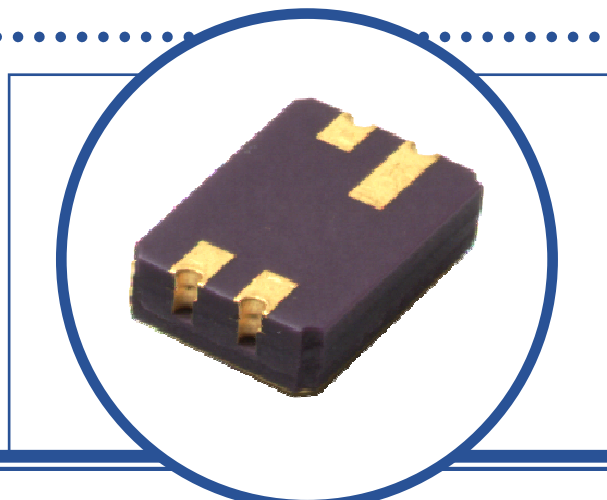


SILICON PLANAR EPITAXIAL PNP TRANSISTOR

2N2907AC3

- 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°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°C Derate Above 37.5°C | 500mW 3.08mW/°C |
| T _J | Junction Temperature Range | -65 to +200°C |
| T _{stg} | Storage Temperature Range | -65 to +200°C |

THERMAL PROPERTIES (Each Device)

| Symbols | Parameters | Min. | Typ. | Max. | Units |
|------------------|---|------|------|------|-------|
| R _{θJA} | Thermal Resistance, Junction To Ambient | | | 325 | °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.



SILICON PLANAR EPITAXIAL PNP TRANSISTOR 2N2907AC3

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise stated)

| Symbols | Parameters | Test Conditions | Min. | Typ | Max. | Units |
|--|--------------------------------------|--|------|-----|------|-------|
| V _{(BR)CEO} ⁽¹⁾ | Collector-Emitter Breakdown Voltage | I _C = -10mA I _B = 0 | -60 | | | V |
| I _{CBO} | Collector Cut-Off Current | V _{CB} = -60V I _E = 0 | | | -10 | μA |
| | | V _{CB} = -50V I _E = 0 | | | -10 | nA |
| | | T _A = 150°C | | | -10 | μA |
| I _{EBO} | Emitter Cut-Off Current | V _{EB} = -5V I _C = 0 | | | -10 | μA |
| | | V _{EB} = -4V I _C = 0 | | | -50 | nA |
| I _{CES} | Collector Cut-Off Current | V _{CE} = -50V | | | -50 | nA |
| V _{CE(sat)} ⁽¹⁾ | Collector-Emitter Saturation Voltage | I _C = -150mA I _B = -15mA | | | -0.4 | V |
| | | I _C = -500mA I _B = -50mA | | | -1.6 | |
| V _{BE(sat)} ⁽¹⁾ | Base-Emitter Saturation Voltage | I _C = -150mA I _B = -15mA | -0.6 | | -1.3 | |
| | | I _C = -500mA I _B = -50mA | | | -2.6 | |
| h _{FE} ⁽¹⁾ | Forward-current transfer ratio | I _C = -0.1mA V _{CE} = -10V | 75 | | | |
| | | I _C = -1.0mA V _{CE} = -10V | 100 | | 450 | |
| | | I _C = -10mA V _{CE} = -10V | 100 | | | |
| | | T _A = -55°C | 50 | | | |
| | | I _C = -150mA V _{CE} = -10V | 100 | | 300 | |
| I _C = -500mA V _{CE} = -10V | 50 | | | | | |

