

61083

**SURFACE MOUNT (PNP)
GENERAL PURPOSE TRANSISTOR
(2N2907AUA)**

Mii
OPTOELECTRONIC PRODUCTS
DIVISION

Features:

- Hermetically sealed
- Miniature package to minimize circuit board area
- Ceramic surface mount package
- MIL-PRF-19500 screening available

Applications:

- Analog Switches
- Signal Conditioning
- Small Signal Amplifiers
- High Density Packaging

DESCRIPTION

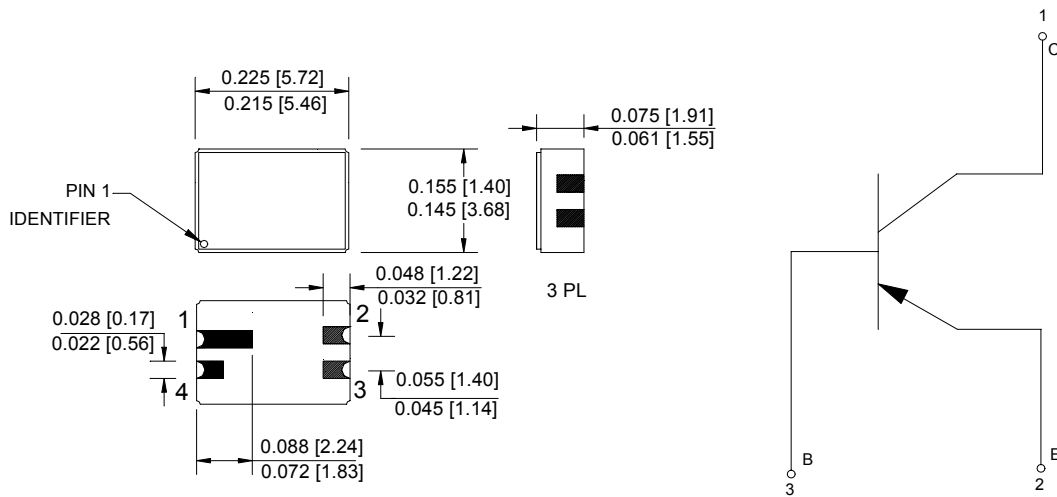
The **61083** is a hermetically sealed ceramic surface mount general purpose switching transistor. This miniature ceramic package is ideal for designs where board space and device weight are important requirements. This device is available custom binned to customer specifications or screened to MIL-PRF-19500.

ABSOLUTE MAXIMUM RATINGS

| | |
|---|-----------------|
| Collector-Base Voltage | 60V |
| Collector-Emitter Voltage | 60V |
| Emitter-Collector Voltage | 5V |
| Continuous Collector Current | 600mA |
| Power Dissipation (Derate at the rate of 2.28 mW/°C above 25°C) | 400mW |
| Maximum Junction Temperature | 200°C |
| Operating Temperature (See part selection guide for actual operating temperature) | -65°C to +200°C |
| Storage Temperature | -65°C to +200°C |
| Lead Soldering Temperature (vapor phase reflow for 30 seconds) | 215°C |

Package Dimensions

Schematic Diagram



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

ELECTRICAL CHARACTERISTICST_A = 25°C unless otherwise specified.

| PARAMETER | SYMBOL | MIN | MAX | UNITS | TEST CONDITIONS | NOTE |
|--------------------------------------|----------------------|-----|------|-------|---|------|
| Collector-Base Breakdown Voltage | V _{CB0} | 60 | | V | I _C = 10μA, I _E = 0 | |
| Collector-Emitter Breakdown Voltage | V _{CEO} | 60 | | V | I _C = 10mA, I _B = 0μA | |
| Emitter-Base Breakdown Voltage | V _{EBO} | 5 | | V | I _C = 0, I _E = 10μA | |
| Collector-Base Cutoff Current | I _{CBO} | | 10 | nA | V _{CB} = 50V, I _E = 0 | |
| | | | 10 | μA | V _{CB} = 50V, I _E = 0, T _A = 150°C | |
| Collector-Emitter Cutoff Current | I _{CES} | | 50 | nA | V _{CE} = 30V | |
| Emitter-Base Cutoff Current | I _{EBO} | | 50 | nA | V _{EB} = 3.5V, I _C = 0 | |
| Forward-Current Transfer Ratio | h _{fe1} | 75 | | - | V _{CE} = 10V, I _C = 0.1mA | |
| | h _{fe2} | 100 | 450 | - | V _{CE} = 10V, I _C = 1mA | |
| | h _{fe3} | 100 | | - | V _{CE} = 10V, I _C = 10mA | |
| | h _{fe4} | 100 | 300 | - | V _{CE} = 10V, I _C = 150mA | 1 |
| | h _{fe5} | 50 | | - | V _{CE} = 10V, I _C = 500mA | 1 |
| | h _{fe6} | 50 | | - | V _{CE} = 10V, I _C = 1mA @ -55°C | |
| Collector-Emitter Saturation Voltage | V _{CE(SAT)} | | 0.40 | V | I _C = 150mA, I _B = 15mA | 1 |
| | | | 1.60 | V | I _C = 500mA, I _B = 50mA | 1 |
| Base-Emitter Saturation Voltage | V _{BE(SAT)} | | 1.30 | V | I _C = 150mA, I _B = 15mA | 1 |
| | | | 2.60 | V | I _C = 500mA, I _E = 50mA | 1 |

SMALL-SIGNAL CHARACTERISTICS

| | | | | | | |
|---|------------------|-----|-----|----|--|--|
| Small Signal Forward Current Transfer Ratio | h _{fe} | 100 | | - | V _{CE} = 10V, I _C = 1mA, f = 1kHz | |
| Small Signal Forward Current Transfer Ratio | h _{fe} | 2 | | - | V _{CE} = 20V, I _C = 50mA, f = 100kHz | |
| Open Circuit Output Capacitance | C _{OBO} | | 8 | Pf | V _{CB} = 10V, 100kHz, ≤ f ≤ 1 MHz | |
| Input Capacitance (Output Open Capacitance) | C _{IBO} | | 30 | Pf | V _{EB} = 2 V, 100kHz, ≤ f ≤ 1 MHz | |
| Turn-On Time | t _{on} | | 45 | Ns | V _{CC} = 30V, I _C = 150mA, I _{B1} = 15mA | |
| Turn-Off Time | t _{off} | | 300 | ns | V _{CC} = 30V, I _C = 150mA, I _{B1} = I _{B2} = 15mA | |

NOTES:

- Pulse width ≤ 300μs, duty cycle ≤ 2.0%.

RECOMMENDED OPERATING CONDITIONS:

| PARAMETER | SYMBOL | MIN | MAX | UNITS |
|--------------------------------|-----------------|-----|-----|-------|
| Bias Voltage-Collector/Emitter | I _C | 10 | 150 | mA |
| Collector-Emitter Voltage | V _{CE} | 5 | 20 | V |

SELECTION GUIDE

| PART NUMBER | PART DESCRIPTION |
|-------------|---|
| 61083-001 | 2N2907AUA, PNP transistor, commercial version |
| 61083-002 | 2N2907AUA, PNP transistor, JAN level screening |
| 61083-101 | 2N2907AUA, PNP transistor, JANTX level screening |
| 61083-102 | 2N2907AUA, PNP transistor, JANTXV level screening |
| 61083-300 | 2N2907AUA, PNP transistor, JANS level screening |