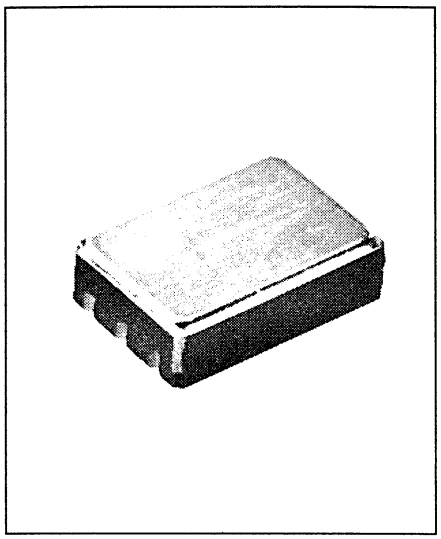
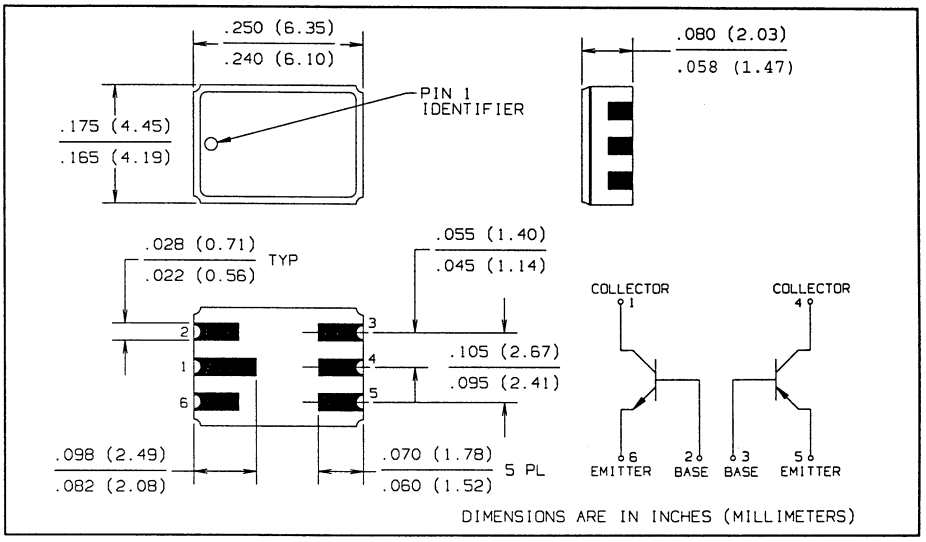
# Surface Mount NPN/PNP Complementary Transistors
# Type JANTX, JANTXV, 2N4854U






## Features

- Ceramic surface mount package
- Miniature package to minimize circuit board area required
- Hermetically sealed
- Per MIL-PRF-19500/421

## Description

The JANTX2N4854U is a hermetically sealed, ceramic surface mount, complementary transistor pair. The JANTX2N4854U consists of an NPN transistor die and PNP transistor die. This surface mount package is the most recent addition to MIL-PRF-19500/421. The "U" designator denotes the 6 terminal (C-6) leadless chip carrier package option. The miniature six 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, $P_D$ = 300 mW each transistor $T_A$ = 25° C. Refer to MIL-PRF-19500/421 for complete requirements.

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

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

| | |
|---|---|
| NPN to PNP Isolation Voltage | 500 VDC |
| Collector-Base Voltage | 60 V |
| Collector-Emitter Voltage | 40 V |
| Emitter-Base Voltage | 5.0 V |
| Collector Current-Continuous | 600 mA |
| 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 (both transistors driven equally) | 0.6 W |
| Power Dissipation @ $T_C$ = 25° C (both transistors driven equally) | 2.0 W(1) |
| Soldering Temperature (vapor phase reflow for 30 sec.) | 215° C |
| Soldering Temperature (heated Collet for 5 sec.) | 260° C |

**Notes:**
(1) Derate linearly 3.4 mW/° C above 25° C.

# Types JANTX, JANTXV, 2N4854U

**Electrical Characteristics** ($T_A$ = 25° C unless otherwise noted) See Note 3

| SYMBOL | PARAMETER | MIN | MAX | UNIT | TEST CONDITIONS |
|---|---|---|---|---|---|
| **Off Characteristics** | | | | | |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage | 60 | | V | $I_C$ = 10.0 µA, $I_E$ = 0 |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | 40 | | V | $I_C$ = 10.0 mA, $I_B$ = 0 |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | 5.0 | | V | $I_E$ = 10.0 µA, $I_C$ = 0 |
| $I_{CBO}$ | Collector-Base Cutoff Current | | 10.0 | nA | $V_{CB}$ = 50 V, $I_E$ = 0 |
| | | | 10.0 | µA | $V_{CB}$ = 50 V, $I_E$ = 0, $T_A$ = 150° C |
| $I_{EBO}$ | Emitter-Base Cutoff Current | | 10.0 | nA | $V_{EB}$ = 3.0 V, $I_C$ = 0 |
| **On Characteristics** | | | | | |
| $h_{FE}$ | DC Current Transfer Ratio | 50 | | - | $V_{CE}$ = 1 V, $I_C$ = 150 mA(2) |
| | | 35 | | - | $V_{CE}$ = 10.0 V, $I_C$ = 0.1 mA |
| | | 50 | | - | $V_{CE}$ = 10.0 V, $I_C$ = 1.0 mA |
| | | 75 | | - | $V_{CE}$ = 10.0 V, $I_C$ = 10 mA(2) |
| | | 100 | 300 | - | $V_{CE}$ = 10.0 V, $I_C$ = 150 mA(2) |
| | | 35 | | - | $V_{CE}$ = 10.0 V, $I_C$ = 300 mA(2) |
| | | 12 | | - | $V_{CE}$ = 10.0 V, $I_C$ = 10 mA, $T_A$ = -55° C(2) |
| $V_{CE(SAT)}$ | Collector-Emitter Saturation Voltage | | 0.40 | V | $I_C$ = 150 mA, $I_B$ = 15 mA(2) |
| $V_{BE(SAT)}$ | Base-Emitter Saturation Voltage | 0.8 | | V | $I_C$ = 150 mA, $I_B$ = 15 mA(2) |
| **Small-Signal Characteristics** | | | | | |
| $h_{ie}$ | Small Signal Common Emitter Input Impedance | 1.5 | 9 | kΩ | $V_{CE}$ = 10 V, $I_C$ = 1.0 mA, f = 1.0 kHz |
| $h_{oe}$ | Small Signal Common Emitter Output Admittance | | 50 | µmho | |
| $h_{fe}$ | Small Signal Current Transfer Ratio | 60 | 300 | - | |
| NF | Noise Figure | | 8 | db | f = 1.0 kHz, $R_G$ = 1.0 kΩ, $I_C$ = 0.1 mA, $V_{CE}$ = 10 V |
| $\lvert h_{fe} \rvert$ | Small Signal Current Transfer Ratio | 2.0 | 8.0 | - | $V_{CE}$ = 20 V, $I_C$ = 20 mA, f = 100 MHz |
| $C_{obo}$ | Output Capacitance | | 8.0 | pF | $V_{CB}$ = 10 V, 100 kHz ≤ f ≤ 1.0 MHz |
| **Switching Characteristics** | | | | | |
| $t_{on}$ | Turn-On Time | | 45 | 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 |

(2) Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%

(3) Polarities given are for the NPN device. Reverse polarity on limits and conditions as applicable for the PNP side.