

Silicon NPN Transistor

BD537

Medium Power Linear and Switching

80V / 8A

DATASHEET

OEM –SGS Ates

Source: SGS Ates Databook 1977

EPITAXIAL-BASE NPN

BD 533
BD 535
BD 537

MEDIUM POWER LINEAR AND SWITCHING APPLICATIONS

The BD 533, BD 535 and BD 537 are silicon epitaxial-base NPN power transistors in Jedec TO-220 plastic package, intended for use in medium power linear and switching applications.

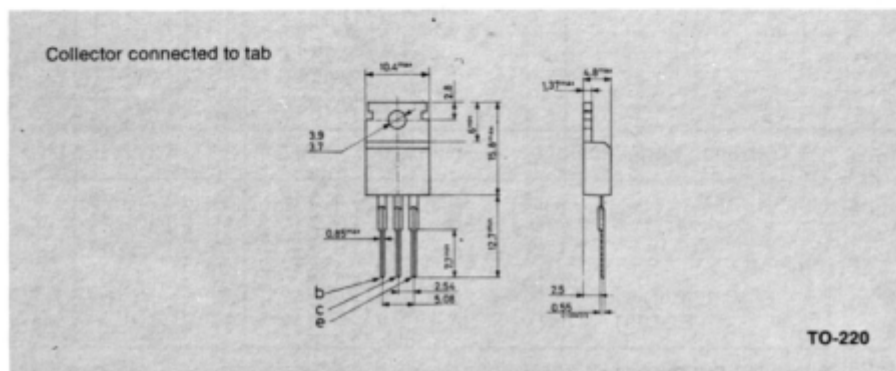
The complementary PNP types are the BD 534, BD 536 and BD 538 respectively.

ABSOLUTE MAXIMUM RATINGS

| | | BD 533 | BD 535 | BD 537 |
|------------|-------------------------------------------------------------|--------|--------------|--------|
| V_{CBO} | Collector-base voltage ($I_E = 0$) | 45V | 60V | 80V |
| V_{CES} | Collector-emitter voltage ($V_{BE} = 0$) | 45V | 60V | 80V |
| V_{CEO} | Collector-emitter voltage ($I_B = 0$) | 45V | 60V | 80V |
| V_{EBO} | Emitter-base voltage ($I_C = 0$) | | 5V | |
| I_C, I_E | Collector and emitter current | | 8A | |
| I_B | Base current | | 1A | |
| P_{tot} | Total power dissipation at $T_{case} \leq 25^\circ\text{C}$ | | 50 W | |
| T_{stg} | Storage temperature | | -65 to 150°C | |
| T_j | Junction temperature | | 150°C | |

MECHANICAL DATA

Dimensions in mm



BD 533
BD 535
BD 537

THERMAL DATA

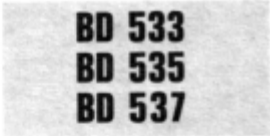
| | | | | |
|------------------|-------------------------------------|-----|-----|------|
| $R_{th\ j-case}$ | Thermal resistance junction-case | max | 2.5 | °C/W |
| $R_{th\ j-amb}$ | Thermal resistance junction-ambient | max | 70 | °C/W |

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

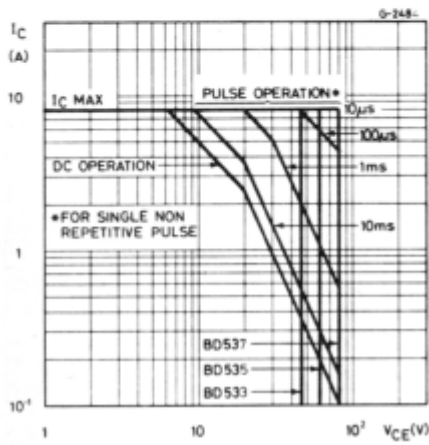
| Parameter | Test conditions | Min. | Typ. | Max. | Unit |
|--------------------|----------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------------------------------|
| I_{CBO} | Collector cutoff current ($I_E = 0$) | for BD533 for BD535 for BD537 | $V_{CB} = 45V$ $V_{CB} = 60V$ $V_{CB} = 80V$ | 100 100 100 | μA μA μA |
| I_{CES} | Collector cutoff current ($V_{BE} = 0$) | for BD533 for BD535 for BD537 | $V_{CE} = 45V$ $V_{CE} = 60V$ $V_{CE} = 80V$ | 100 100 100 | μA μA μA |
| I_{EBO} | Emitter cutoff current ($I_C = 0$) | $V_{EB} = 5V$ | | 1 | mA |
| $V_{CEO(sus)}$ * | Collector-emitter sustaining voltage ($I_B = 0$) | $I_C = 100mA$ | for BD533 for BD535 for BD537 | 45 60 80 | V V V |
| $V_{CE(sat)}$ * | Collector-emitter saturation voltage | $I_C = 2A$ $I_C = 6A$ | $I_B = 0.2A$ $I_B = 0.6A$ | 0.8 0.8 | V V |
| V_{BE} * | Base-emitter voltage | $I_C = 2A$ | $V_{CE} = 2V$ | 1.5 | V |
| h_{FE} * | DC current gain | $I_C = 10mA$ $I_C = 500mA$ $I_C = 2A$ | $V_{CE} = 5V$ for BD533 for BD535 for BD537 $V_{CE} = 2V$ $V_{CE} = 2V$ for BD533 for BD535 for BD537 | 20 20 15 40 25 25 15 | — — — — — — — |
| f_T | Transition frequency | $I_C = 500mA$ | $V_{CE} = 1V$ | 3 12 | MHz |
| h_{FE} groups**: | J K L (only for BD533) | $I_C = 2A$ $I_C = 3A$ $I_C = 2A$ $I_C = 3A$ $I_C = 2A$ $I_C = 3A$ | $V_{CE} = 2V$ $V_{CE} = 2V$ $V_{CE} = 2V$ $V_{CE} = 2V$ $V_{CE} = 2V$ $V_{CE} = 2V$ | 30 15 40 20 60 30 | 75 — 100 — 150 — |