DYNAMIC CHARACTERISTICS

| | | | | | | |
|------------------|---|---|-----|--|-----|----|
| h _{fe} | Small signal forward-current transfer ratio | I _C = -20mA V _{CE} = -20V f = 100MHz | 2 | | | |
| h _{fe} | Small Signal Current Gain | I _C = -1.0mA V _{CE} = -10V f = 1.0KHz | 100 | | | |
| C _{obo} | Output Capacitance | V _{CB} = -10V I _E = 0 f = 1.0MHz | | | 8 | pF |
| C _{ibo} | Input Capacitance | V _{EB} = -2V I _C = 0 f = 1.0MHz | | | 30 | |
| t _{on} | Turn-On Time | I _C = -150mA V _{CC} = -30V I _{B1} = -15mA | | | 45 | ns |
| t _{off} | Turn-Off Time | I _C = -150mA V _{CC} = -30V I _{B1} = - I _{B2} = -15mA | | | 300 | |

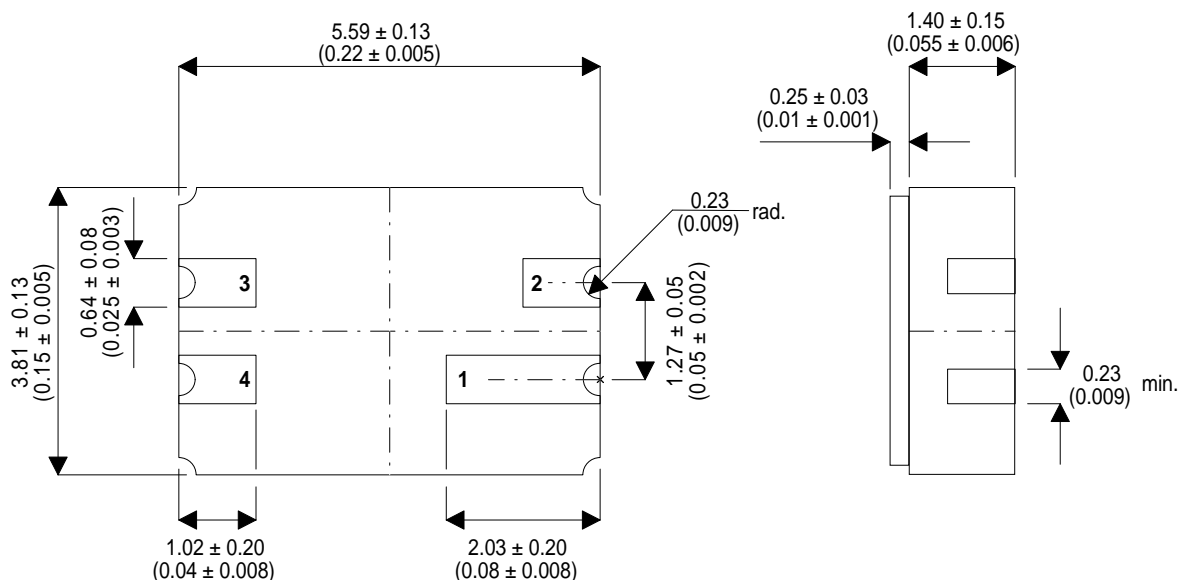
Notes

(1) Pulse Width ≤ 300μs, δ ≤ 2%

SILICON PLANAR EPITAXIAL PNP TRANSISTOR 2N2907AC3

MECHANICAL DATA

Dimensions in mm (inches)



C3 (MO-041BA)
Underside View

PACKAGE VARIANT TABLE

| Variant | Pad 1 | Pad 2 | Pad 3 | Pad 4 |
|---------|-----------|---------|---------|---------|
| A | Collector | N/C | Emitter | Base |
| B | Collector | N/C | Base | Emitter |
| C | Collector | Emitter | N/C | Base |

N/C = No Connection

SILICON PLANAR EPITAXIAL PNP TRANSISTOR 2N2907AC3

SCREENING OPTIONS

Space Level (JQRS/ESA) and High Reliability options are available in accordance with the [High Reliability and Screening Options Handbook](#) available for download from the from the TT electronics Semelab web site.

ESA Quality Level Products are based on the testing procedures specified in the generic ESCC 5000 and in the corresponding part detail specifications.

