

NPN POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/514

DEVICES

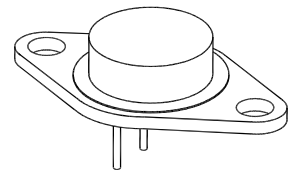
2N6274 2N6277

LEVELS

**JAN
 JANTX
 JANTXV**

ABSOLUTE MAXIMUM RATINGS ($T_C = +25^\circ\text{C}$ unless otherwise noted)

| Parameters / Test Condition | Symbol | 2N6274 | 2N6277 | Unit |
|---------------------------------------|----------------|---|--------|------------------|
| Collector-Emitter Voltage | V_{CEO} | 100 | 150 | Vdc |
| Collector-Base Voltage | V_{CBO} | 120 | 180 | Vdc |
| Emitter-Base Voltage | V_{EBO} | 6.0 | 6.0 | Vdc |
| Base Current | I_B | 20 | 20 | Adc |
| Collector Current | I_C | 50 | 50 | Adc |
| Total Power Dissipation | P_T | @ $T_C = +25^\circ\text{C}$ ⁽¹⁾ 250 @ $T_C = +100^\circ\text{C}$ ⁽²⁾ 143 | | W |
| Operating & Storage Temperature Range | T_j, T_{stg} | -65 to +200 | | $^\circ\text{C}$ |



TO-3 (TO-204AE)

THERMAL CHARACTERISTICS

| Parameters / Test Conditions | Symbol | Max | Unit |
|--------------------------------------|-----------------|-----|--------------------|
| Thermal resistance, Junction-to-Case | $R_{\theta JC}$ | 0.7 | $^\circ\text{C/W}$ |

Note: 1) Derate linearly 1.43 W/ $^\circ\text{C}$ between $T_C = +25^\circ\text{C}$ and $T_C = 200^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, unless otherwise noted)

| Parameters / Test Conditions | Symbol | Min. | Max. | Unit |
|---|---------------|------|------|-----------------|
| OFF CHARACTERISTICS ⁽¹⁾ | | | | |
| Collector-Emitter Breakdown Voltage $I_C = 50\text{mA}$ | $V_{(BR)CEO}$ | 100 | | Vdc |
| | | 150 | | |
| Collector-Emitter Cutoff Current $V_{CE} = 50\text{Vdc}$ | I_{CEO} | | 50 | μAdc |
| | | | 50 | |
| Collector-Emitter Cutoff Current $V_{CE} = 120\text{Vdc}, V_{BE} = -1.5\text{Vdc}$ | I_{CEX} | | 10 | μAdc |
| | | | 10 | |
| Collector-Base Cutoff Current $V_{CB} = 120\text{Vdc}$ | I_{CBO} | | 10 | μAdc |
| | | | 10 | |
| Emitter-Base Cutoff Current $V_{EB} = 6.0\text{Vdc}$ | I_{EBO} | | 100 | μAdc |

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, unless otherwise noted)

| Parameters / Test Conditions | Symbol | Min. | Max. | Unit |
|--|---------------|----------------|------------|------|
| ON CHARACTERISTICS ⁽²⁾ | | | | |
| Forward-Current Transfer Ratio $I_C = 1.0\text{A dc}$, $V_{CE} = 4.0\text{V dc}$ $I_C = 20\text{A dc}$, $V_{CE} = 4.0\text{V dc}$ $I_C = 50\text{A dc}$, $V_{CE} = 4.0\text{V dc}$ | h_{FE} | 50 30 10 | 120 | |
| Collector-Emitter Saturation Voltage $I_C = 20\text{A dc}$, $I_B = 2.0\text{A dc}$ $I_C = 50\text{A dc}$, $I_B = 10\text{A dc}$ | $V_{CE(sat)}$ | | 1.0 3.0 | Vdc |
| Base-Emitter Saturation Voltage $I_C = 20\text{A dc}$, $I_B = 2.0\text{A dc}$ | $V_{BE(sat)}$ | | 1.8 | Vdc |

DYNAMIC CHARACTERISTICS

| Parameters / Test Conditions | Symbol | Min. | Max. | Unit |
|--|------------|------|------|------|
| Magnitude of Common Emitter Small-Signal Short-Circuit, Forward Current Transfer Ratio $I_C = 1.0\text{A dc}$, $V_{CE} = 10\text{V dc}$, $f = 10\text{MHz}$ | $ h_{fe} $ | 3.0 | 12 | |
| Output Capacitance $V_{CB} = 10\text{V dc}$, $I_E = 0$, $f = 1.0\text{MHz}$ | C_{obo} | | 600 | pF |

