

61090

**2N2222AUB  
SURFACE MOUNT NPN GENERAL PURPOSE  
TRANSISTOR**



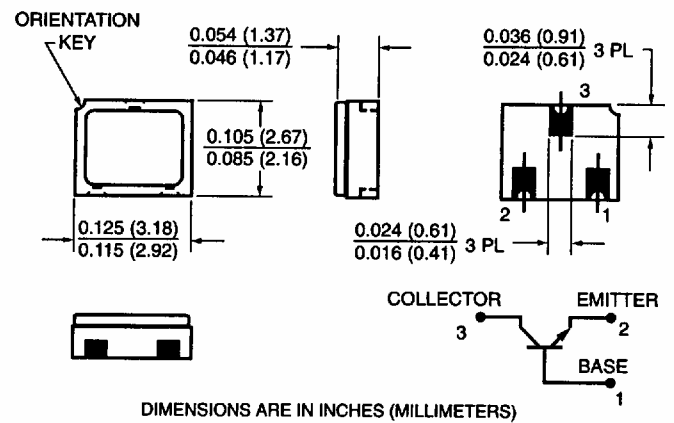
**OPTOELECTRONIC PRODUCTS  
DIVISION**

**Features**

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

**Description**

The 2N2222AUB 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.



**Absolute Maximum Ratings** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Collector-Base Voltage	75V
Collector-Emitter Voltage	50V
Emitter-Base Voltage	6V
Collector Current-Continuous	800mA
Operating Temperature	$-65^\circ\text{C}$ to $+200^\circ\text{C}$
Storage Temperature	$-65^\circ\text{C}$ to $+200^\circ\text{C}$
Maximum Junction Temperature	$+200^\circ\text{C}$
Power Dissipation @ $T_A = 25^\circ\text{C}$ .	0.50W <sup>1/</sup>
Soldering Temperature (vapor phase reflow for 30sec)	215°C

**Note:**

- (1) Derate linearly @  $2.85\text{mw}/^\circ\text{C}$  for  $T_A > 25^\circ\text{C}$ .

## OPTICAL/ELECTRICAL CHARACTERISTICS AT 25°C UNLESS OTHERWISE NOTED.

PARAMETER	DESCRIPTION	TEST CONDITIONS	MIN	MAX	UNIT
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10\mu A, I_E = 0$	75		V
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10mA, I_B = 0$	50		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\mu A, I_C = 0$	6.0		V
$I_{CBO}$	Collector-Base Cutoff Current	$V_{CB} = 60V, I_E = 0$		10	nA
		$V_{CB} = 60V, I_E = 0, T_A = 150^\circ C$		10	$\mu A$
$I_{CES}$	Collector-Emitter Cutoff Current	$V_{CE} = 50V$		50	$\mu A$
$I_{EBO}$	Emitter-Base Cutoff Current	$V_{EB} = 4.0V, I_C = 0$		10	nA
$h_{fe}$	Forward-Current Transfer Ratio	$V_{CE} = 10V, I_C = 0.1mA$	50		-
		$V_{CE} = 10V, I_C = 1.0mA$	75	325	-
		$V_{CE} = 10V, I_C = 10mA$	100		-
		$V_{CE} = 10V, I_C = 150mA \underline{2/}$	100	300	-
		$V_{CE} = 10V, I_C = 500mA \underline{2/}$	30		-
		$V_{CE} = 10V, I_C = 10mA, @ -55^\circ C$	35		-
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	$I_C = 150mA, I_B = 15mA \underline{2/}$		0.30	V
		$I_C = 500mA, I_B = 50mA \underline{2/}$		1.0	V
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage	$I_C = 150mA, I_B = 15mA \underline{2/}$	0.60	1.20	V
		$I_C = 500mA, I_B = 50mA \underline{2/}$		2.0	V
<b>SMALL-SIGNAL CHARACTERISTICS</b>					
$h_{fe}$	Small Signal Forward Current Transfer Ratio	$V_{CE} = 10V, I_C = 1.0mA, f = 1.0kHz$	50		-
$h_{fe}$	Small Signal Forward Current Transfer Ratio	$V_{CE} = 20V, I_C = 20mA, f = 100MHz$	2.5		-
$C_{obo}$	Open Circuit Output Capacitance	$V_{CB} = 10V, 100kHz \leq f \leq 1.0MHz$		8.0	pF
$C_{ibo}$	Input Capacitance (Output Open Capacitance)	$V_{EB} = 0.5V, 100kHz \leq f \leq 1.0MHz$		25	pF
$t_{on}$	Turn-On Time	$V_{CC} = 30V, I_C = 150mA, I_{B1} = 15mA$		35	ns
$t_{off}$	Turn-Off Time	$V_{CC} = 30V, I_C = 150mA, I_{B1} = I_{B2} = 15mA$		300	ns

**Note:**(2) Pulse width  $\leq 300\mu s$ , Duty Cycle  $\leq 2.0\%$ .