



SGS120 SGS125
SGS121 SGS126
SGS122 SGS127

T-33-31

EPITAXIAL-BASE NPN/PNP

POWER DARLINGTONS

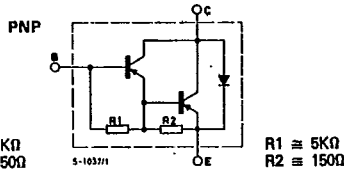
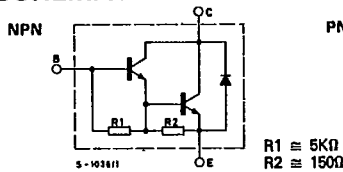
The SGS120, SGS121 and SGS122 are silicon epitaxial-base NPN transistors in monolithic Darlington configuration in SOT-82 plastic package intended for use in power linear and switching applications.

The complementary PNP type are the SGS125, SGS126 and SGS127 respectively.

| ABSOLUTE MAXIMUM RATINGS | | NPN PNP | SGS120 SGS125 | SGS121 SGS126 | SGS122 SGS127 |
|--------------------------|--|------------|------------------|------------------|------------------|
| V_{CBO} | Collector-base voltage ($I_E=0$) | | 60V | 80V | 100V |
| V_{CEO} | Collector-emitter voltage ($I_B=0$) | | 60V | 80V | 100V |
| V_{EBO} | Emitter-base voltage ($I_C=0$) | | | 5V | |
| I_C | Collector current | | | 5A | |
| I_{CM} | Collector peak current | | | 8A | |
| I_B | Base current | | | 0.1A | |
| P_{tot} | Total power dissipation at $T_{case} \leq 25^\circ C$ $T_{amb} \leq 25^\circ C$ | | | 65W | |
| T_{stg} | Storage temperature | | | -65 to 150°C | |
| T_j | Junction temperature | | | 150°C | |

For PNP types voltage and current values are negative.

INTERNAL SCHEMATIC DIAGRAMS

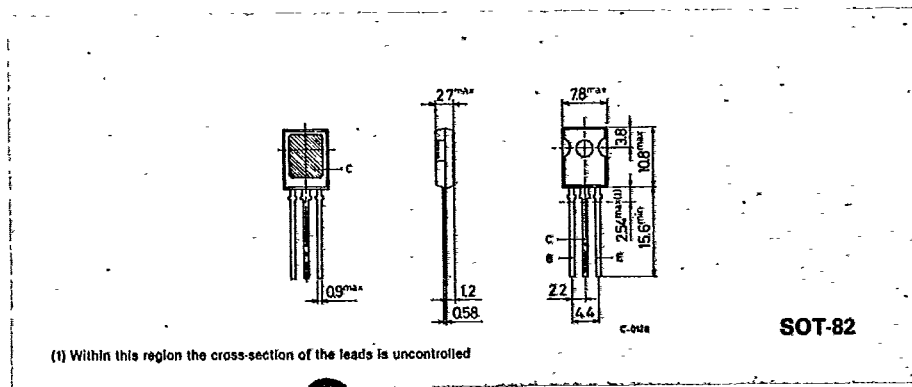


R1 \cong 5K Ω
R2 \cong 150 Ω

R1 \cong 5K Ω
R2 \cong 150 Ω

MECHANICAL DATA

Dimensions in mm





THERMAL DATA

| | | | | |
|------------------|-------------------------------------|-----|------|------|
| $R_{th\ j-case}$ | Thermal resistance junction-case | max | 1.92 | °C/W |
| $R_{th\ j-amb}$ | Thermal resistance junction-ambient | max | 62.5 | °C/W |

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

| Parameter | Test conditions | Min. | Typ. | Max. | Unit |
|-----------------|--|------|------|------|------|
| I_{CEO} | Collector cutoff current ($I_B = 0$) | | | 0.5 | mA |
| I_{CBO} | Collector cutoff current ($I_E = 0$) | | | 0.2 | mA |
| I_{EBO} | Emitter cutoff current ($I_C = 0$) | | | 2 | mA |
| $V_{CE(sus)}^*$ | Collector-emitter sustaining voltage ($I_B = 0$) | | | | V |
| | $I_C = 30mA$ for SGS 120/125 | 60 | | | V |
| | for SGS 121/126 | 80 | | | V |
| | for SGS 122/127 | 100 | | | V |
| $V_{CE(sat)}^*$ | Collector-emitter saturation voltage | | | | V |
| | $I_C = 3A$ $I_B = 12mA$ | | | 2 | V |
| | $I_C = 5A$ $I_B = 20mA$ | | | 4 | V |
| V_{BE}^* | Base-emitter voltage | | | 2.5 | V |
| | $I_C = 3A$ $V_{CE} = 3V$ | | | | |
| h_{FE}^* | DC current gain | | | | — |
| | $I_C = 0.5A$ $V_{CE} = 3V$ | 1000 | | | — |
| | $I_C = 3A$ $V_{CE} = 3V$ | 1000 | | | — |

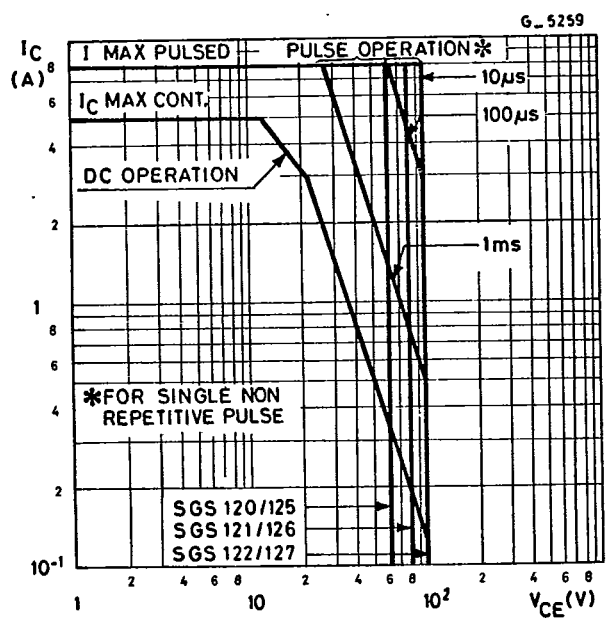
* Pulsed: pulse duration = 300 μ s, duty cycle \leq 2%.

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Safe operating areas



For the others characteristics curves see BDX33/BDX34 series