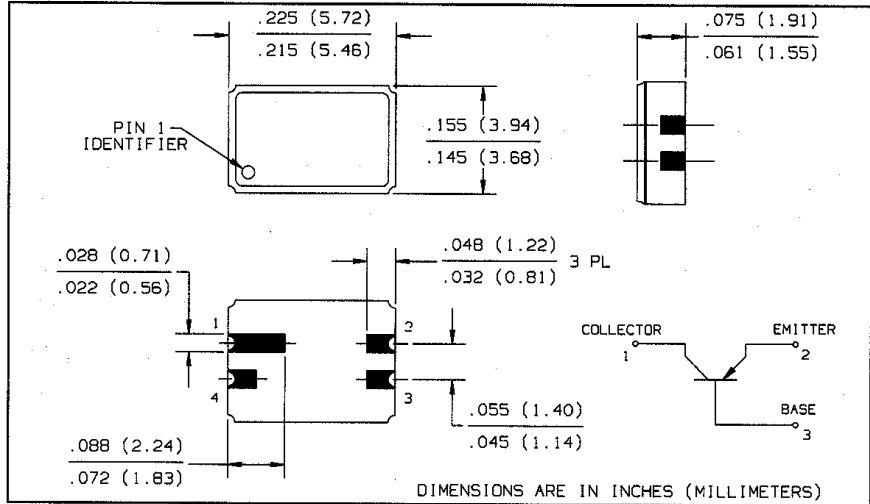
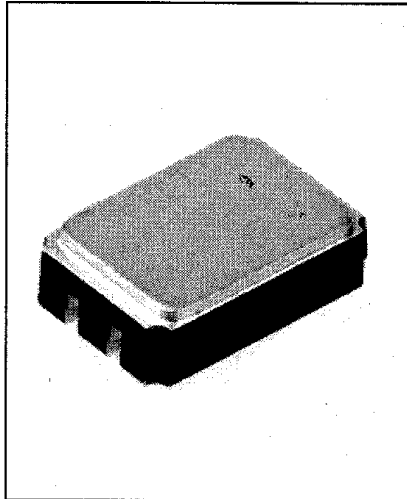


# Surface Mount PNP General Purpose Transistor

## Type TX, TXV, 2N2907AUA



### Features

- Ceramic surface mount package
- Miniature package to minimize circuit board area
- Hermetically sealed
- Qualification per MIL-PRF-19500/291

### Description

The TX/TXV2N2907AUA is a hermetically sealed ceramic surface mount general purpose switching transistor. The miniature four pin ceramic package is ideal for designs where board space and device weight are important design considerations. The "UA" suffix denotes the 4 terminal leadless chip carrier package, type "A" per MIL-PRF-19500/291.

Typical screening and lot acceptance tests are provided on page 13-4. The Burn-in condition is  $V_{CB} = 30\text{ V}$ ,  $P_D = 400\text{ mW}$ ,  $T_A = 25^\circ\text{ C}$ ,  $t = 80\text{ hrs}$ . Refer to MIL-PRF-19500/291 for complete requirements. In addition, the TX and TXV versions receive 100% thermal response testing.

When ordering parts without processing, do not use a JAN prefix.

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

Collector-Base voltage .....	60 V
Collector-Emitter Voltage .....	60 V
Emitter-Base Voltage .....	5.0 V
Collector Current-Continuous .....	600 mA
Operating Junction Temperature ( $T_J$ ) .....	$-65^\circ\text{ C}$ to $+200^\circ\text{ C}$
Storage Junction Temperature ( $T_{stg}$ ) .....	$-65^\circ\text{ C}$ to $+200^\circ\text{ C}$
Power Dissipation @ $T_A = 25^\circ\text{ C}$ .....	0.4 W
Power Dissipation @ $T_C = 25^\circ\text{ C}$ .....	1.16 W <sup>(1)</sup>
Soldering Temperature (vapor phase reflow for 30 sec.) .....	$215^\circ\text{ C}$
Soldering Temperature (heated collet for 5 sec.) .....	$260^\circ\text{ C}$

#### Notes:

(1) Derate linearly 6.6 mW/ $^\circ\text{ C}$  above  $25^\circ\text{ C}$ .