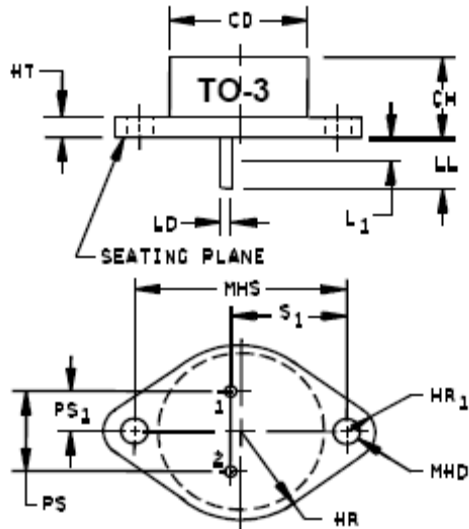
SWITCHING CHARACTERISTICS

| Parameters / Test Conditions | Symbol | Min. | Max. | Unit |
|---|-----------|------|------|---------------|
| Turn-On Time $V_{CC} = 80\text{V dc}$; $I_C = 20\text{A dc}$; $I_B = 2.0\text{A dc}$ | t_{on} | | 0.5 | μs |
| Turn-Off Time $V_{CC} = 80\text{V dc}$; $I_C = 20\text{A dc}$; $I_{B1} = -I_{B2} = 2.0\text{A dc}$ | t_{off} | | 1.05 | μs |

SAFE OPERATING AREA

| | |
|---|-----------|
| DC Tests $T_C = +25^\circ\text{C}$, 1 Cycle, $t = 1.0\text{s}$ | |
| Test 1 $V_{CE} = 5.0\text{V dc}$, $I_C = 50\text{A dc}$ | All Types |
| Test 2 $V_{CE} = 8.6\text{V dc}$, $I_C = 165\text{mA dc}$ | All Types |
| Test 3 $V_{CE} = 80\text{V dc}$, $I_C = 29\text{mA dc}$ | 2N6274 |
| Test 4 $V_{CE} = 120\text{V dc}$, $I_C = 110\text{mA dc}$ | 2N6277 |

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

PACKAGE DIMENSIONS


| Ltr | Dimensions | | | | Notes |
|-----|------------|-------|-------------|-------|---------|
| | Inches | | Millimeters | | |
| | Min | Max | Min | Max | |
| CD | | .875 | | 22.22 | 3 |
| CH | .250 | .328 | 6.35 | 8.33 | |
| HR | .495 | .525 | 12.57 | 13.34 | |
| HR1 | .131 | .188 | 3.33 | 4.78 | 6 |
| HT | .060 | .135 | 1.52 | 3.43 | |
| LD | .057 | .063 | 1.45 | 1.60 | 5, 9 |
| LL | .312 | .500 | 7.92 | 12.70 | 4, 5, 9 |
| L1 | | .050 | | 1.27 | 5, 9 |
| MHD | .151 | .161 | 3.84 | 4.09 | 7 |
| MHS | 1.177 | 1.197 | 29.90 | 30.40 | |
| PS | .420 | .440 | 10.67 | 11.18 | |
| PS1 | .205 | .225 | 5.21 | 5.72 | 5 |
| S1 | .655 | .675 | 16.64 | 17.15 | |

NOTE:

1. Dimensions are in inches.
- * 2. Millimeters are given for general information only.
3. Body contour is optional within zone defined by CD.
4. These dimensions shall be measured at points .050 inch (1.27 mm) to .055 inch (1.40 mm) below seating plane. When gauge is not used, measurement shall be made at seating plane.
5. Both terminals.
6. At both ends.
7. Two holes.
8. Terminal 1 is the emitter, terminal 2 is base. The collector shall be electrically connected to the case.
- * 9. LD applies between L1 and LL. Lead diameter shall not exceed twice LD within L1.
- * 10. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.
11. The seating plane of the header shall be flat within .001 inch (0.03 mm) concave to .004 inch (0.10 mm) convex inside a .930 inch (23.62 mm) diameter circle on the center of the header and flat within .001 inch (0.03 mm) concave to .006 inch (0.15 mm) convex overall.

* **FIGURE 1.** Physical dimensions (TO-3)

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Microchip:](#)

[2N6277](#) [2N6274](#)