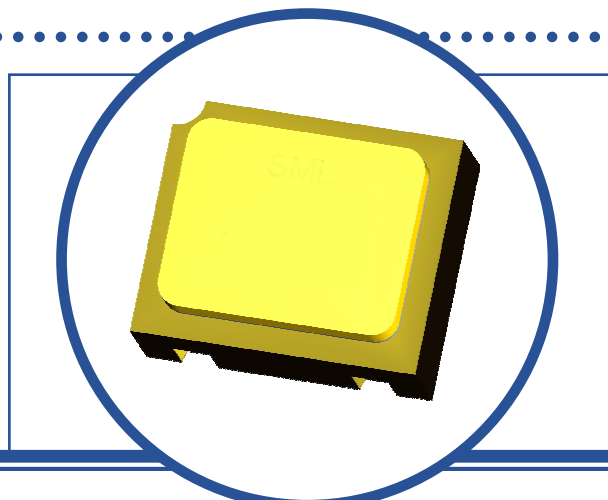


# SILICON PLANAR EPITAXIAL PNP TRANSISTOR

## 2N2907ACSM

- Low Power, High Speed Saturated Switching
- Hermetic Surface Mounted Package.
- Ideally suited for High Speed Switching and General Purpose Applications
- Screening Options Available



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

|           |                                                                                          |                                   |
|-----------|------------------------------------------------------------------------------------------|-----------------------------------|
| $V_{CBO}$ | Collector – Base Voltage                                                                 | -60V                              |
| $V_{CEO}$ | Collector – Emitter Voltage                                                              | -60V                              |
| $V_{EBO}$ | Emitter – Base Voltage                                                                   | -5V                               |
| $I_C$     | Continuous Collector Current                                                             | -600mA                            |
| $P_D$     | Total Power Dissipation at $T_A = 25^\circ\text{C}$<br>Derate Above $37.5^\circ\text{C}$ | 500mW<br>3.08mW/ $^\circ\text{C}$ |
| $T_J$     | Junction Temperature Range                                                               | -65 to $+200^\circ\text{C}$       |
| $T_{stg}$ | Storage Temperature Range                                                                | -65 to $+200^\circ\text{C}$       |

### THERMAL PROPERTIES (Each Device)

| Symbols         | Parameters                              | Min. | Typ. | Max. | Units              |
|-----------------|-----------------------------------------|------|------|------|--------------------|
| $R_{\theta JA}$ | Thermal Resistance, Junction To Ambient |      |      | 325  | $^\circ\text{C/W}$ |

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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Page 1 of 3

# SILICON PLANAR EPITAXIAL PNP TRANSISTOR 2N2907ACSM

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

| Symbols             | Parameters                           | Test Conditions                              | Min. | Typ | Max. | Units         |
|---------------------|--------------------------------------|----------------------------------------------|------|-----|------|---------------|
| $V_{(BR)CEO}^{(1)}$ | Collector-Emitter Breakdown Voltage  | $I_C = -10\text{mA}$ $I_B = 0$               | -60  |     |      | V             |
| $I_{CBO}$           | Collector Cut-Off Current            | $V_{CB} = -60\text{V}$ $I_E = 0$             |      |     | -10  | $\mu\text{A}$ |
|                     |                                      | $V_{CB} = -50\text{V}$ $I_E = 0$             |      |     | -10  | nA            |
|                     |                                      | $T_A = 150^\circ\text{C}$                    |      |     | -10  | $\mu\text{A}$ |
| $I_{EBO}$           | Emitter Cut-Off Current              | $V_{EB} = -5\text{V}$ $I_C = 0$              |      |     | -10  | $\mu\text{A}$ |
|                     |                                      | $V_{EB} = -4\text{V}$ $I_C = 0$              |      |     | -50  | nA            |
| $I_{CES}$           | Collector Cut-Off Current            | $V_{CE} = -50\text{V}$                       |      |     | -50  | nA            |
| $V_{CE(sat)}^{(1)}$ | Collector-Emitter Saturation Voltage | $I_C = -150\text{mA}$ $I_B = -15\text{mA}$   |      |     | -0.4 | V             |
|                     |                                      | $I_C = -500\text{mA}$ $I_B = -50\text{mA}$   |      |     | -1.6 |               |
| $V_{BE(sat)}^{(1)}$ | Base-Emitter Saturation Voltage      | $I_C = -150\text{mA}$ $I_B = -15\text{mA}$   | -0.6 |     | -1.3 |               |
|                     |                                      | $I_C = -500\text{mA}$ $I_B = -50\text{mA}$   |      |     | -2.6 |               |
| $h_{FE}^{(1)}$      | Forward-current transfer ratio       | $I_C = -0.1\text{mA}$ $V_{CE} = -10\text{V}$ | 75   |     |      |               |
|                     |                                      | $I_C = -1.0\text{mA}$ $V_{CE} = -10\text{V}$ | 100  |     | 450  |               |
|                     |                                      | $I_C = -10\text{mA}$ $V_{CE} = -10\text{V}$  | 100  |     |      |               |
|                     |                                      | $T_A = -55^\circ\text{C}$                    | 50   |     |      |               |
|                     |                                      | $I_C = -150\text{mA}$ $V_{CE} = -10\text{V}$ | 100  |     | 300  |               |
|                     |                                      | $I_C = -500\text{mA}$ $V_{CE} = -10\text{V}$ | 50   |     |      |               |

