

61084

**SURFACE MOUNT (NPN)
GENERAL PURPOSE TRANSISTOR
(2N2222AUA)**

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

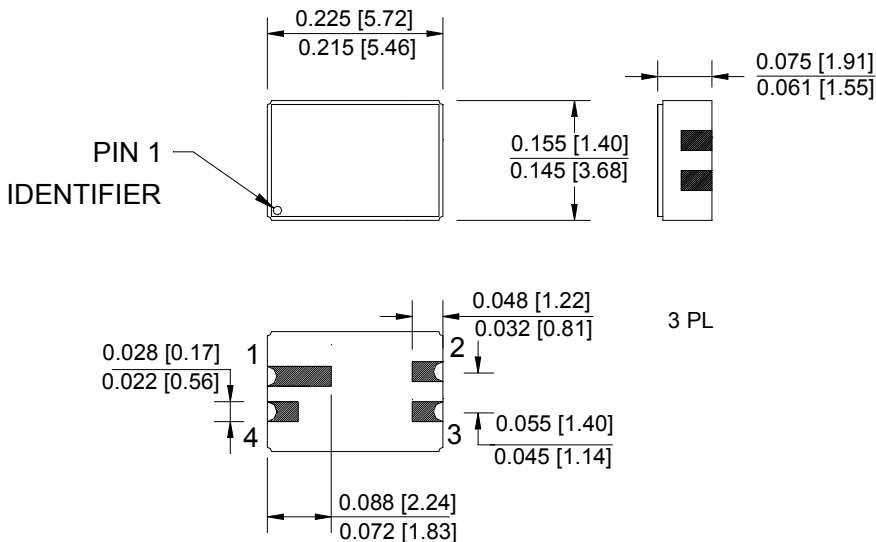
DESCRIPTION

The **61084** 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.

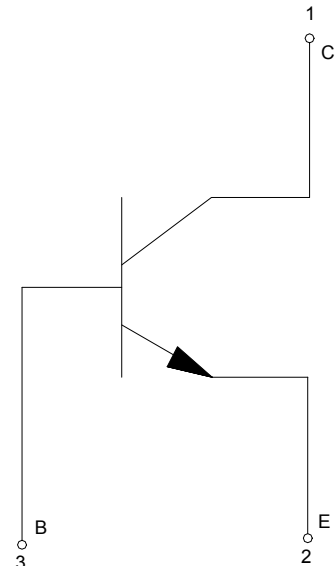
ABSOLUTE MAXIMUM RATINGS

Collector-Base Voltage	75V
Collector-Emitter Voltage	50V
Emitter-Collector Voltage	6V
Continuous Collector Current	800mA
Power Dissipation (Derate at the rate of 3.33 mW/°C above 25°C)	500mW
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



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}	75		V	$I_C = 10\mu\text{A}, I_E = 0$	
Collector-Emitter Breakdown Voltage	BV_{CEO}	50		V	$I_C = 10\text{mA}, I_B = 0\mu\text{A}$	
Emitter-Base Breakdown Voltage	BV_{EBO}	6		V	$I_C = 0, I_E = 10\mu\text{A}$	
Collector-Base Cutoff Current	I_{CBO}		10	nA	$V_{CB} = 60\text{V}, I_E = 0$	
			10	μA	$V_{CB} = 60\text{V}, I_E = 0, T_A = 150^\circ\text{C}$	
Collector-Emitter Cutoff Current	I_{CES}		50	nA	$V_{CE} = 50\text{V}$	
Emitter-Base Cutoff Current	I_{EBO}		10	nA	$V_{EB} = 4.0\text{V}, I_C = 0$	
Forward-Current Transfer Ratio	h_{fe1}	50		-	$V_{CE} = 10\text{V}, I_C = 0.1\text{mA}$	
	h_{fe2}	75	325	-	$V_{CE} = 10\text{V}, I_C = 1\text{mA}$	
	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}	30		-	$V_{CE} = 10\text{V}, I_C = 500\text{mA}$	1
	h_{fe6}	35		-	$V_{CE} = 10\text{V}, I_C = 1\text{mA} @ -55^\circ\text{C}$	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		0.30	V	$I_C = 150\text{mA}, I_B = 15\text{mA}$	1
			1.0	V	$I_C = 500, I_B = 50\text{mA}$	1
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	0.6	1.20	V	$I_C = 150\text{mA}, I_B = 15\text{mA}$	1
			2.0	V	$I_C = 500\text{mA}, I_E = 50\text{mA}$	1

SMALL-SIGNAL CHARACTERISTICS

Small Signal Forward Current Transfer Ratio	h_{fe}	50		-	$V_{CE} = 10\text{V}, I_C = 1\text{mA}, f = 1\text{kHz}$	
Small Signal Forward Current Transfer Ratio	h_{fe}	2.5		-	$V_{CE} = 20\text{V}, I_C = 20\text{mA},$ $f = 100\text{kHz}$	
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}		25	pF	$V_{EB} = 0.5\text{V}, 100\text{kHz}, \leq f \leq 1\text{MHz}$	
Turn-On Time	t_{on}		35	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
61084-001	2N2222AUA PNP transistor, commercial version
61084-002	2N2222AUA PNP transistor, JAN level screening
61084-101	2N2222AUA PNP transistor, JANTX level screening
61084-102	2N2222AUA PNP transistor, JANTXV level screening
61084-300	2N2222AUA PNP transistor, JANS level screening