

FEATURES:

- Available as “HR” (high reliability) screened per MIL-PRF-19500, JANTX level. Add “HR” suffix to base part number
- Available Non-RoHS (standard) or RoHS compliant (add PBF suffix)

MAXIMUM RATINGS

| Ratings | Symbol | 2N5879 2N5881 | 2N5880 2N5882 | Unit |
|--|-----------------|------------------|------------------|-----------|
| Collector-Emitter Voltage | V_{CEO} | 60 | 80 | V |
| Collector-Base Voltage | V_{CBO} | 60 | 80 | V |
| Emitter-Base Voltage | V_{EBO} | 5 | | V |
| Collector Current -Continuous Peak | I_C | 15 30 | | A |
| Base Current | I_B | 5.0 | | A |
| Total Power Dissipation Derate above 25°C | P_D | 160 0.915 | | W W/°C |
| Operating and Storage Temperature Range | T_J, T_{STG} | -65 to +200 | | °C |
| Thermal Resistance Junction to Case | $R_{\theta JC}$ | 1.1 | | °C/W |

ELECTRICAL CHARACTERISTICS @ 25°C unless otherwise noted

| Characteristics | | Symbol | Min | Max | Unit |
|--|--|----------------|------------------|--------------------------|------|
| Collector Emitter Sustaining Voltage $I_C = 200\text{mA}, I_B = 0$ | 2N5879, 2N5881 2N5880, 2N5882 | $V_{CEO(sus)}$ | 60 80 | - - | V |
| Collector Cutoff Current $V_{CE} = 30\text{V}, I_B = 0$ | 2N5879, 2N5881 2N5880, 2N5882 | I_{CEO} | - - | 1.0 1.0 | mA |
| Collector Cutoff Current $V_{CE} = 60\text{V}, V_{BE(off)} = 1.5\text{V}$ $V_{CE} = 80\text{V}, V_{BE(off)} = 1.5\text{V}$ $V_{CE} = 60\text{V}, V_{BE(off)} = 1.5\text{V}, T_C = 150^\circ\text{C}$ $V_{CE} = 80\text{V}, V_{BE(off)} = 1.5\text{V}, T_C = 150^\circ\text{C}$ | 2N5879, 2N5881 2N5880, 2N5882 2N5879, 2N5881 2N5880, 2N5882 | I_{CEX} | - - - - | 0.5 0.5 5.0 5.0 | mA |
| Collector Cutoff Current $V_{CE} = 60\text{V}, I_E = 1.5\text{V}$ $V_{CE} = 80\text{V}, I_E = 1.5\text{V}$ | 2N5879, 2N5881 2N5880, 2N5882 | I_{CBO} | - - | 0.5 0.5 | mA |
| Emitter Cutoff Current $V_{EB} = 5.0\text{V}, I_C = 0$ | | I_{EBO} | - | 1.0 | mA |
| DC Current Gain ⁽¹⁾ $I_C = 2\text{A}, V_{CE} = 4\text{V}$ $I_C = 6\text{A}, V_{CE} = 4\text{V}$ $I_C = 15\text{A}, V_{CE} = 4\text{V}$ | | h_{FE} | 35 20 4.0 | - 100 - | - |
| Collector-Emitter Saturation Voltage ⁽¹⁾ $I_C = 7\text{A}, I_B = 0.7\text{A}$ $I_C = 15\text{A}, I_B = 3.75\text{A}$ | | $V_{CE(sat)}$ | - - | 1.0 4.0 | V |
| Base-Emitter Saturation Voltage ⁽¹⁾ $I_C = 15\text{A}, I_B = 3.75\text{A}$ | | $V_{BE(sat)}$ | - | 2.5 | V |

