |
|                 |                                      | $I_C = 1.0\text{A}$ $V_{CE} = 1.0\text{V}$                                 | 10   |      |      |       |

## DYNAMIC CHARACTERISTICS

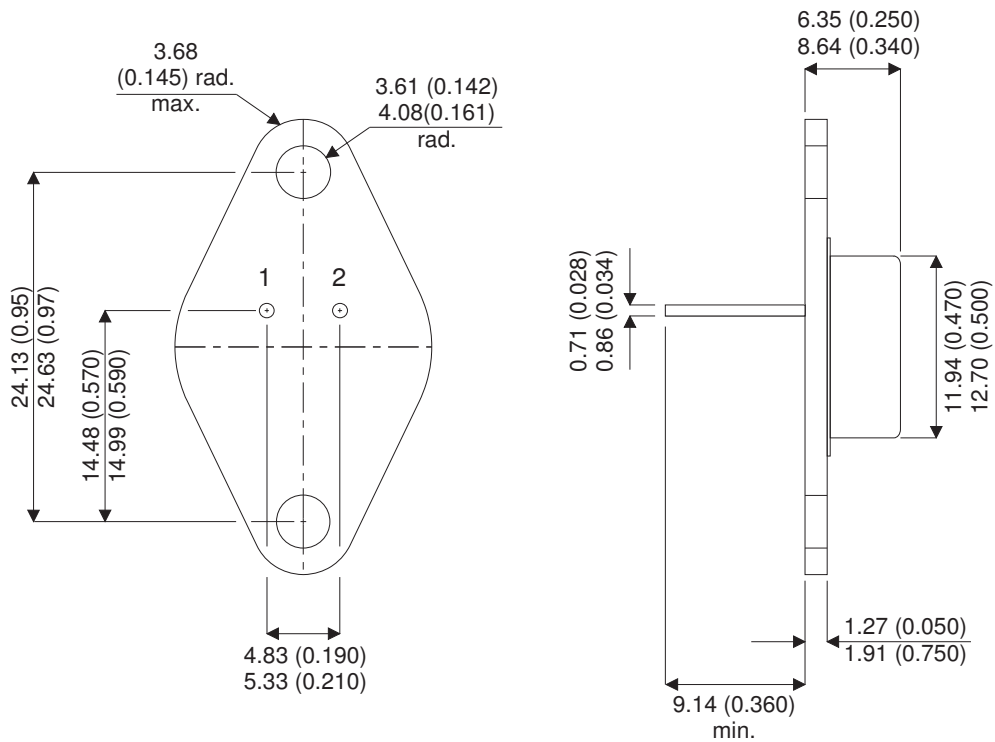
|           |                           |   |     |    |     |     |
|-----------|---------------------------|---|-----|----|-----|-----|
| $f_T$     | Transition Frequency      | $I_C = 250\text{mA}$ $V_{CE} = 10\text{V}$<br>$f = 1.0\text{MHz}$ | 3.0 | 22 |     | MHz |
| $h_{fe}$  | Small-Signal Current Gain | $I_C = 250\text{mA}$ $V_{CE} = 10\text{V}$<br>$f = 1.0\text{KHz}$ | 25  | 70 |     |     |
| $C_{obo}$ | Output Capacitance        | $I_E = 0$ $V_{CB} = 10\text{V}$<br>$f = 1.0\text{MHz}$            |     | 45 | 100 | pF  |

\* Pulse Test:  $t_p = 300\mu\text{s}$ ,  $\delta \leq 2\%$

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## Mechanical Data

Dimensions in mm (inches)



## TO66 (TO-213AA)

Pin 1 - Base

Pin 2 - Emitter

Case - Collector