BD244, BD244B, BD244A, BD244C File Number **674**

Epitaxial-Base Silicon P-N-P VERSAWATT Transistors

For Power-Amplifier and
High-Speed-Switching Applications

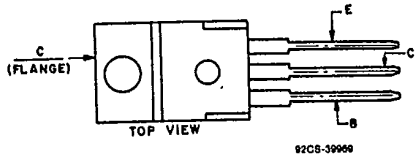
Features:

- 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 n-p-n types BD243, BD243A, BD243B, and BD243C

Types BD244, BD244A, BD244B, and BD244C are epitaxial-base silicon p-n-p 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 BD244-series power transistors are complements of the devices in the BD243 series. (The BD243-series devices are described in File No. 673.)

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

TERMINAL DESIGNATIONS



JEDEC TO-220AB

MAXIMUM RATINGS, *Absolute-Maximum Values:*

		BD244	BD244A	BD244B	BD244C	
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

BD244, BD244B, BD244A, BD244C

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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS				LIMITS								UNITS
		VOLTAGE V dc		CURRENT A dc		BD244		BD244A		BD244B		BD244C		
		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	
With base-to-emitter junction short-circuited	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	$R_{\theta JC}$					–	1.92	–	1.92	–	1.92	–	1.92	°C/W
Junction-to-Ambient	$R_{\theta JA}$					–	62.5	–	62.5	–	62.5	–	62.5	

[a]Pulsed: Pulse duration = 300 μs, duty factor = 2%.

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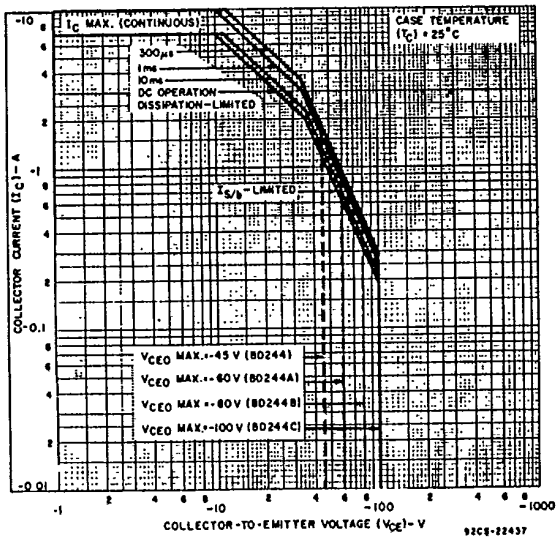

Fig. 1— Maximum safe operating areas for all types.

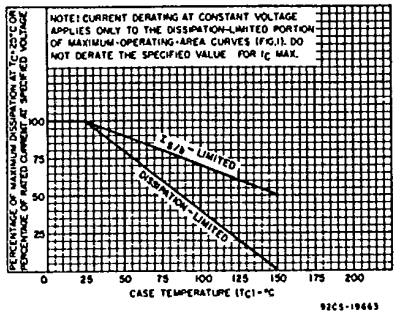

Fig. 2— Derating curves for all types.

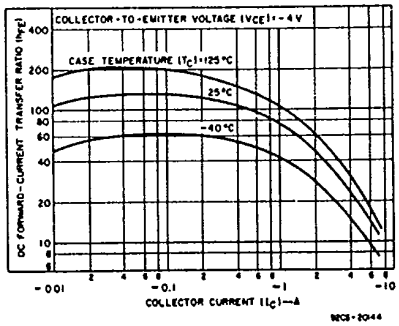

Fig. 3 — Typical dc beta characteristics for all types.