

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

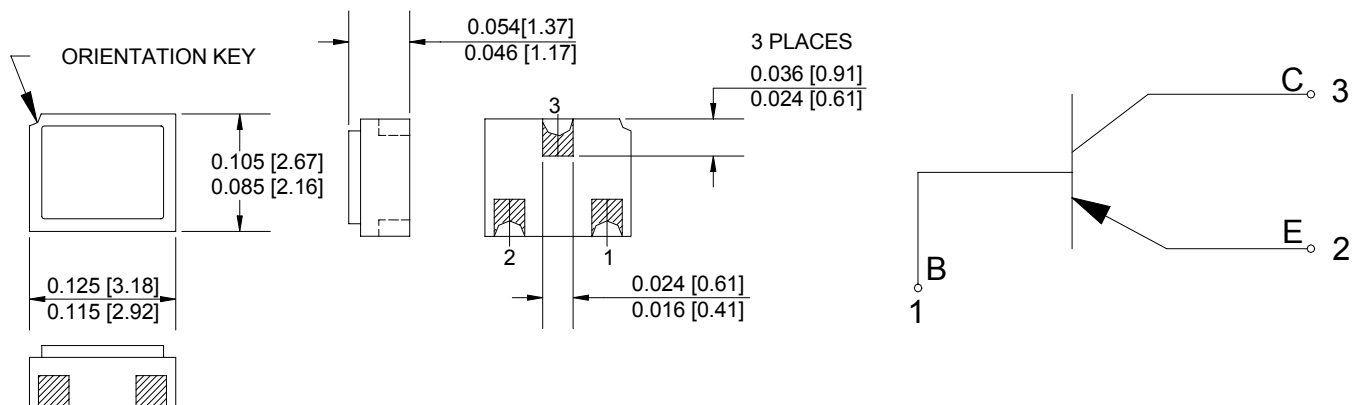
The **61089** is a hermetically sealed ceramic surface mount general purpose switching transistor. This miniature ceramic package is ideal for designs where board space and device weight are important requirements. This device is available custom binned to customer specifications or screened to MIL-PRF-19500.

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]

61089

SURFACE MOUNT PNP GENERAL PURPOSE TRANSISTOR (TYPE 2N2907AUB)

ELECTRICAL CHARACTERISTICS

 $T_A = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	SYMBOL	MIN	MAX	UNITS	TEST CONDITIONS	NOTE
Collector-Base Breakdown Voltage	BV_{CBO}	60		V	$I_C = 10\mu\text{A}, I_E = 0$	
Collector-Emitter Breakdown Voltage	BV_{CEO}	60		V	$I_C = 10\text{mA}, I_B = 0\mu\text{A}$	
Emitter-Base Breakdown Voltage	BV_{EBO}	5		V	$I_C = 0, I_E = 10\mu\text{A}$	
Collector-Base Cutoff Current	I_{CBO}		10	nA	$V_{CB} = 50\text{V}, I_E = 0$	
			10	μA	$V_{CB} = 50\text{V}, I_E = 0, T_A = 150^\circ\text{C}$	
Collector-Emitter Cutoff Current	I_{CES}		50	nA	$V_{CE} = 50\text{V}$	
Emitter-Base Cutoff Current	I_{EBO}		50	nA	$V_{EB} = 4.0\text{V}, I_C = 0$	
Forward-Current Transfer Ratio	h_{fe1}	75		-	$V_{CE} = 10\text{V}, I_C = 0.1\text{mA}$	
	h_{fe2}	100	450	-	$V_{CE} = 10\text{V}, I_C = 1\text{mA}$	
	h_{fe3}	100		-	$V_{CE} = 10\text{V}, I_C = 10\text{mA}$	
	h_{fe4}	100	300	-	$V_{CE} = 10\text{V}, I_C = 150\text{mA}$	1
	h_{fe5}	50		-	$V_{CE} = 10\text{V}, I_C = 500\text{mA}$	1
	h_{fe6}	50		-	$V_{CE} = 10\text{V}, I_C = 1\text{mA} @ -55^\circ\text{C}$	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		0.40	V	$I_C = 150\text{mA}, I_B = 15\text{mA}$	1
			1.60	V	$I_C = 500, I_B = 50\text{mA}$	1
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$		1.30	V	$I_C = 150\text{mA}, I_B = 15\text{mA}$	1
			2.60	V	$I_C = 500\text{mA}, I_E = 50\text{mA}$	1

SMALL-SIGNAL CHARACTERISTICS

Small Signal Forward Current Transfer Ratio	h_{fe}	100		-	$V_{CE} = 10\text{V}, I_C = 1\text{mA}, f = 1\text{kHz}$	
Small Signal Forward Current Transfer Ratio	h_{fe}	2		-	$V_{CE} = 20\text{V}, I_C = 50\text{mA}, f = 100\text{kHz}$	
Open Circuit Output Capacitance	C_{OBO}		8	pF	$V_{CB} = 10\text{V}, 100\text{kHz}, \leq f \leq 1\text{MHz}$	
Input Capacitance (Output Open Capacitance)	C_{IBO}		30	pF	$V_{CB} = 2\text{V}, 100\text{kHz}, \leq f \leq 1\text{MHz}$	
Turn-On Time	t_{on}		45	ns	$V_{CC} = 30\text{V}, I_C = 150\text{mA}, I_{B1} = 15\text{mA}$	
Turn-Off Time	t_{off}		300	ns	$V_{CC} = 30\text{V}, I_C = 150\text{mA}, I_{B1} = I_{B2} = 15\text{mA}$	

NOTES:

- Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$.

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
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