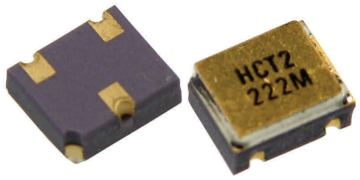
Surface Mount NPN General Purpose Transistor

2N2222AUB (TX, TXV)

Features:

- Ceramic 3 pin surface mount package (UBN)
- Miniature package to minimize circuit board area
- Hermetically sealed
- Processed per MIL-PRF-19500/255
- Same footprint and pin-out as many SOT-23 package transistors



Description:

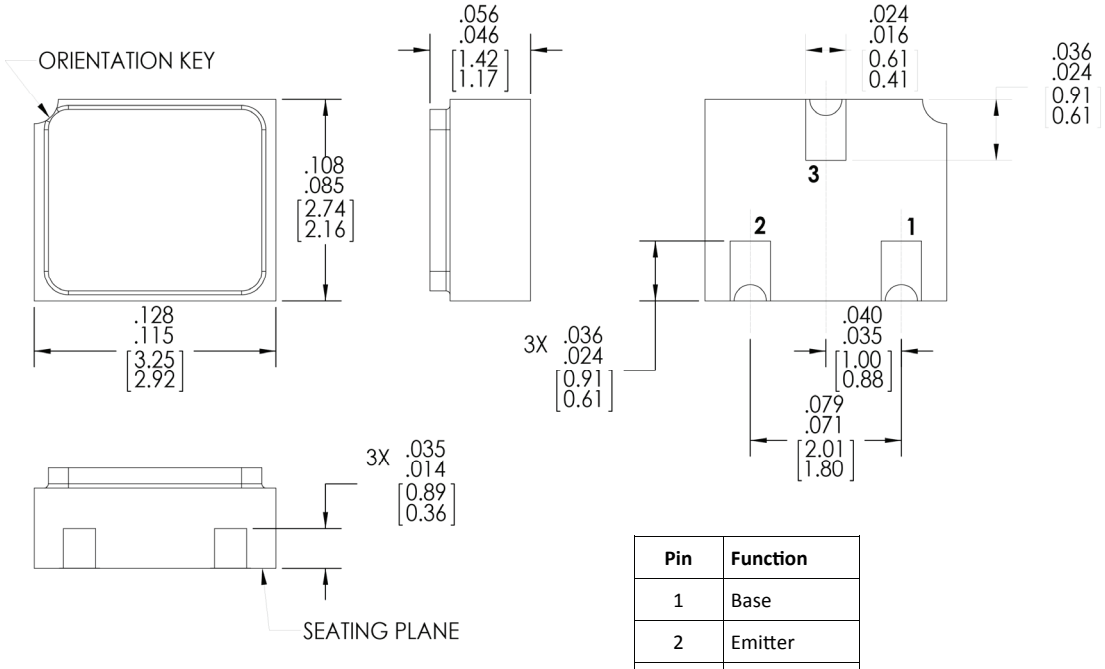
The 2N2222AUB (TX, TXV) is a miniature hermetically sealed ceramic surface mount general purpose switching transistor. The miniature three pin ceramic package is ideal for upgrading commercial grade circuits to military reliability levels where plastic SOT-23 devices have been used. The "UB" suffix denotes the 3 terminal chip carrier package.

Typical screening per MIL-PRF-19500/255. The burn-in condition is V_{CB} = 30 V. P_D = 200 mW, T_A = 25°C, t = 80 hrs. Refer to MIL-PRF-19500/255 for complete requirements. In addition, the TX and TXV versions receive 100% thermal response testing.

When ordering parts without processing, do not use the TX or TXV suffix.

Applications:

- General switching
- Amplification
- Signal processing
- Radio transmission
- Logic gates



Pin	Function
1	Base
2	Emitter
3	Collector

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www.optekinc.com | www.ttelectronics.com

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2N222AUB (TX, TXV)

Electrical Specifications

Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)	
Collector-Base Voltage	75V
Collector-Emitter Voltage	50V
Emitter-Base Voltage	6.0V
Collector Current-Continuous	800mA
Operating Junction Temperature (T_J)	-65° C to +200 °C
Storage Junction Temperature (T_{stg})	-65° C to +200° C
Power Dissipation @ T_A = 25°C	0.3 W
Power Dissipation @ Tc = 25° C	1.00 W(1)
Soldering Temperature (vapor phase reflow for 30 seconds)	215° C
Soldering Temperature (heated collet for 5 seconds)	260° C

Electrical Characteristics (T_A = 25° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
OFF CHARACTERISTICS					
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	75		V	I_C = 10 µA, I_E = 0
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	50		V	I_C = 10 mA, I_B = 0
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	6.0		V	I_E = 10 µA, I_C = 0
I_{CBO}	Collector-Base Cutoff Current		10	nA	V_{CB} = 60 V, I_E = 0
			10	µA	V_{CB} = 60 V, I_E = 0, T_A = 150° C
I_{EBO}	Emitter-Base Cutoff Current		10	nA	V_{EB} = 4 V, I_C = 0
I_{CES}	Collector Emitter Cutoff Current		50	nA	V_{CE} = 50 V
ON CHARACTERISTICS					
h_{FE}	Forward-Current Transfer Ratio	50		-	V_{CE} = 10 V, I_C = 0.1 mA
		75	325	-	V_{CE} = 10 V, I_C = 1.0 mA
		100		-	V_{CE} = 10 V, I_C = 10 mA
		100	300	-	V_{CE} = 10 V, I_C = 150 mA(2)
		30		-	V_{CE} = 10 V, I_C = 500 mA(2)
		35		-	V_{CE} = 10 V, I_C = 10 mA, T_A = -55°C

Note:
1. Derate linearly 6.6 mW/°C above 25° C
2. Pulse Width ≤300 µs, Duty Cycle ≤ 2.0%

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Electrical Characteristics (T_A = 25° C unless otherwise noted)					
SYMBOL	**PARAMETER**	**MIN**	**MAX**	**UNITS**	**TEST CONDITIONS**
ON CHARACTERISTICS					
$V_{CE\ (SAT)}$	Collector-Emitter Saturation Voltage		0.3	V	I_C = 150 mA, I_B= 15 mA[(2)]
			1.0	V	I_C = 500 mA, I_B= 50 mA[(2)]
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage	0.6	1.2	V	I_C = 150 mA, I_B= 15 mA[(2)]
			2.0	V	I_C = 500 mA, I_B= 50 mA[(2)]
SMALL-SIGNAL CHARACTERISTICS					
h_{fe}	Small Signal Forward Current Transfer Ratio	50		-	V_{CE} = 10 V, I_C = 1.0 mA, f = 1.0 kHz
Ih_{fe}	Small Signal Forward Current Transfer Ratio	2.5		-	V_{CE} = 20 V, I_C = 20 mA, f = 100 MHz
C_{obo}	Open Circuit Output Capacitance		8.0	pF	V_{CB} = 10 V, 100 kHz ≤ f ≤ 1.0 MHZ
C_{ibo}	Input Capacitance (Output Open)		25	pF	V_{EB} = 0.5 V, 100 kHz ≤ f ≤ 1.0 MHZ
SWITCHING CHARACTERISTICS					
t_{on}	Turn-On Time		35	ns	V_{CC} = 30 V, I_C = 150 mA, I_{B1} = 15 mA
t_{off}	Turn-Off Time		300	ns	V_{CC} = 30 V, I_C = 150 mA, I_{B1} = I_{B2} = 15 mA

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