

Silicon NPN Darlington Transistor

MJ1000

Power Linear and Switching

60V / 8A

DATASHEET

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OEM –SGS Ates

Source: SGS Ates Databook 1977



EPITAXIAL-BASE NPN/PNP

COMPLEMENTARY POWER DARLINGTONS

The MJ 900, MJ 901, MJ 1000 and MJ 1001 are silicon epitaxial-base transistors in monolithic Darlington configuration, and are mounted in Jedec TO-3 metal case. They are intended for use in power linear and switching applications. The PNP types are the MJ 900 and MJ 901 and their complementary NPN types are the MJ 1000 and MJ 1001 respectively.

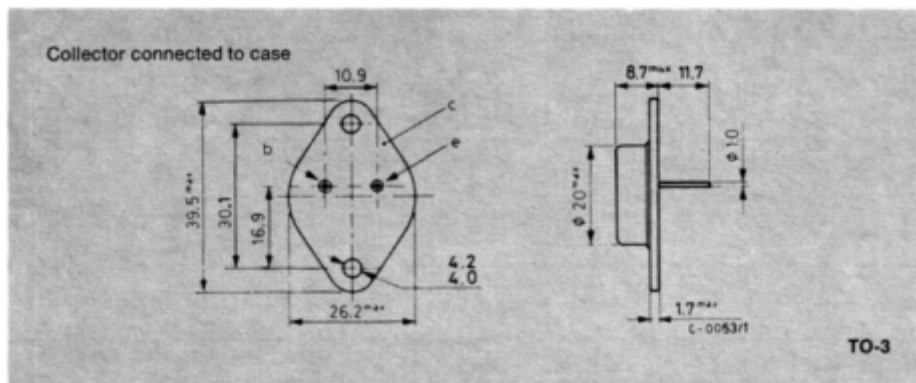
ABSOLUTE MAXIMUM RATINGS

| | | PNP* | |
|-----------|---|--------|---------------|
| | | MJ 900 | MJ 901 |
| | | MJ1000 | MJ1001 |
| V_{CBO} | Collector-base voltage ($I_E = 0$) | 60V | 80V |
| V_{CEO} | Collector-emitter voltage ($I_B = 0$) | 60V | 80V |
| V_{EBO} | Emitter-base voltage ($I_C = 0$) | | 5V |
| I_C | Collector current | | 8A |
| I_B | Base current | | 0.1A |
| P_{tot} | Total power dissipation at $T_{case} \leq 25^\circ C$ | | 90W |
| T_{stg} | Storage temperature | | -65 to 200 °C |
| T_j | Junction temperature | | 200 °C |

* For PNP types voltage and current values are negative

MECHANICAL DATA

Dimensions in mm





THERMAL DATA

| | | | | |
|------------------|----------------------------------|-----|------|------|
| $R_{th\ j-case}$ | Thermal resistance junction-case | max | 1.94 | °C/W |
|------------------|----------------------------------|-----|------|------|

ELECTRICAL CHARACTERISTICS ° ($T_{case} = 25^{\circ}C$ unless otherwise specified)

| Parameter | Test conditions | Min. | Typ. | Max. | Unit |
|---|---|------|------|------|------|
| I_{CER} Collector cutoff current ($R_{BE} = 1k\Omega$) | for MJ900 and MJ1000 $V_{CE} = 60\ V$ | | | 1 | mA |
| | for MJ901 and MJ1001 $V_{CE} = 80\ V$ | | | 1 | mA |
| | $T_{case} = 150^{\circ}C$ for MJ900 and MJ1000 $V_{CE} = 60\ V$ | | | 5 | mA |
| | for MJ901 and MJ1001 $V_{CE} = 80\ V$ | | | 5 | mA |
| I_{CEO} Collector cutoff current ($I_B = 0$) | for MJ900 and MJ1000 $V_{CE} = 30\ V$ | | | 0.5 | mA |
| | for MJ901 and MJ1001 $V_{CE} = 40\ V$ | | | 0.5 | mA |
| I_{EBO} Emitter cutoff current ($I_C = 0$) | $V_{EB} = 5\ V$ | | | 2 | mA |
| $V_{CEO(sus)}$ * Collector-emitter sustaining voltage ($I_B = 0$) | $I_C = 100mA$ for MJ900 and MJ1000 for MJ901 and MJ1001 | 60 | | | V |
| | | 80 | | | V |
| $V_{CE(sat)}$ * Collector-emitter saturation voltage | $I_C = 3\ A$ $I_B = 12mA$ $I_C = 8\ A$ $I_B = 40mA$ | | | 2 | V |
| | | | | 4 | V |
| V_{BE} * Base-emitter voltage | $I_C = 3\ A$ $V_{CE} = 3\ V$ | | | 2.5 | V |
| h_{FE} * DC current gain | $I_C = 3\ A$ $V_{CE} = 3\ V$ $I_C = 4\ A$ $V_{CE} = 3\ V$ | 1000 | | | — |
| | | 750 | | | — |

* Pulsed: pulse duration = 300 μs , duty cycle = 1.5%

° For PNP types current and voltage values are negative

For characteristic curves see the 2N 6053/55 series