ELECTRICAL CHARACTERISTICS @ 25°C unless otherwise noted

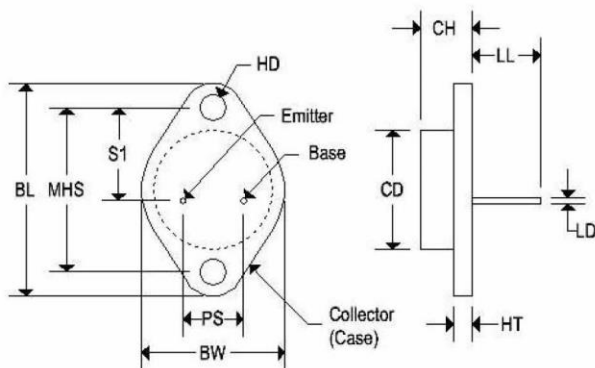
| Characteristics | Symbol | Min | Max | Unit |
|--|--|-----|-----|---------|
| Base-Emitter On-Voltage $V_{CE} = 4.0V, I_C = 6.0A$ | $V_{BE(ON)}$ | - | 1.5 | V |
| Current Gain – Bandwidth Product⁽²⁾ $I_C = 1.0A, V_{CE} = 10V, f_{test} = 1.0MHz$ | f_T | 4.0 | - | MHz |
| Output Capacitance $V_{CB} = 10V, I_E = 0, f = 100kHz$ | C_{ob} | - | 600 | Pf |
| 2N5879, 2N5881 2N5880, 2N5882 | | - | 400 | |
| Small Signal Current Gain $I_C = 2A, V_{CE} = 4.0V, f = 1KHz$ | h_{fe} | 20 | - | - |
| Rise Time | $V_{CC} = 30V, I_C = 6.0A, I_{B1} = I_{B2} = 0.6A$ | - | 0.7 | μs |
| Storage Time | | | 1.0 | μs |
| Fall Time | | | 0.8 | μs |

Note 1: Pulse width = 350 μs , duty cycle ≤ 0.02

Note 2: $f_T = |h_{fe}| \cdot f_{test}$

MECHANICAL CHARACTERISTICS

| | |
|---------|---------------|
| Case | TO-3 |
| Marking | Alpha-numeric |
| Pin out | See below |



| | TO-3 | | | |
|-----|-----------|-------|-------------|--------|
| | Inches | | Millimeters | |
| | Min | Max | Min | Max |
| CD | - | 0.875 | - | 22.220 |
| CH | 0.250 | 0.380 | 6.860 | 9.650 |
| HT | 0.060 | 0.135 | 1.520 | 3.430 |
| BW | - | 1.050 | - | 26.670 |
| HD | 0.131 | 0.188 | 3.330 | 4.780 |
| LD | 0.038 | 0.043 | 0.970 | 1.090 |
| LL | 0.312 | 0.500 | 7.920 | 12.700 |
| BL | 1.550 REF | | 39.370 REF | |
| MHS | 1.177 | 1.197 | 29.900 | 30.400 |
| PS | 0.420 | 0.440 | 10.670 | 11.180 |
| S1 | 0.655 | 0.675 | 16.640 | 17.150 |

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and engineering services since 1977

