

3875081 G E SOLID STATE  
 Pro Electron Power Transistors

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

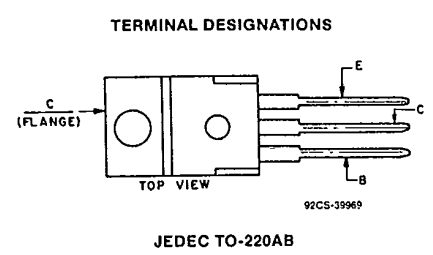
**BD201, BD202, BD203, BD204**

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
$V_{EEO}$ .....		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		$^\circ C$
$T_{sig}$ $T_J$ .....		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 <sup>a</sup>					LIMITS				UNITS
	VOLTAGE V dc			CURRENT A dc		BD201 BD202 <sup>b</sup>		BD203 BD204 <sup>b</sup>		
	V <sub>CB</sub>	V <sub>CE</sub>	V <sub>BE</sub>	I <sub>C</sub>	I <sub>B</sub>	Min.	Max.	Min.	Max.	
I <sub>CBO</sub> T <sub>J</sub> =150°C	40					—	1	—	1	mA
I <sub>CEO</sub>	40					—	1	—	1	
I <sub>EBO</sub>			-5			—	5	—	5	
V <sub>CEO(sus)</sub> <sup>a</sup>				0.2 <sup>b</sup>		45	—	60	—	V
h <sub>FE</sub>		2		1 <sup>b</sup>		30	—	30	—	
		2		2 <sup>b</sup>		—	—	30	—	
		2		3 <sup>b</sup>		30	—	—	—	
V <sub>BE</sub>		2		3 <sup>b</sup>		—	1.5	—	1.5	V
V <sub>CE(sat)</sub>				3 <sup>b</sup>	0.3	—	1	—	1	
I <sub>S/b</sub>		20		3		0.5	—	0.5	—	s
h <sub>fe</sub>   (f=1 kHz)		3		0.3		3	—	3	—	
h <sub>fe</sub> (f=1 kHz)		3		0.3		25	—	25	—	
R <sub>θJC</sub>						—	2.08	—	2.08	°C/W
R <sub>θJA</sub>						—	70	—	70	

<sup>a</sup>CAUTION: The sustaining voltage V<sub>CEO(sus)</sub> MUST NOT be measured on a curve tracer.

<sup>b</sup>Pulsed: pulse duration = 300 μs, duty factor = 0.018.

<sup>c</sup>For p-n-p devices, voltage and current values are negative.

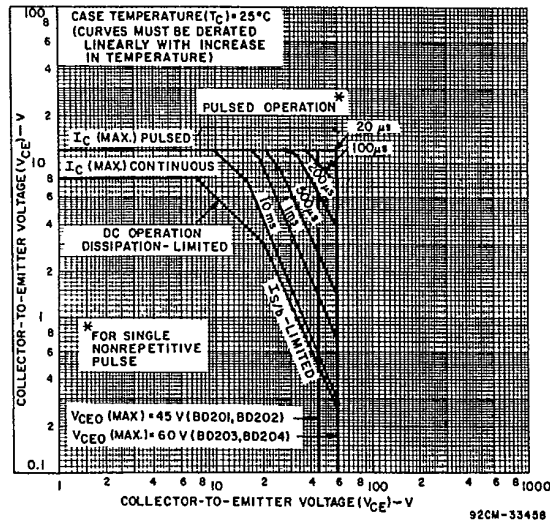


Fig. 1 — Maximum operating areas for all types ( $T_C = 25^\circ\text{C}$ ).

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BD201, BD202, BD203, BD204

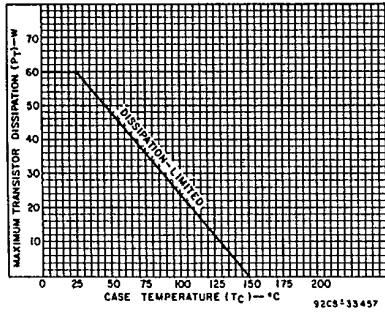


Fig. 2 - Derating curve for all types.

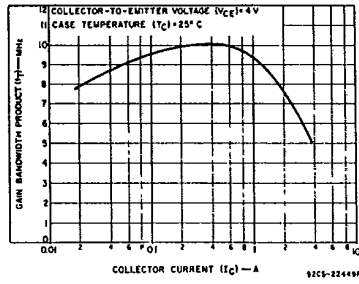


Fig. 3 - Typical gain-bandwidth product vs. collector current for all types.