

**61089**

**SURFACE MOUNT (PNP)  
GENERAL PURPOSE TRANSISTOR  
(2N2907AUB)**

**Mii**  
OPTOELECTRONIC PRODUCTS  
DIVISION

**Features:**

- Hermetically sealed
- Miniature package to minimize circuit board area
- Ceramic surface mount package
- Footprint and pin-out matches SOT-23 packaged transistors
- MIL-PRF-19500 screening available

**Applications:**

- Analog switches
- Signal conditioning
- Small signal amplifiers
- High density packaging

**DESCRIPTION**

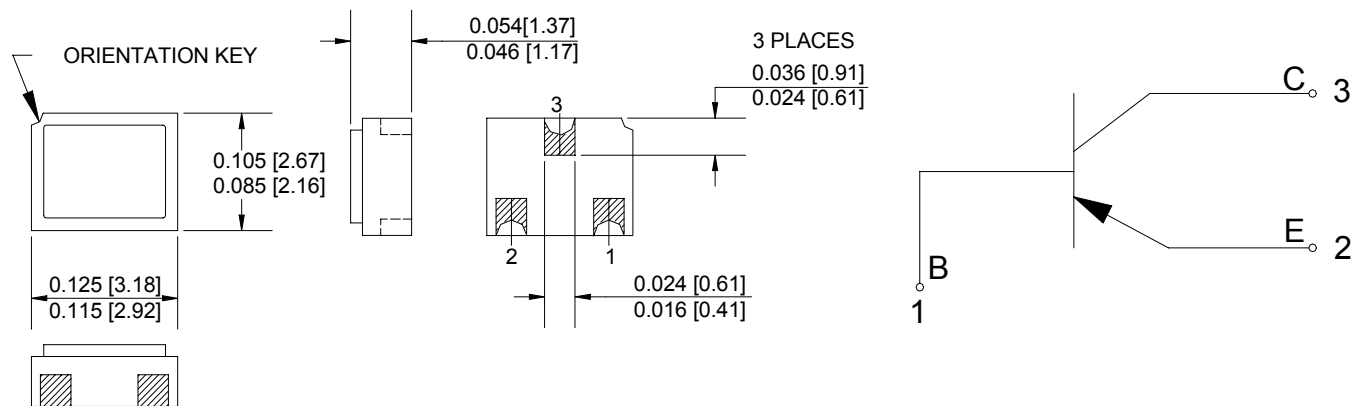
The **61089** is a hermetically sealed ceramic surface mount general purpose switching transistor. This miniature ceramic package is ideal for designs where board space and device weight are important requirements. This device is available custom binned to customer specifications or screened to MIL-PRF-19500.

**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 3.33 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 CHARACTERISTICS**T<sub>A</sub> = 25°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	MAX	UNITS	TEST CONDITIONS	NOTE
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	60		V	I <sub>C</sub> = 10μA, I <sub>E</sub> = 0	
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	60		V	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0μA	
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	5		V	I <sub>C</sub> = 0, I <sub>E</sub> = 10μA	
Collector-Base Cutoff Current	I <sub>CBO</sub>		10	nA	V <sub>CB</sub> = 50V, I <sub>E</sub> = 0	
			10	μA	V <sub>CB</sub> = 50V, I <sub>E</sub> = 0, T <sub>A</sub> = 150°C	
Collector-Emitter Cutoff Current	I <sub>CES</sub>		50	nA	V <sub>CE</sub> = 50V	
Emitter-Base Cutoff Current	I <sub>EBO</sub>		50	nA	V <sub>EB</sub> = 4.0V, I <sub>C</sub> = 0	
Forward-Current Transfer Ratio	h <sub>fe1</sub>	75		-	V <sub>CE</sub> = 10V, I <sub>C</sub> = 0.1mA	
	h <sub>fe2</sub>	100	450	-	V <sub>CE</sub> = 10V, I <sub>C</sub> = 1mA	
	h <sub>fe3</sub>	100		-	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA	
	h <sub>fe4</sub>	100	300	-	V <sub>CE</sub> = 10V, I <sub>C</sub> = 150mA	1
	h <sub>fe5</sub>	50		-	V <sub>CE</sub> = 10V, I <sub>C</sub> = 500mA	1
	h <sub>fe6</sub>	50		-	V <sub>CE</sub> = 10V, I <sub>C</sub> = 1mA @ -55°C	
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>		0.40	V	I <sub>C</sub> = 150mA, I <sub>B</sub> = 15mA	1
			1.60	V	I <sub>C</sub> = 500, I <sub>B</sub> = 50mA	1
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>		1.30	V	I <sub>C</sub> = 150mA, I <sub>B</sub> = 15mA	1
			2.60	V	I <sub>C</sub> = 500mA, I <sub>E</sub> = 50mA	1

**SMALL-SIGNAL CHARACTERISTICS**

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

**NOTES:**

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

**RECOMMENDED OPERATING CONDITIONS:**

PARAMETER	SYMBOL	MIN	MAX	UNITS
Bias Voltage-Collector/Emitter	I <sub>C</sub>	10	150	mA
Collector-Emitter Voltage	V <sub>CE</sub>	5	20	V

**SELECTION GUIDE**

PART NUMBER	PART DESCRIPTION
61089-001	2N2907AUB PNP transistor, commercial version
61089-002	2N2907AUB PNP transistor, JAN level screening
61089-101	2N2907AUB PNP transistor, JANTX level screening
61089-102	2N2907AUB PNP transistor, JANTXV level screening
61089-103	2N2907AUB PNP transistor, JANS level screening