

**61113 GENERAL PURPOSE (NPN) TRANSISTOR  
SURFACE MOUNT PACKAGE  
(2N2369AUB)**

**Mii**  
OPTOELECTRONIC PRODUCTS  
DIVISION

**Features:**

- Hermetically sealed
- Hermetically sealed 3 pin LCC
- MIL-PRF-19500 screening available

**Applications:**

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

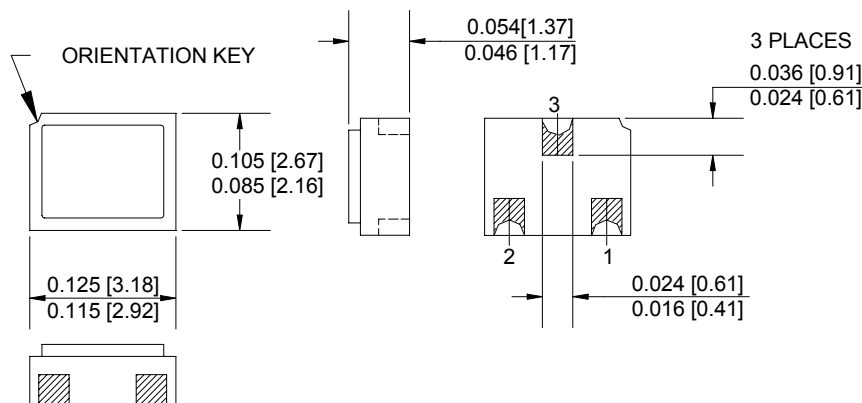
**DESCRIPTION**

The **61113** is a N-P-N, general-purpose switching and amplifier transistor in a 3 pin leadless chip carrier package. All packages are hermetically sealed for high reliability and harsh environments. This device is available custom binned to customer specifications in commercial or screened to MIL-PRF-19500 up to JANS level.

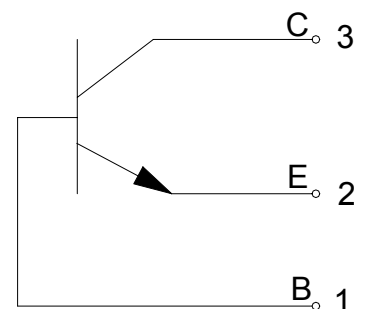
**ABSOLUTE MAXIMUM RATINGS**

Collector-Base Voltage - $V_{CBO}$ .....	40Vdc
Collector-Emitter Voltage - $V_{CEO}$ .....	15Vdc
Collector-Emmitter Voltage - $V_{CES}$ .....	40Vdc
Emitter-Base Voltage - $V_{EBO}$ .....	4.5Vdc
Collector Current - $I_{C(Peak)}$ .....	500mA
Continuous Collector Current .....	200mA
Maximum Junction Temperature .....	+200°C
Operating Temperature (See part selection guide for actual operating temperature) .....	-65°C to +125°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>	40		V <sub>dc</sub>	I <sub>C</sub> = 10μA, I <sub>E</sub> = 0	
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	40		V <sub>dc</sub>	I <sub>C</sub> = 10μA, I <sub>B</sub> = 0μA	
Collector-Emitter Sustaining Voltage	BV <sub>CES</sub>	15		V <sub>dc</sub>	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0μA	
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	4.5		V <sub>dc</sub>	I <sub>C</sub> = 0, I <sub>E</sub> = 10μA	
Collector-Base Cutoff Current	I <sub>CBO</sub>		0.4	μA	V <sub>CB</sub> = 20V, I <sub>E</sub> = 0	
			30	μA	V <sub>CB</sub> = 20V, I <sub>E</sub> = 0, T <sub>A</sub> = 150°C	
Collector-Emitter Cutoff Current	I <sub>CES</sub>		0.4	μA	V <sub>CE</sub> = 20V	
Forward-Current Transfer Ratio	h <sub>fe</sub>	-	120	-	V <sub>CE</sub> = 1V, I <sub>C</sub> = 10mA	
	h <sub>fe</sub>	20		-	V <sub>CE</sub> = 1V, I <sub>C</sub> = 100mA	
	h <sub>fe</sub>	20		-	V <sub>CE</sub> = 2V, I <sub>C</sub> = 100mA	
	h <sub>fe4</sub>	20		-	V <sub>CE</sub> = 1V, I <sub>C</sub> = 10mA @ -55°C	1
	h <sub>fe6</sub>	30		-	V <sub>CE</sub> = 0.35V, I <sub>C</sub> = 10mA @ -55°C	
Collector-Emitter Saturation Voltage	V <sub>CE</sub> (SAT)		0.20	V	I <sub>C</sub> = 10mA, I <sub>B</sub> = 1mA	1
	V <sub>CE</sub> (SAT)		0.30	V	I <sub>C</sub> = 10mA, I <sub>B</sub> = 1mA @ +125°C	
	V <sub>CE</sub> (SAT)		0.25	V	I <sub>C</sub> = 30mA, I <sub>B</sub> = 3mA	
	V <sub>CE</sub> (SAT)		0.50	V	I <sub>C</sub> = 100mA, I <sub>B</sub> = 10mA	1
Base-Emitter Saturation Voltage	V <sub>BE</sub> (SAT)	0.7	0.85	V	I <sub>C</sub> = 10mA, I <sub>B</sub> = 1mA	1
	V <sub>BE</sub> (SAT)	0.59	-	V	I <sub>C</sub> = 10mA, I <sub>B</sub> = 1mA @ +125°C	
	V <sub>BE</sub> (SAT)		1.02	V	I <sub>C</sub> = 10mA, I <sub>B</sub> = 1mA @ -55°C	
	V <sub>BE</sub> (SAT)		1.15	V	I <sub>C</sub> = 30mA, I <sub>B</sub> = 3mA	
	V <sub>BE</sub> (SAT)		1.60	V	I <sub>C</sub> = 100mA, I <sub>E</sub> = 10mA	1

**SMALL-SIGNAL CHARACTERISTICS**

Current-Gain – Bandwidth Product	f <sub>r</sub>	500		MHz	V <sub>CB</sub> = 10V, 100kHz, ≤ f ≤ 1 MHz	
Input Capacitance (Output Open Capacitance)	C <sub>IBO</sub>		25	pF	V <sub>EB</sub> = 0.5 V, 100kHz, ≤ f ≤ 1 MHz	
Turn-On Time	t <sub>on</sub>		35	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%.

**SELECTION GUIDE**

PART NUMBER	PART DESCRIPTION
61113-001	2N2369AUB PNP transistor, commercial version
61113-002	2N2369AUB PNP transistor, JAN level screening
61113-003	2N2369AUB PNP transistor, JANTX level screening
61113-004	2N2369AUB PNP transistor, JANTXV level screening
61113-005	2N2369AUB PNP transistor, JANS level screening

**NOTE:** Also available in dual and quad configurations upon request. Can also be supplied in gull wing surface mount versions.