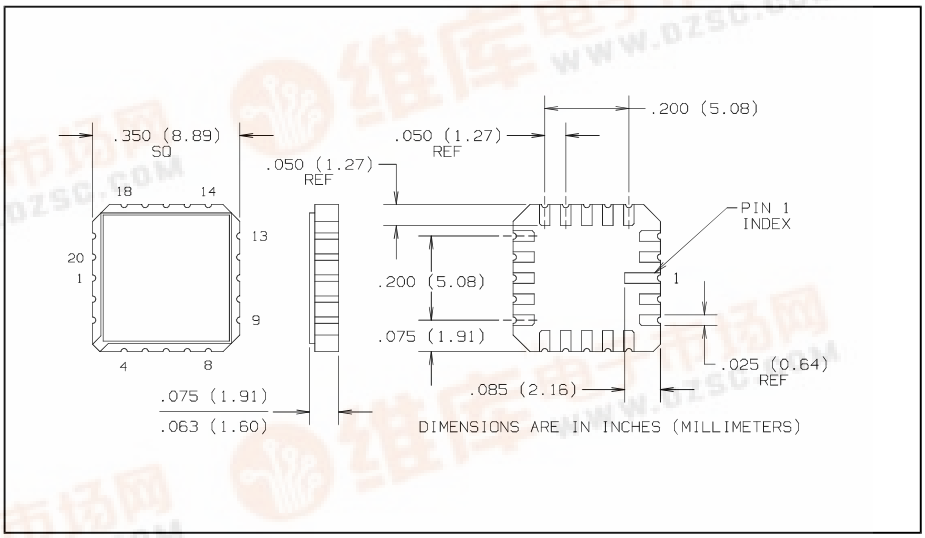
Surface Mount Quad NPN Transistor
Type JANTX, JANTXV, 2N6989U



Features

- Ceramic surface mount package
- Hermetically sealed
- Small package minimizes circuit board area required
- Electrical performance similar to a 2N2222A
- Qualification per MIL-PRF-19500/559

Description

The JANTX2N6989U is a hermetically sealed, ceramic surface-mount device, consisting of four individual silicon NPN transistors. The 20 pin ceramic package is ideal for designs where board space and device weight are important design considerations.

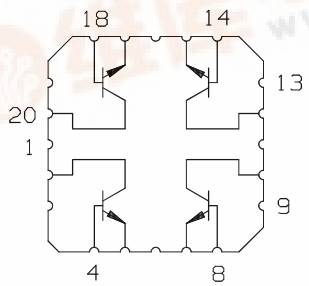
Typical screening and lot acceptance tests are provided on page 13-4. The burn-in condition is V_{CB} = 30 V, P_D = 250 mW each transistor, T_A = 25° C. Refer to MIL-PRF-19500/559 for complete requirements.

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

Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Collector-Base Voltage	75 V
Collector-Emitter Voltage	50 V
Emitter-Base Voltage	6.0 V
Collector Current-Continuous	800 mA
Operating Junction Temperature(T_J)	-65° C to +200° C
Storage Junction Temperature (T_{stg})	-65° C to +200° C
Power Dissipation (single transistor, no heat sink)	0.5 W
Power Dissipation T_A = 25° C (four devices driven equally)	1.0 W(1)
Isolation Voltage	500 Vdc

Notes:
(1) Derate linearly 8.57 mW/°C above 25° C.



TOP VIEW

Type JANTX, JANTXV, 2N6989U

Electrical Characterics (T_A = 25^o 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
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	50		V	I_C = 10 mA(2)
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	6		V	I_E = 10 µA
I_{CBO}	Collector-Base Cutoff Current		10	nA	V_{CB} = 60 V
I_{CBO2}	Collector-Base Cutoff Current		10	µA	V_{CB} = 60 V, T_A = 150^o C
I_{EBO}	Emitter-Base Cutoff Current		10	nA	V_{EB} = 4 V
On Characteristics					
h_{FE1}	Forward Current Transfer Ratio	50			V_{CE} = 10 V, I_C = 0.1 mA
h_{FE2}	Forward Current Transfer Ratio	75	325		V_{CE} = 10 V, I_C = 1.0 mA
h_{FE3}	Forward Current Transfer Ratio	100			V_{CE} = 10 V, I_C = 10 mA(2)
h_{FE4}	Forward Current Transfer Ratio	100	300		V_{CE} = 10 V, I_C = 150 mA(2)
h_{FE5}	Forward Current Transfer Ratio	30			V_{CE} = 10 V, I_C = 500 mA(2)
h_{FE6}	Forward Current Transfer Ratio	35			V_{CE} = 10 V, I_C = 10 mA, T_A = 55^o C(2)
$V_{CE(SAT)1}$	Collector-Emitter Saturation Voltage		0.3	V	I_C = 150 mA, I_B = 15 mA(2)
$V_{CE(SAT)2}$	Collector-Emitter Saturation Voltage		1.0	V	I_C = 500 mA, I_B = 50 mA(2)
$V_{CE(SAT)3}$	Collector-Emitter Saturation Voltage		0.45	V	I_C = 150 mA, I_B = 15 mA, T_A = 150^o C(2)
$V_{BE(SAT)1}$	Base-Emitter Saturation Voltage	0.6	1.2	V	I_C = 150 mA, I_B = 15 mA(2)
$V_{BE(SAT)2}$	Base-Emitter Saturation Voltage		2.0	V	I_C = 500 mA, I_B = 50 mA(2)
$V_{BE(SAT)3}$	Base-Emitter Saturation Voltage		1.4	V	I_C = 150 mA, I_B = 15 mA, T_A = 55^o C(2)
Small-Signal Characteristics					
$\lvert h_{fe} \rvert$	Magnitude of Small-Signal Short-Circuit Forward Current Transfer Ratio	2.5	8.0		V_{CE} = 10 V, I_C = 20 mA, f = 100 MHz
h_{fe}	Small-Signal Short Circuit Forward Current Transfer Ratio	50			V_{CE} = 10 V, I_C = 1 mA, f = 1kHz
C_{obo}	Open Circuit Output Capacitance		8	pF	V_{CB} = 10 V, I_E = 0, 100 kHz ≤ f ≤ 1 MHz
C_{ibo}	Input Capacitance		33	pF	V_{EB} = 0.5 V, I_C = 0, 100 kHz ≤ f ≤ 1 MHz
Switching Charateristics					
t_{on}	Turn-On Time		35	ns	V_{CC} = 30 V, I_C = 150 mA, I_B = 15 mA
t_{off}	Turn-Off Time		300	ns	V_{CC} = 30 V, I_C = 150 mA, I_{B1} = I_{B2} = 15 mA
Transistor to Transistor Isolation					
R_{t-t}	Isolation Resistance	10k		MΩ	V_{t-t} = 500 V

(2) Pulsed Test: Pulse Width = 300 µs ±50, 1-2 % Duty Cycle.