## DYNAMIC CHARACTERISTICS

|            |                                             |                                                                                   |     |  |     |    |
|------------|---------------------------------------------|-----------------------------------------------------------------------------------|-----|--|-----|----|
| $ h_{fe} $ | Small signal forward-current transfer ratio | $I_C = -20\text{mA}$ $V_{CE} = -20\text{V}$<br>$f = 100\text{MHz}$                | 2   |  |     |    |
| $h_{fe}$   | Small Signal Current Gain                   | $I_C = -1.0\text{mA}$ $V_{CE} = -10\text{V}$<br>$f = 1.0\text{KHz}$               | 100 |  |     |    |
| $C_{obo}$  | Output Capacitance                          | $V_{CB} = -10\text{V}$ $I_E = 0$<br>$f = 1.0\text{MHz}$                           |     |  | 8   | pF |
| $C_{ibo}$  | Input Capacitance                           | $V_{EB} = -2\text{V}$ $I_C = 0$<br>$f = 1.0\text{MHz}$                            |     |  | 30  |    |
| $t_{on}$   | Turn-On Time                                | $I_C = -150\text{mA}$ $V_{CC} = -30\text{V}$<br>$I_{B1} = -15\text{mA}$           |     |  | 45  | ns |
| $t_{off}$  | Turn-Off Time                               | $I_C = -150\text{mA}$ $V_{CC} = -30\text{V}$<br>$I_{B1} = -I_{B2} = -15\text{mA}$ |     |  | 300 |    |

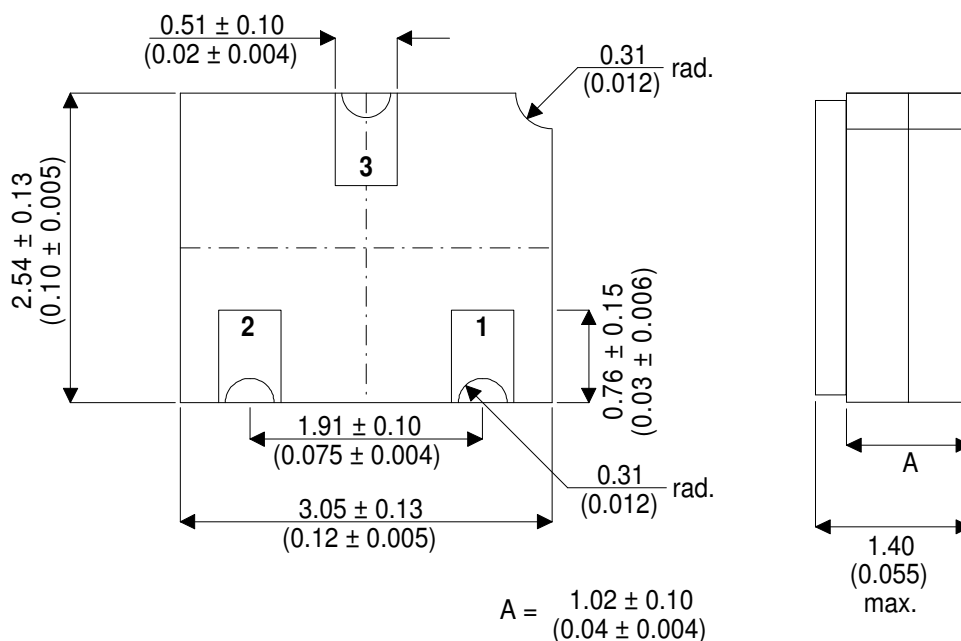
### Notes

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

# SILICON PLANAR EPITAXIAL PNP TRANSISTOR 2N2907ACSM

## MECHANICAL DATA

Dimensions in mm (inches)



**LCC1**

### Underside View

Pad 1 - Base

Pad 2 - Emitter

Pad 3 - Collector