Semelabs QR216 and QR217 processing specifications (JQRS), in conjunction with the companies ISO 9001:2000 approval present a viable alternative to the American MIL-PRF-19500 space level processing.

QR217 (Space Level Quality Conformance) is based on the quality conformance inspection requirements of MIL-PRF-19500 groups A (table V), B (table VIa), C (table VII) and also ESA / ESCC 5000 (chart F4) lot validation tests.

QR216 (Space Level Screening) is based on the screening requirements of MIL-PRF-19500 (table IV) and also ESA /ESCC 5000 (chart F3).

JQRS parts are processed to the device data sheet and screened to QR216 with conformance testing to Q217 groups A and B in accordance with MIL-STD-750 methods and procedures.

Additional conformance options are available, for example Pre-Cap Visual Inspection, Buy-Off Visit or Data Packs. These are chargeable and must be specified at the order stage (See Ordering Information). Minimum order quantities may apply.

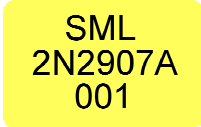
Alternative or additional customer specific conformance or screening requirements would be considered. Contact Semelab sales with enquiries.

MARKING DETAILS

Parts are typically marked with specification number, serial number (or week of seal) as shown in the example below. .

Customer specific marking requirements can be arranged at time of order but is approximately limited to three lines of 7 Characters. This is to ensure text remains readable.

Example Marking:



ORDERING INFORMATION

Part number is built from part, package variant and screening level. The part number can be extended to include the additional options as shown below.

Type – See Electrical Stability Characteristics Table
Package Variant – See Mechanical Data
Screening Level – See Screening Options (ESA / JQRS)

Additional Options:

| | |
|--|-------------------|
| Customer Pre-Cap Visual Inspection | .CVP |
| Customer Buy-Off visit | .CVB |
| Data Pack | .DA |
| Solderability Samples | .SS |
| Scanning Electron Microscopy | .SEM |
| Radiography (X-ray) | .XRAY |
| Total Dose Radiation Test | .RAD |
| MIL-PRF-19500 (QR217) | |
| Group B charge | .GRPB |
| Group B destructive mechanical samples | .GBDM (12 pieces) |
| Group C charge | .GRPC |
| Group C destructive electrical samples | .GCDE (12 pieces) |
| Group C destructive mechanical samples | .GCDM (6 pieces) |
| ESA/ESCC | |
| Lot Validation Testing (subgroup 1) charge | .LVT1 |
| LVT1 destructive samples (environmental) | .L1DE (15 pieces) |
| LVT1 destructive samples (mechanical) | .L1DM (15 pieces) |
| Lot Validation Testing (subgroup 2) charge | .LVT2 |
| LVT2 endurance samples (electrical) | .L2D (15 pieces) |
| Lot Validation Testing (subgroup 3) charge | .LVT3 |
| LVT3 destructive samples (mechanical) | .L3D (5 pieces) |

Additional Option Notes:

- 1) All 'Additional Options' are chargeable and must be specified at order stage.
- 2) When Group B,C or LVT is required, additional electrical and mechanical destructive samples must be ordered
- 3) All destructive samples are marked the same as other production parts unless otherwise requested.

Example ordering information:

The following example is for the 2N2907AC3 part, package variant B, JQRS screening, additional Group C conformance testing and a Data pack.

Part Numbers:

- 2N2907AC3B-JQRS (Include quantity for flight parts)
- 2N2907AC3B-JQRS.GRPC (chargeable conformance option)
- 2N2907AC3B-JQRS.GCDE (charge for destructive parts)
- 2N2907AC3B-JQRS.GCDM (charge for destructive parts)
- 2N2907AC3B-JQRS.DA (charge for Data pack)

Customers with any specific requirements (e.g. marking, package or screening) may be supplied with a similar alternative part number (there is maximum 20 character limit to part numbers). Contact Semelab sales with all enquiries