# Types TX, TXV, 2N2907AUA

Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

SYMBOL	PARAMETER	MIN	MAX	UNIT	TEST CONDITIONS
<b>Off Characteristics</b>					
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	60		V	$I_C = 10\ \mu\text{A}, I_E = 0$
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	60		V	$I_C = 10\ \text{mA}, I_B = 0^{(2)}$
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	5.0		V	$I_E = 10\ \mu\text{A}, I_C = 0$
$I_{CBO}$	Collector-Base Cutoff Current		10	nA	$V_{CB} = 50\ \text{V}, I_E = 0$
			10	$\mu\text{A}$	$V_{CB} = 50\ \text{V}, I_E = 0, T_A = 150^\circ\text{C}$
$I_{CES}$	Collector-Emitter Cutoff Current		50	nA	$V_{CE} = 50\ \text{V}$
$I_{EBO}$	Emitter-Base Cutoff Current		50	nA	$V_{EB} = 4.0\ \text{V}, I_C = 0$
<b>On Characteristics</b>					
$h_{FE}$	Forward-Current Transfer Ratio	75		-	$V_{CE} = 10\ \text{V}, I_C = 0.1\ \text{mA}$
		100	450	-	$V_{CE} = 10\ \text{V}, I_C = 1.0\ \text{mA}$
		100		-	$V_{CE} = 10\ \text{V}, I_C = 10\ \text{mA}$
		100	300	-	$V_{CE} = 10\ \text{V}, I_C = 150\ \text{mA}^{(2)}$
		50		-	$V_{CE} = 10\ \text{V}, I_C = 500\ \text{mA}^{(2)}$
		50		-	$V_{CE} = 10\ \text{V}, I_C = 1.0\ \text{mA}, T_A = -55^\circ\text{C}$
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage		0.40	V	$I_C = 150\ \text{mA}, I_B = 15\ \text{mA}^{(2)}$
			1.60	V	$I_C = 500\ \text{mA}, I_B = 50\ \text{mA}^{(2)}$
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage		1.30	V	$I_C = 150\ \text{mA}, I_B = 15\ \text{mA}^{(2)}$
			2.60	V	$I_C = 500\ \text{mA}, I_B = 50\ \text{mA}^{(2)}$
<b>Small-Signal Characteristics</b>					
$h_{fe}$	Small Signal Forward Current Transfer Ratio	100		-	$V_{CE} = 10\ \text{V}, I_C = 1.0\ \text{mA}, f = 1.0\ \text{kHz}$
$h_{fe1}$	Small Signal Forward Current Transfer Ratio	2.0		-	$V_{CE} = 20\ \text{V}, I_C = 50\ \text{mA}, f = 100\ \text{MHz}$
$C_{obo}$	Open Circuit Output Capacitance		8.0	pF	$V_{CB} = 10\ \text{V}, 100\ \text{kHz} \leq f \leq 1.0\ \text{MHz}$
$C_{ibo}$	Input Capacitance (Output Open Capacitance)		30	pF	$V_{EB} = 2.0\ \text{V}, 100\ \text{kHz} \leq f \leq 1.0\ \text{MHz}$
<b>Switching Characteristics</b>					
$t_{on}$	Turn-On Time		45	ns	$V_{CC} = 30\ \text{V}, I_C = 150\ \text{mA}, I_{B1} = 15\ \text{mA}$
$t_{off}$	Turn-Off Time		300	ns	$V_{CC} = 30\ \text{V}, I_C = 150\ \text{mA}, I_{B1} = I_{B2} = 15\ \text{mA}$

(2) Pulse Width  $\leq 300\ \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$