

## COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- SGS-THOMSON PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES
- MONOLITHIC DARLINGTON CONFIGURATION
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE

### APPLICATIONS

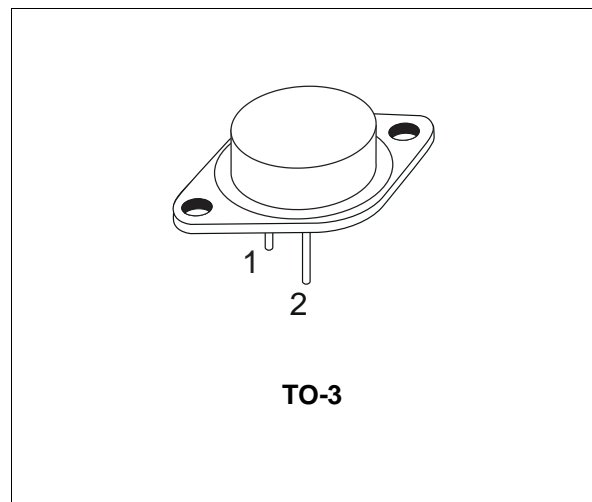
- GENERAL PURPOSE SWITCHING
- GENERAL PURPOSE AMPLIFIERS

### DESCRIPTION

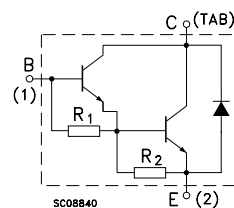
The MJ4035 is silicon epitaxial-base NPN power transistor in monolithic Darlington configuration mounted in Jedec TO-3 metal case.

It is intended for use in general purpose and amplifier applications.

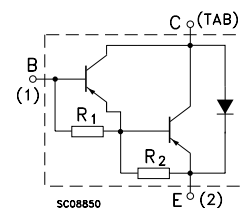
The complementary PNP type is the MJ4032.



### INTERNAL SCHEMATIC DIAGRAM



R<sub>1</sub> Typ. = 6 K $\Omega$



R<sub>2</sub> Typ. = 55  $\Omega$

### ABSOLUTE MAXIMUM RATINGS

| Symbol           | Parameter                                      | Value |            | Unit |
|------------------|--|-------|------------|------|
|                  |  | PNP   | MJ4032     |      |
|                  |  | NPN   | MJ4035     |      |
| V <sub>CBO</sub> | Collector-Base Voltage (I <sub>E</sub> = 0)    |       | 100        | V    |
| V <sub>CEO</sub> | Collector-Emitter Voltage (I <sub>B</sub> = 0) |       | 100        | V    |
| V <sub>EBO</sub> | Emitter-Base Voltage (I <sub>C</sub> = 0)      |       | 5          | V    |
| I <sub>C</sub>   | Collector Current                              |       | 16         | A    |
| I <sub>B</sub>   | Base Current                                   |       | 0.5        | A    |
| P <sub>tot</sub> | Total Dissipation at T <sub>c</sub> ≤ 25 °C    |       | 150        | W    |
| T <sub>stg</sub> | Storage Temperature                            |       | -65 to 200 | °C   |
| T <sub>j</sub>   | Max. Operating Junction Temperature            |       | 200        | °C   |

For PNP types voltage and current values are negative.

## MJ4032 / MJ4035

### THERMAL DATA

|                       |                                  |     |      |      |
|-----------------------|----------------------------------|-----|------|------|
| R <sub>thj-case</sub> | Thermal Resistance Junction-case | Max | 1.17 | °C/W |
|-----------------------|----------------------------------|-----|------|------|

