

## SILICON NPN SWITCHING TRANSISTORS

- SGS-THOMSON PREFERRED SALESTYPES
- NPN TRANSISTOR
- VERY HIGH SWITCHING SPEED

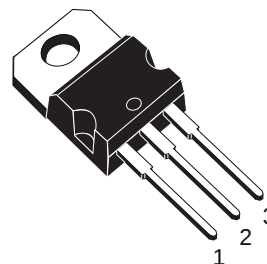
### APPLICATIONS:

- HORIZONTAL DEFLECTION FOR MONOCHROME TV

### DESCRIPTION

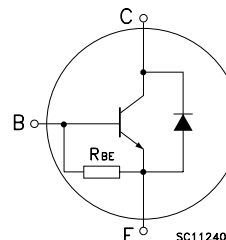
The BU406D and BU407D are silicon planar epitaxial NPN transistors with integrated damper diode, in Jedec TO-220 plastic package. They are fast switching, devices for use in horizontal deflection output stages of MTV receivers with 110° CRT.

The BU406D is primarily intended for large screen, while the BU407D is for medium and small screens



TO-220

### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

| Symbol    | Parameter                                      | Value      |        | Unit       |
|-----------|------------------------------------------------|------------|--------|------------|
|           |                                                | BU406D     | BU407D |            |
| $V_{CBO}$ | Collector-Base Voltage ( $I_E = 0$ )           | 400        | 330    | V          |
| $V_{CEV}$ | Collector-Emitter Voltage ( $V_{BE} = -1.5V$ ) | 400        | 330    | V          |
| $V_{EBO}$ | Emitter-Base Voltage ( $I_C = 0$ )             | 6          |        | V          |
| $I_C$     | Collector Current                              | 7          |        | A          |
| $I_{CM}$  | Collector Peak Current (repetitive)            | 10         |        | A          |
| $I_{CM}$  | Collector Peak Current ( $t_p = 10ms$ )        | 15         |        | A          |
| $I_B$     | Base Current                                   | 4          |        | A          |
| $P_{tot}$ | Total Dissipation at $T_c = 25^\circ C$        | 60         |        | W          |
| $T_{stg}$ | Storage Temperature                            | -65 to 150 |        | $^\circ C$ |
| $T_j$     | Max. Operating Junction Temperature            | 150        |        | $^\circ C$ |

## BU406D/BU407D

### THERMAL DATA

|                       |                                     |     |      |      |
|-----------------------|-------------------------------------|-----|------|------|
| R <sub>thj-case</sub> | Thermal Resistance Junction-case    | Max | 2.08 | °C/W |
| R <sub>thj-amb</sub>  | Thermal Resistance Junction-ambient | Max | 70   | °C/W |

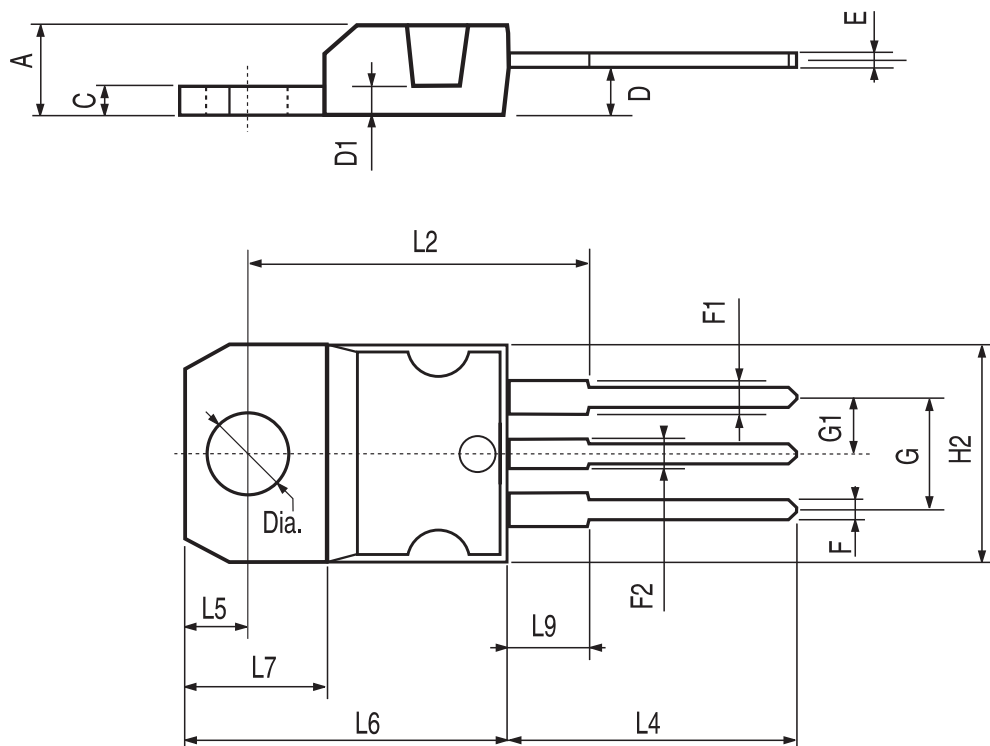
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

