

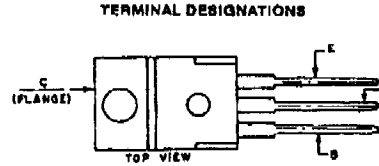
BD201, BD202, BD203, BD204

**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



JEDEC TO-220AB

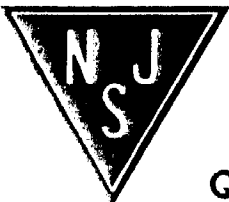
BD201 and BD203 n-p-n transistors and their complementary p-n-p types, BD202 and BD204 respectively, are epitaxial-base transistors intended for a wide variety of medium-power switching and amplifier applications, such as series and shunt regulators, and driver and output stages of high-fidelity amplifier.

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

MAXIMUM RATINGS, Absolute-Maximum Values:

	N-P-N	BD201 BD202■	BD203 BD204■	
V_{CBO}				V
$V_{CEO(80s)}$		60	80	V
V_{EBO}		45	60	V
I_C		5	8	A
I_E		8	3	A
P_T		60		W
$T_C \leq 25^\circ C$		Derate linearly 0.48		$W/^\circ C$
$T_C > 25^\circ C$		-85 to 150		$^\circ C$
T_{stg}				
T_L				
At distances $\geq 1/8$ in. (3.17 mm) from case for 10 s max.				
		235		$^\circ C$

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



NJ Semi-Condutors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Condutors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Condutors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Condutors encourages customers to verify that datasheets are current before placing orders.

BD201, BD202, BD203, BD204

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

CHARACTERISTIC	TEST CONDITIONS ^a					LIMITS				UNITS
	VOLTAGE			CURRENT		BD201		BD203		
	V_{CB}	V_{CE}	V_{BE}	I_C	I_B	Min.	Max.	Min.	Max.	
I_{CBO} $T_J = 150^\circ\text{C}$	40					—	1	—	1	mA
I_{CEO}	40					—	1	—	1	
I_{EBO}			-5			—	5	—	5	mA
$V_{CEO(sus)}^b$				0.2 ^b		45	—	60	—	
h_{FE}		2		1 ^b		30	—	30	—	V
		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	—	μs
$ h_{fe} $ ($f=1\text{ kHz}$)		3		0.3		3	—	3	—	
h_{fe} ($f=1\text{ kHz}$)		3		0.3		25	—	25	—	
$R_{\theta JC}$						—	2.08	—	2.08	$^\circ\text{C/W}$
$R_{\theta JA}$						—	70	—	70	$^\circ\text{C/W}$

^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.

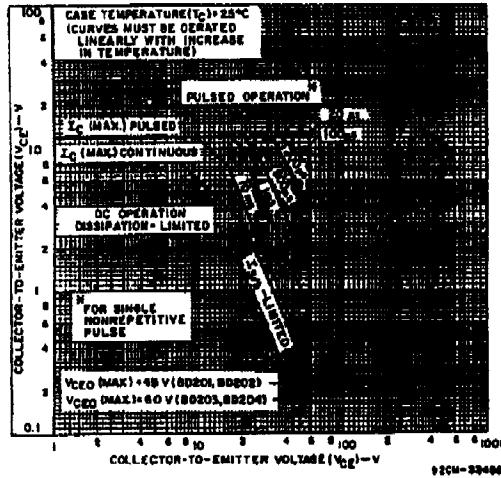


Fig. 1 — Maximum operating areas for all types ($T_C = 25^\circ\text{C}$).