2N5879-2N5880 – PNP 2N5881-2N5882 – NPN

COMPLEMENTARY SILICON POWER TRANSISTORS

FIGURE 1 – POWER DERATING

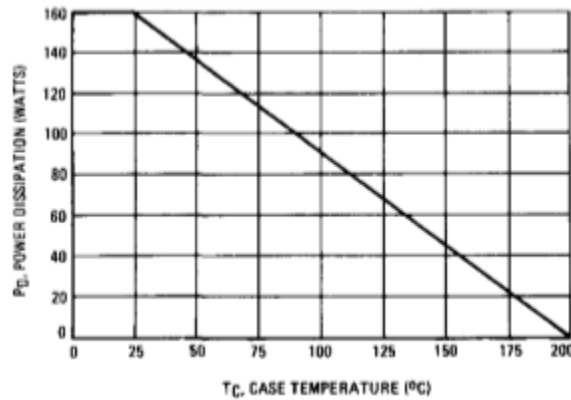


FIGURE 2 – SWITCHING TIMES TEST CIRCUIT

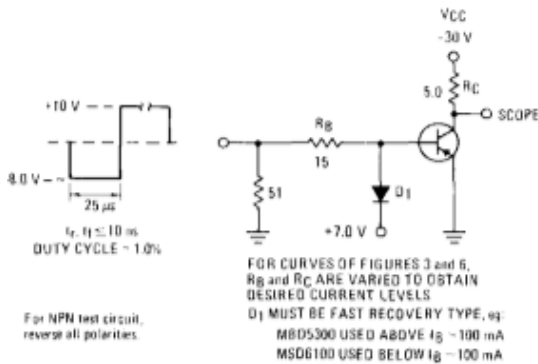


FIGURE 3 – TURN-ON TIME

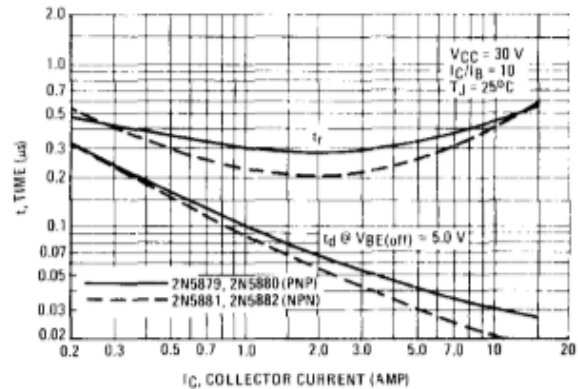


FIGURE 4 – THERMAL RESPONSE

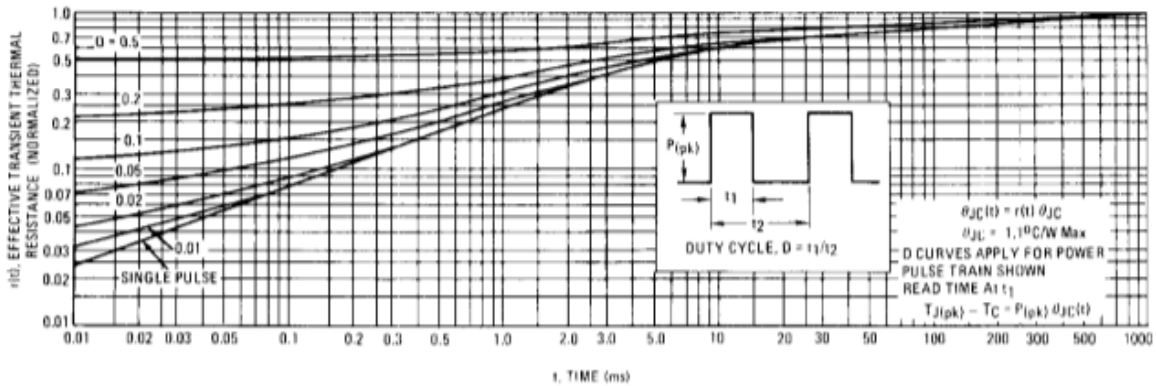


FIGURE 5 – ACTIVE-REGION SAFE OPERATING AREA