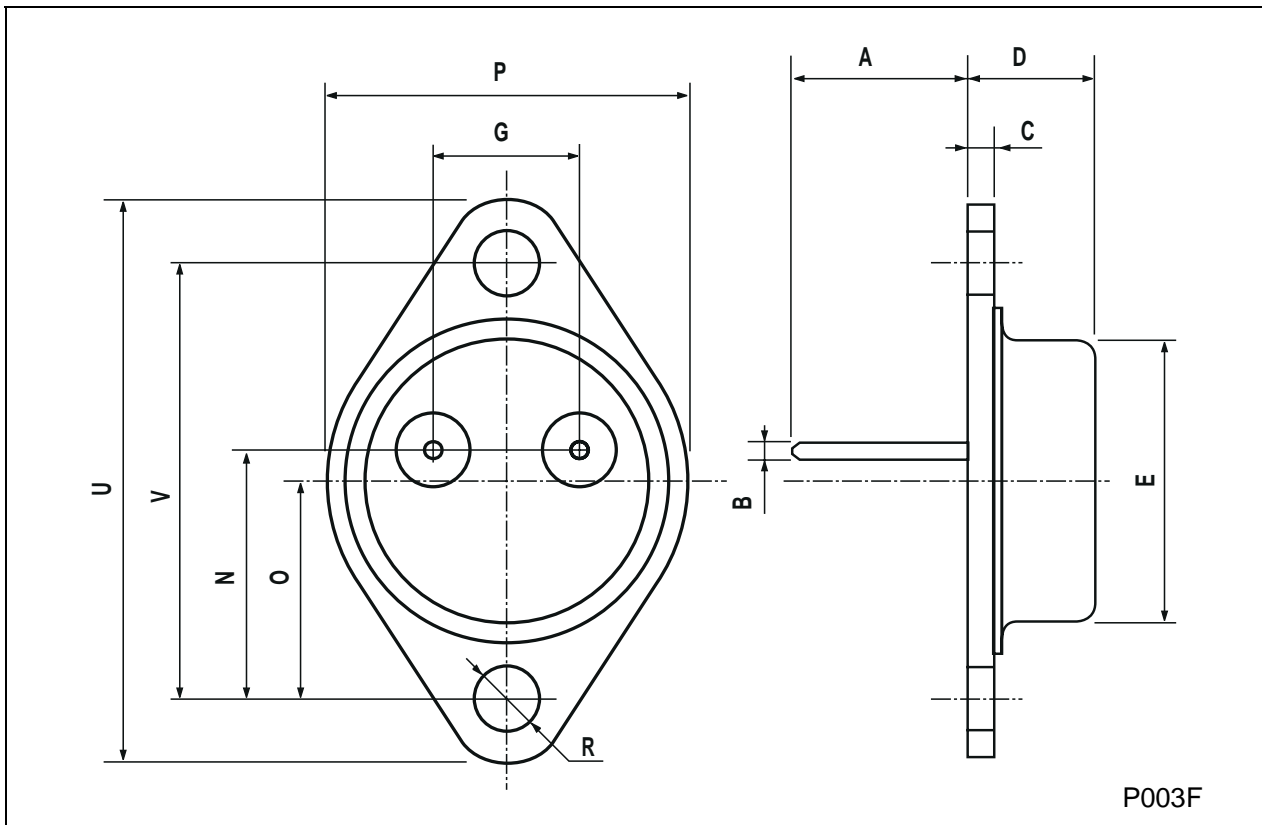
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

| Symbol                 | Parameter   | Test Conditions  | Min. | Typ. | Max.     | Unit     |
|------------------------|---|--|------|------|----------|----------|
| I <sub>CER</sub>       | Collector Cut-off Current (R <sub>BE</sub> = 1KΩ) | V <sub>CE</sub> = 100 V<br>V <sub>CE</sub> = 100 V T <sub>C</sub> = 150 °C                   |      |      | 1<br>5   | mA<br>mA |
| I <sub>CEO</sub>       | Collector Cut-off Current (I <sub>B</sub> = 0)    | V <sub>CE</sub> = 50 V   |      |      | 3        | mA       |
| I <sub>EBO</sub>       | Emitter Cut-off Current (I <sub>C</sub> = 0)      | V <sub>EB</sub> = 5 V  |      |      | 5        | mA       |
| V <sub>(BR)CEO</sub> * | Collector-Emitter Breakdown Voltage               | I <sub>C</sub> = 100 mA  | 100  |      |          | V        |
| V <sub>CE(sat)</sub> * | Collector-Emitter Saturation Voltage              | I <sub>C</sub> = 10 A I <sub>B</sub> = 40 mA<br>I <sub>C</sub> = 16 A I <sub>B</sub> = 80 mA |      |      | 2.5<br>4 | V<br>V   |
| V <sub>BE</sub> *      | Base-Emitter Voltage                              | I <sub>C</sub> = 10 A V <sub>CE</sub> = 3 V  |      |      | 3        | V        |
| h <sub>FE</sub> *      | DC Current Gain                                   | I <sub>C</sub> = 10 A V <sub>CE</sub> = 3 V  | 1000 |      |          |          |

\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %  
For PNP type voltage and current values are negative.

**TO-3 MECHANICAL DATA**

| DIM. | mm    |      |       | inch  |      |       |
|------|-------|------|-------|-------|------|-------|
|      | MIN.  | TYP. | MAX.  | MIN.  | TYP. | MAX.  |
| A    | 11.00 |      | 13.10 | 0.433 |      | 0.516 |
| B    | 0.97  |      | 1.15  | 0.038 |      | 0.045 |
| C    | 1.50  |      | 1.65  | 0.059 |      | 0.065 |
| D    | 8.32  |      | 8.92  | 0.327 |      | 0.351 |
| E    | 19.00 |      | 20.00 | 0.748 |      | 0.787 |
| G    | 10.70 |      | 11.10 | 0.421 |      | 0.437 |
| N    | 16.50 |      | 17.20 | 0.649 |      | 0.677 |
| P    | 25.00 |      | 26.00 | 0.984 |      | 1.023 |
| R    | 4.00  |      | 4.09  | 0.157 |      | 0.161 |
| U    | 38.50 |      | 39.30 | 1.515 |      | 1.547 |
| V    | 30.00 |      | 30.30 | 1.187 |      | 1.193 |



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