| Symbol                | Parameter                                            | Test Conditions                                                                              |                            | Min. | Typ. | Max.     | Unit     |
|-----------------------|------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------|------|------|----------|----------|
| I <sub>CEV</sub>      | Collector Cut-off Current (V <sub>BE</sub> = - 1.5V) | for <b>BU406D</b><br>V <sub>CE</sub> = 400 V<br>for <b>BU407D</b><br>V <sub>CE</sub> = 330 V |                            |      |      | 15<br>15 | mA<br>mA |
| I <sub>EBO</sub>      | Emitter Cut-off Current (I <sub>C</sub> = 0)         | V <sub>EB</sub> = 6 V                                                                        |                            |      |      | 400      | mA       |
| V <sub>CE(sat)*</sub> | Collector-emitter Saturation Voltage                 | I <sub>C</sub> = 5 A                                                                         | I <sub>B</sub> = 0.65 A    |      |      | 1        | V        |
| V <sub>BE(sat)*</sub> | Base-emitter Saturation Voltage                      | I <sub>C</sub> = 5 A                                                                         | I <sub>B</sub> = 0.65 A    |      |      | 1.3      | V        |
| f <sub>T</sub>        | Transition-Frequency                                 | I <sub>C</sub> = 0.5 A                                                                       | V <sub>CE</sub> = 10V      | 10   |      |          | MHz      |
| t <sub>off**</sub>    | Turn-off Time                                        | I <sub>C</sub> = 5 A                                                                         | I <sub>Bend</sub> = 0.65 A |      |      | 0.75     | µs       |
| I <sub>S/b</sub>      | Second Breakdown Collector Current                   | V <sub>CE</sub> = 40 V                                                                       | t = 10 ms                  |      | 4    |          | A        |
| V <sub>F</sub>        | Diode Forward Voltage                                | I <sub>F</sub> = 5 A                                                                         |                            |      |      | 1.5      | A        |

\* Pulsed: Pulse duration = 300 µs, duty cycle 1.5 %.

## TO-220 MECHANICAL DATA

| DIM. | mm    |      |       | inch  |       |       |
|------|-------|------|-------|-------|-------|-------|
|      | MIN.  | TYP. | MAX.  | MIN.  | TYP.  | MAX.  |
| A    | 4.40  |      | 4.60  | 0.173 |       | 0.181 |
| C    | 1.23  |      | 1.32  | 0.048 |       | 0.051 |
| D    | 2.40  |      | 2.72  | 0.094 |       | 0.107 |
| D1   |       | 1.27 |       |       | 0.050 |       |
| E    | 0.49  |      | 0.70  | 0.019 |       | 0.027 |
| F    | 0.61  |      | 0.88  | 0.024 |       | 0.034 |
| F1   | 1.14  |      | 1.70  | 0.044 |       | 0.067 |
| F2   | 1.14  |      | 1.70  | 0.044 |       | 0.067 |
| G    | 4.95  |      | 5.15  | 0.194 |       | 0.203 |
| G1   | 2.4   |      | 2.7   | 0.094 |       | 0.106 |
| H2   | 10.0  |      | 10.40 | 0.393 |       | 0.409 |
| L2   |       | 16.4 |       |       | 0.645 |       |
| L4   | 13.0  |      | 14.0  | 0.511 |       | 0.551 |
| L5   | 2.65  |      | 2.95  | 0.104 |       | 0.116 |
| L6   | 15.25 |      | 15.75 | 0.600 |       | 0.620 |
| L7   | 6.2   |      | 6.6   | 0.244 |       | 0.260 |
| L9   | 3.5   |      | 3.93  | 0.137 |       | 0.154 |
| DIA. | 3.75  |      | 3.85  | 0.147 |       | 0.151 |



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