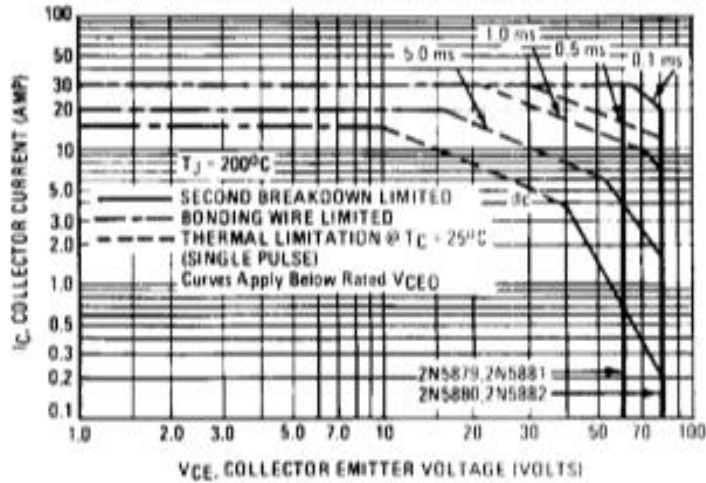


FIGURE 6 – TURN-OFF TIME

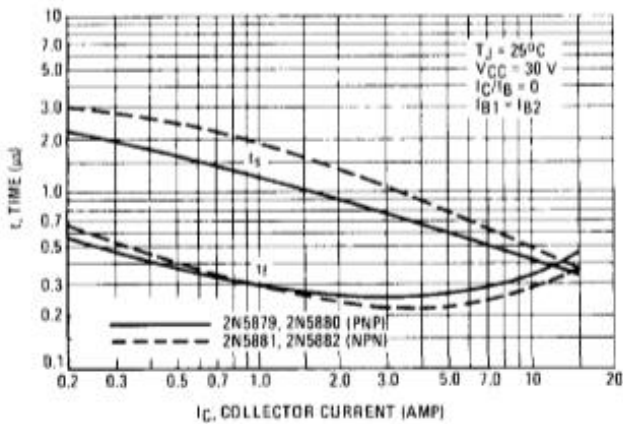
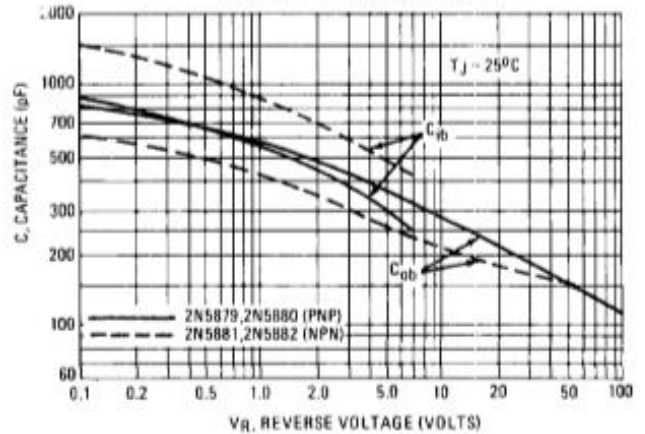


FIGURE 7 – CAPACITANCE



PNP
2N5879, 2N5880

NPN
2N5881, 2N5882

FIGURE 8 – DC CURRENT GAIN

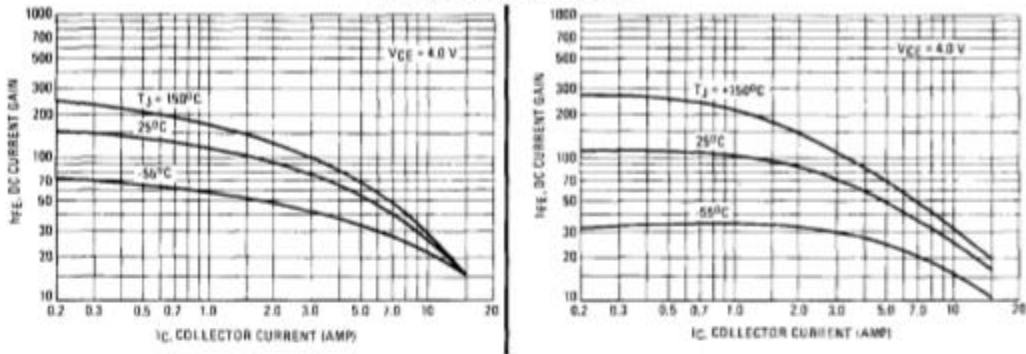


FIGURE 9 – COLLECTOR SATURATION REGION

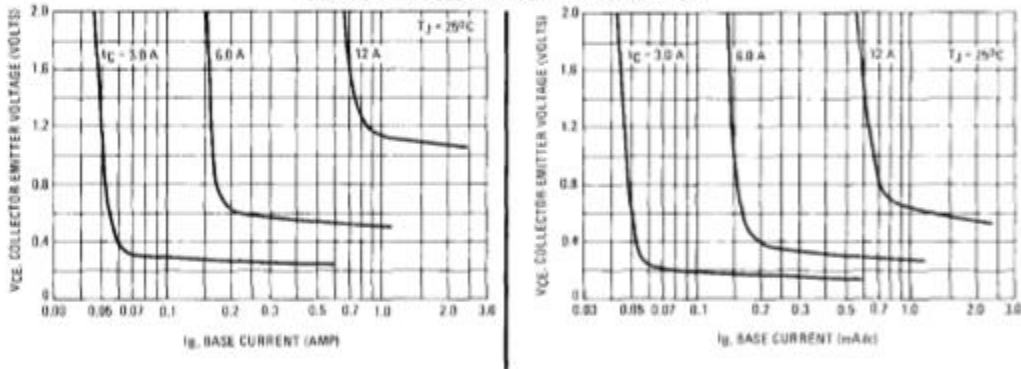


FIGURE 10 – "ON" VOLTAGES

