

File Number 673

BD243, BD243A, BD243B, BD243C

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

For Power-Amplifier and
High-Speed-Switching Applications

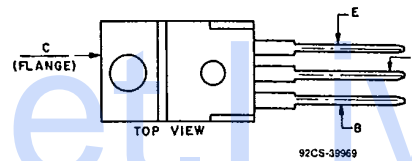
Features:

- 65 W at 25°C case temperature
- 7-A rated collector current
- Min. f_T of 3 MHz at 10 V, 500 mA
- Complements of p-n-p types BD244, BD244A, BD244B, and BD244C

Types BD243, BD243A, BD243B, and BD243C are epitaxial-base silicon n-p-n transistors; they differ only in their voltage ratings. These devices are intended for a wide variety of switching and amplifier applications such as series and shunt regulators, and driver and output stages of high-fidelity amplifiers. The BD243-series power transistors are complements of the devices in the BD244 series. (The BD244-series devices are described in File No. 674.)

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

TERMINAL DESIGNATIONS



JEDEC TO-220AB

MAXIMUM RATINGS, Absolute-Maximum Values:

	BD243	BD243A	BD243B	BD243C		
COLLECTOR-TO-EMITTER VOLTAGE:						
With external base-to-emitter resistance (R_{BE}) = 100 Ω	V_{CER}	55	70	90	115	V
With base open	V_{CEO}	45	60	80	100	V
EMITTER-TO-BASE VOLTAGE	V_{EBO}	5	5	5	5	V
CONTINUOUS COLLECTOR CURRENT	I_C	7	7	7	7	A
PEAK COLLECTOR CURRENT	I_C (PEAK)	10	10	10	10	A
CONTINUOUS BASE CURRENT	I_B	3	3	3	3	A
TRANSISTOR DISSIPATION: P_T						
At case temperatures up to 25°C		65	65	65	65	W
At ambient temperatures up to 25°C		2	2	2	2	W
At case temperatures above 25°C		← See Fig. 2 →				
TEMPERATURE RANGE:						
Storage & Operating (Junction)		← -65 to 150 →				°C
LEAD TEMPERATURE (During Soldering):						
At distance 1/8 in. (3.17 mm) from case for 10 s max.		← 235 →				°C

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Pro Electron Power Transistors

01E 17537 D T-33-11

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ELECTRICAL CHARACTERISTICS at Case Temperature (T_C) = 25°C

CHARACTERISTIC	SYMBOL	TEST CONDITIONS				LIMITS								UNITS
		VOLTAGE V _{dc}		CURRENT A _{dc}		BD243		BD243A		BD243B		BD243C		
		V _{CE}	V _{BE}	I _C	I _B	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	
Collector Cutoff Current: With base open	I _{CEO}	30			0	-	0.7	-	0.7	-	-	-	-	mA
		60			0	-	-	-	-	0.7	-	0.7		
	I _{CES}	45	0			-	0.4	-	-	-	-	-	-	
60		0			-	-	-	0.4	-	-	-	-		
80		0			-	-	-	-	0.4	-	-	-		
		100	0			-	-	-	-	-	-	0.4		
Emitter Cutoff Current	I _{EBO}		-5	0		-	1	-	1	-	1	-	1	mA
Collector-to-Emitter Breakdown Voltage: With base open	V _{BR(CEO)}			0.03 ^a	0	45	-	60	-	80	-	100	-	V
DC Forward-Current Transfer Ratio	h _{FE}	4		0.3 ^a		30	-	30	-	30	-	30	-	
		4		3 ^a		15	-	15	-	15	-	15	-	
Base-to-Emitter Voltage	V _{BE}	4		6 ^a		-	2	-	2	-	2	-	2	V
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}			6 ^a	1	-	1.5	-	1.5	-	1.5	-	1.5	V
Common-Emitter Small-Signal Short- Circuit Forward- Current Transfer Ratio (f = 1 kHz)	h _{fe}	10		0.5		20	-	20	-	20	-	20	-	
Magnitude of Common Emitter Small-Signal Short-Circuit Forward- Current Transfer Ratio (f = 1 MHz)	h _{fe}	10		0.5		3	-	3	-	3	-	3	-	
Thermal Resistance: Junction-to-Case	R _{θJC}					-	1.92	-	1.92	-	1.92	-	1.92	°C/W
						-	62.5	-	62.5	-	62.5	-	62.5	
Junction-to-Ambient	R _{θJA}					-	62.5	-	62.5	-	62.5	-	62.5	

^aPulsed: Pulse duration = 300 μs, duty factor = 2%.

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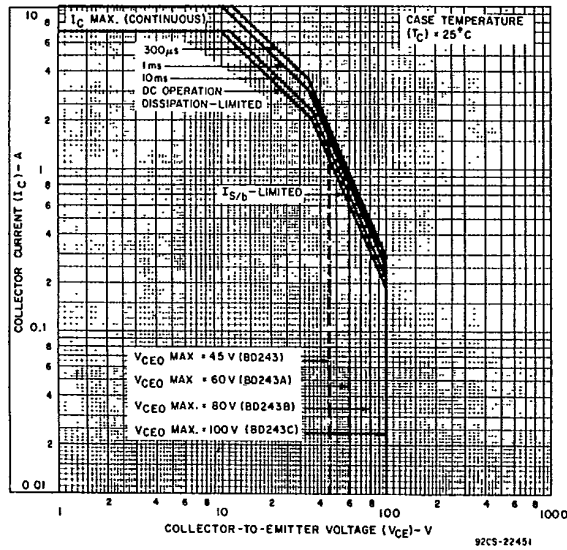


Fig. 1— Maximum safe operating areas for all types.

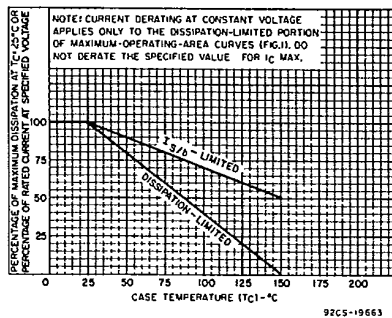


Fig. 2— Derating curves for all types.

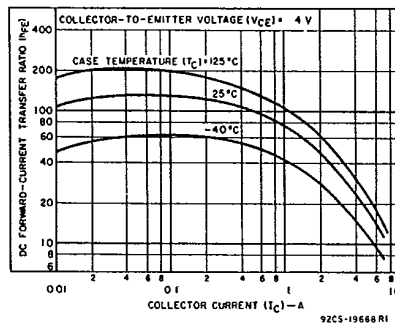


Fig. 3 — Typical dc beta characteristics for all types.