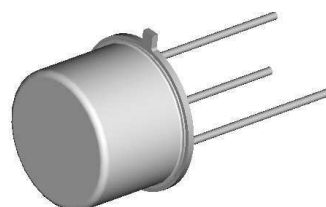


# GENERAL PURPOSE SILICON NPN TRANSISTOR

## 2N697

- Hermetic TO39 (TO-205AD) Metal Package.
- Ideally suited for General Purpose Applications
- Screening Options Available



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

|           |                                                     |                             |
|-----------|-----------------------------------------------------|-----------------------------|
| $V_{CBO}$ | Collector – Base Voltage                            | 60V                         |
| $V_{CER}$ | Collector – Emitter Voltage                         | 40V                         |
| $V_{EBO}$ | Emitter – Base Voltage                              | 5.0V                        |
| $P_D$     | Total Power Dissipation at $T_A = 25^\circ\text{C}$ | 600mW                       |
|           | Derate Above $25^\circ\text{C}$                     | 4.0mW/ $^\circ\text{C}$     |
| $P_D$     | Total Power Dissipation at $T_C = 25^\circ\text{C}$ | 2.0W                        |
|           | Derate Above $25^\circ\text{C}$                     | 13.3mW/ $^\circ\text{C}$    |
| $T_J$     | 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              |
|-----------------|-----------------------------------------|------|--------------------|
| $R_{\theta JA}$ | Thermal Resistance, Junction To Ambient | 290  | $^\circ\text{C/W}$ |
| $R_{\theta JC}$ | Thermal Resistance, Junction To Case    | 88   | $^\circ\text{C/W}$ |

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.

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# SILICON PLANAR EPITAXIAL NPN TRANSISTOR 2N697

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

| Symbols             | Parameters                           | Test Conditions                            | Min. | Typ. | Max. | Units         |
|---------------------|--------------------------------------|--------------------------------------------|------|------|------|---------------|
| $V_{(BR)CER}^{(1)}$ | Collector-Emitter Breakdown Voltage  | $I_C = 10\text{mA}$ $R_{BE} = 10\Omega$    | 40   |      |      | V             |
| $V_{(BR)CBO}$       | Collector-Base Breakdown Voltage     | $I_C = 100\mu\text{A}$ $I_E = 0$           | 60   |      |      |               |
| $V_{(BR)EBO}$       | Emitter-Base Breakdown Voltage       | $I_E = 100\mu\text{A}$ $I_C = 0$           | 5.0  |      |      |               |
| $I_{CBO}$           | Collector Cut-Off Current            | $V_{CB} = 30\text{V}$ $I_E = 0$            |      |      | 1.0  | $\mu\text{A}$ |
|                     |                                      | $T_A = 150^\circ\text{C}$                  |      |      | 100  |               |
| $V_{CE(sat)}^{(1)}$ | Collector-Emitter Saturation Voltage | $I_C = 150\text{mA}$ $I_B = 15\text{mA}$   |      |      | 1.5  | V             |
| $V_{BE(sat)}^{(1)}$ | Base-Emitter Saturation Voltage      | $I_C = 150\text{mA}$ $I_B = 15\text{mA}$   |      |      | 1.3  |               |
| $h_{FE}^{(1)}$      | Forward-current transfer ratio       | $I_C = 150\text{mA}$ $V_{CE} = 10\text{V}$ | 40   |      | 120  |               |

## DYNAMIC CHARACTERISTICS

|            |                                             |                                                                 |     |  |    |    |
|------------|---------------------------------------------|-----------------------------------------------------------------|-----|--|----|----|
| $ h_{fe} $ | Small signal forward-current transfer ratio | $I_C = 50\text{mA}$ $V_{CE} = 10\text{V}$<br>$f = 20\text{MHz}$ | 2.5 |  |    |    |
| $C_{obo}$  | Output Capacitance                          | $V_{CB} = 10\text{V}$ $I_E = 0$<br>$f = 1.0\text{MHz}$          |     |  | 35 | pF |

### Notes

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

## MECHANICAL DATA

Dimensions in mm (inches)

### TO39 (TO-205AD) Underside View

**Pin 1**  
Emitter

**Pin 2**  
Base

**Pin 3**  
Collector

