

3875081 G E SOLID STATE
 Pro Electron Power Transistors

01E 17521 D T-33-11
 T-33-19

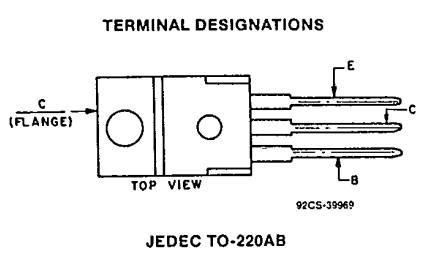
BD201, BD202, BD203, BD204

File Number **1282**

**Epitaxial-Base, Silicon
 N-P-N and P-N-P
 VERSAWATT Transistors**

General-Purpose Medium-Power Types for
 Switching and Amplifier Applications

- Features:
- Low saturation voltages
 - Complementary n-p-n and p-n-p types
 - Maximum safe-area-of-operation curves



The RCA-BD201 and BD203 n-p-n transistors and their complementary p-n-p types, BD202 and BD204 respectively, are epitaxial-base transistors intended for a wide variety of medium-power switching and amplifier applications, such as series and shunt regulators, and driver and output stages of high-fidelity amplifier.

All types utilize the JEDEC TO-220AB (VERSAWATT) plastic package.

MAXIMUM RATINGS, Absolute-Maximum Values:

| | N-P-N | BD201 | BD203 | |
|-----------------------------|-------|---|--------|--------------|
| | P-N-P | BD202■ | BD204■ | |
| V_{CE0} | | 60 | 80 | V |
| $V_{CE0}(SUS)$ | | 45 | 60 | V |
| V_{EBO} | | 5 | | V |
| I_C | | 8 | | A |
| I_B | | 3 | | A |
| P_T | | 60 | | W |
| $T_C \leq 25^\circ C$ | | Derate linearly 0.48 | | $W/^\circ C$ |
| $T_C > 25^\circ C$ | | -65 to 150 | | $^\circ C$ |
| T_{stg} T_J | | 235 | | $^\circ C$ |
| T_L | | At distances $\geq 1/8$ in. (3.17 mm) from case for 10 s max. | | |

■ For p-n-p devices, voltage and current values are negative.

BD201, BD202, BD203, BD204

ELECTRICAL CHARACTERISTICS, at Case Temperature (T_C)=25°C
Unless Otherwise Specified

T-33-19

| CHARACTERISTIC | TEST CONDITIONS ^a | | | | | LIMITS | | | | UNITS |
|---|------------------------------|-----------------|-----------------|------------------|----------------|-----------------------------|------|-----------------------------|------|-------|
| | VOLTAGE V dc | | | CURRENT A dc | | BD201 BD202 ^b | | BD203 BD204 ^b | | |
| | V _{CB} | V _{CE} | V _{BE} | I _C | I _B | Min. | Max. | Min. | Max. | |
| I _{CBO} T _J =150°C | 40 | | | | | — | 1 | — | 1 | mA |
| I _{CEO} | 40 | | | | | — | 1 | — | 1 | |
| I _{EBO} | | | -5 | | | — | 5 | — | 5 | |
| V _{CEO(sus)} ^a | | | | 0.2 ^b | | 45 | — | 60 | — | V |
| h _{FE} | | 2 | | 1 ^b | | 30 | — | 30 | — | |
| | | 2 | | 2 ^b | | — | — | 30 | — | |
| | | 2 | | 3 ^b | | 30 | — | — | — | |
| V _{BE} | | 2 | | 3 ^b | | — | 1.5 | — | 1.5 | V |
| V _{CE(sat)} | | | | 3 ^b | 0.3 | — | 1 | — | 1 | |
| I _{S/b} | | 20 | | 3 | | 0.5 | — | 0.5 | — | s |
| h _{fe} (f=1 kHz) | | 3 | | 0.3 | | 3 | — | 3 | — | |
| h _{fe} (f=1 kHz) | | 3 | | 0.3 | | 25 | — | 25 | — | |
| R _{θJC} | | | | | | — | 2.08 | — | 2.08 | °C/W |
| R _{θJA} | | | | | | — | 70 | — | 70 | |

^aCAUTION: The sustaining voltage V_{CEO(sus)} MUST NOT be measured on a curve tracer.

^bPulsed: pulse duration = 300 μs, duty factor = 0.018.

^cFor p-n-p devices, voltage and current values are negative.

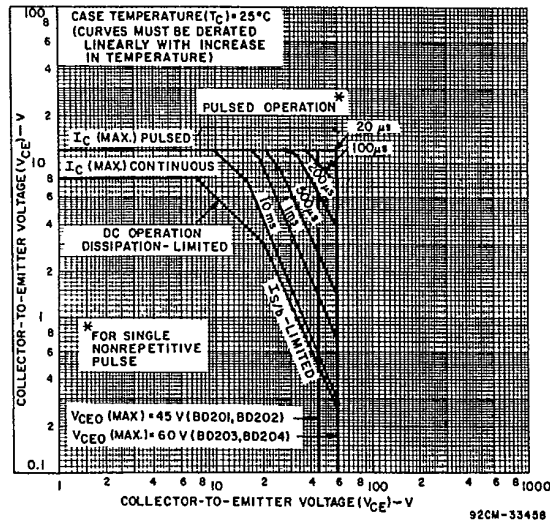


Fig. 1 — Maximum operating areas for all types ($T_C = 25^\circ C$).

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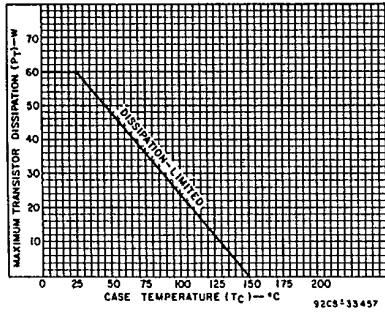


Fig. 2 - Derating curve for all types.

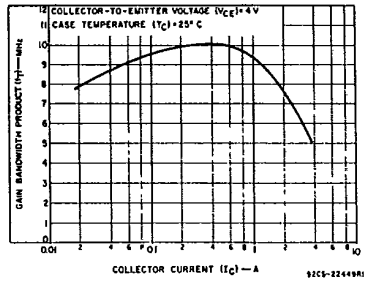


Fig. 3 - Typical gain-bandwidth product vs. collector current for all types.