

File Number 671

BD241, BD241A, BD241B, BD241C

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

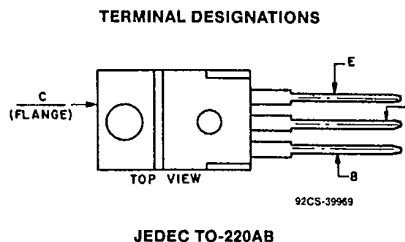
For Power-Amplifier and
High-Speed-Switching Applications

Features:

- 40 W at 25°C case temperature
- 5-A rated collector current
- Min. f_T of 3 MHz at 10 V, 500 mA
- Complements of p-n-p types BD242, BD242A, BD242B, and BD242C

Types BD241, BD241A, BD241B, and BD241C 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 BD241-series power transistors are complements of the devices in the BD242 series. (The BD242-series devices are described in File No. 672.)

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



MAXIMUM RATINGS, Absolute-Maximum Values:

	BD241	BD241A	BD241B	BD241C		
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	5	5	5	5	A
CONTINUOUS BASE CURRENT	I_B	1	1	1	1	A
TRANSISTOR DISSIPATION: P_T						
At case temperatures up to 25°C		40	40	40	40	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

3875081 G E SOLID STATE
Pro Electron Power Transistors

01E 17531

D T-33-11

BD241, BD241A, BD241B, BD241C

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

CHARACTERISTIC	SYMBOL	TEST CONDITIONS				LIMITS								UNITS
		VOLTAGE V _{dc}		CURRENT A _{dc}		BD241		BD241A		BD241B		BD241C		
		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	-	0.3	-	0.3	-	-	-	-	mA
		60			0	-	-	-	-	-	0.3	-	0.3	
With base-to-emitter junction short-circuited	I _{CES}	45	0			-	0.2	-	-	-	-	-	-	mA
		60	0			-	-	-	0.2	-	-	-	-	
		80	0			-	-	-	-	-	0.2	-	-	
		100	0			-	-	-	-	-	-	-	0.2	
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		1 ^a		25	-	25	-	25	-	25	-	-
		4		3 ^a		10	-	10	-	10	-	10	-	
Base-to-Emitter Voltage	V _{BE}	4		3 ^a		-	1.8	-	1.8	-	1.8	-	1.8	V
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}			3 ^a	0.6	-	1.2	-	1.2	-	1.2	-	1.2	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}					-	3.125	-	3.125	-	3.125	-	3.125	°C/W
Junction-to-Ambient	R _{θJA}					-	62.5	-	62.5	-	62.5	-	62.5	

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

BD241, BD241A, BD241B, BD241C

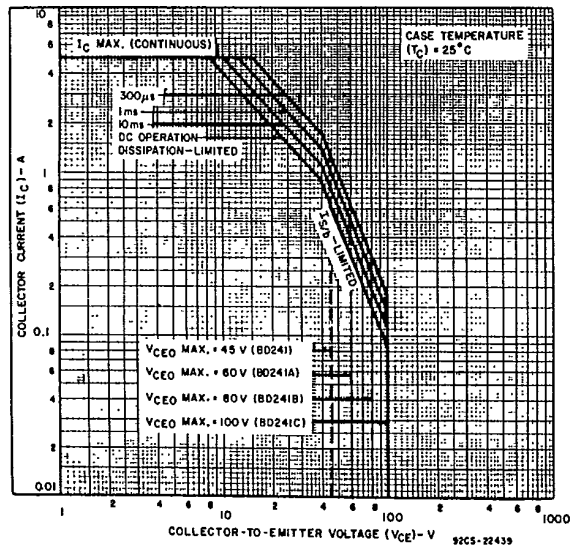


Fig. 1— Maximum safe operating areas for all types.

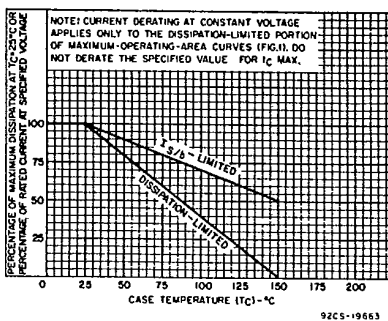


Fig. 2— Derating curves for all types.

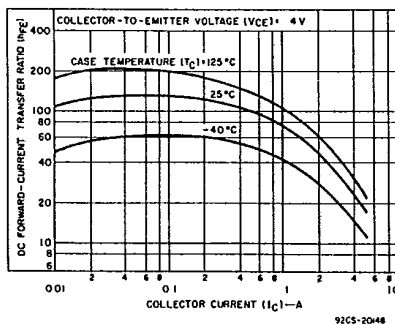


Fig. 3— Typical dc beta characteristics for all types.