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

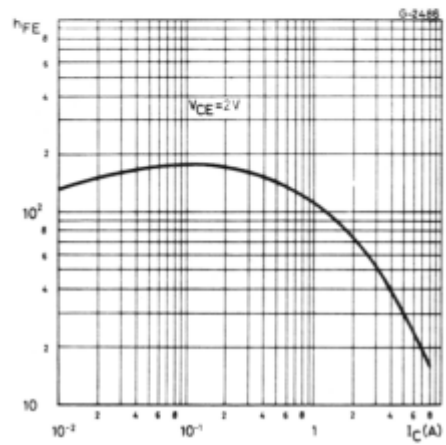
** Only on request



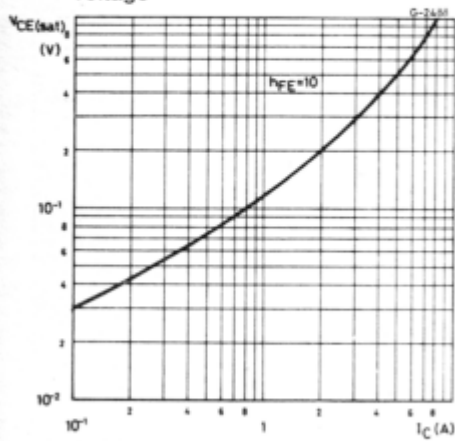
Safe operating areas



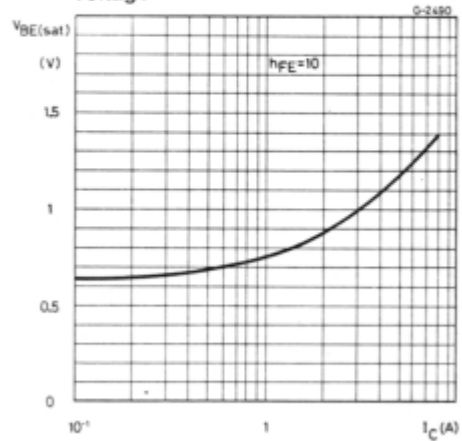
DC current gain



Collector-emitter saturation voltage

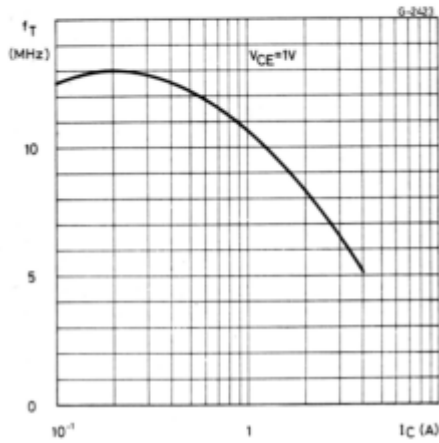


Base-emitter saturation voltage

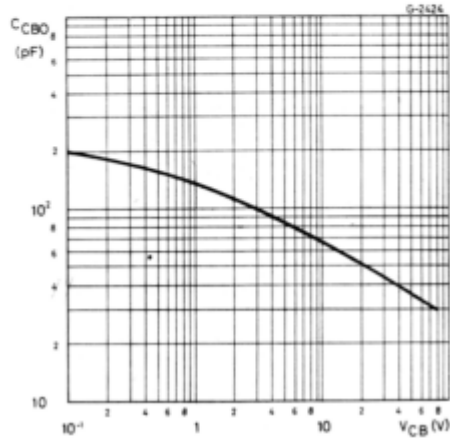


BD 533
BD 535
BD 537

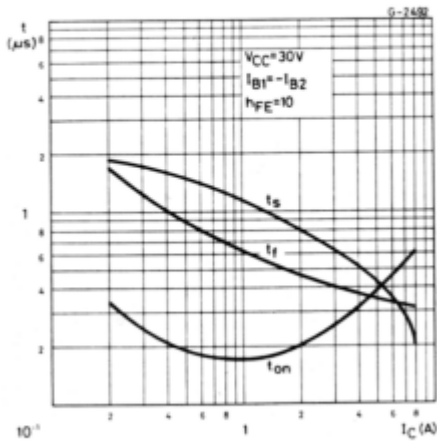
Transition frequency



Collector-base capacitance



Saturated switching characteristics



Power rating chart

