

File Number 667

BD277

7-A, 70-W, Epitaxial-Base, Silicon P-N-P VERSAWATT Transistors

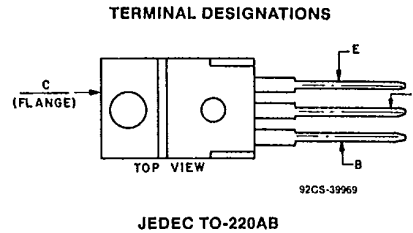
For Applications in Series and Shunt Regulators

Features:

- Maximum safe-area-of-operation curves
- Low saturation voltage
- High power-dissipation capability

Type BD277 is an epitaxial-base silicon p-n-p transistor supplied in the JEDEC TO-220AB (VERSAWATT) plastic package.

The BD277 is useful in series regulators and shunt regulators because of its low saturation voltage and high power-dissipation capability.



MAXIMUM RATINGS, Absolute-Maximum Values:

COLLECTOR-TO-BASE VOLTAGE:			
With emitter open	V_{CBO}	-45	V
COLLECTOR-TO-EMITTER VOLTAGE:			
With base open	V_{CEO}	-45	V
EMITTER-TO-BASE VOLTAGE:			
With collector open	V_{EBO}	-4	V
COLLECTOR CURRENT (Continuous)	I_C	-7	A
BASE CURRENT (Continuous)	I_B	-3	A
TRANSISTOR DISSIPATION:			
At case temperatures up to 25°C	P_T	70	W
At case temperatures above 25°C		Derate linearly at 0.56 W/°C (see Fig. 2.)	
TEMPERATURE RANGE:			
Storage & Operating (Junction)		-65 to 150	°C
LEAD TEMPERATURE (During Soldering):			
At distance \geq 1/8 in. (3.17 mm) from case for 10 s max.		235	°C

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Pro Electron Power Transistors

BD277

ELECTRICAL CHARACTERISTICS, At Case Temperature (T_C) = 25°C unless specified otherwise

CHARACTERISTIC	SYMBOL	TEST CONDITIONS						LIMITS		UNITS
		VOLTAGE V dc			CURRENT A dc			MIN.	MAX.	
		V _{CE}	V _{CB}	V _{EB}	I _C	I _B	I _E			
Collector Cutoff Current: With emitter open	I _{CBO}		-45				0	-	-0.1	mA
With emitter open and $T_C = 150^\circ\text{C}$			-40				0	-	-2.0	
With base open	I _{CEO}	-30				0		-	-1.0	
Emitter Cutoff Current: With collector open	I _{EBO}			-4	0			-	-1.0	mA
Collector-to-Emitter Breakdown Voltage: With base open	V _{(BR)CEO}				-0.1*	0		-45	-	V
Base-to-Emitter Voltage	V _{BE}	-2			-1.75*			-	1.2	V
DC Forward-Current Transfer Ratio	h _{FE}	-2			-1.75*			30	150	
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}				-1.75*	-0.1		-	-0.5	V
Gain-Bandwidth Product	f _T	-4			-0.5			10	-	MHz
Thermal Resistance: Junction-to-Case	R _{θJC}							-	1.78	°C/W
Junction-to-Ambient	R _{θJA}							-	70	

* Pulsed: Pulse duration = 300 μs, duty factor ≤ 2%.

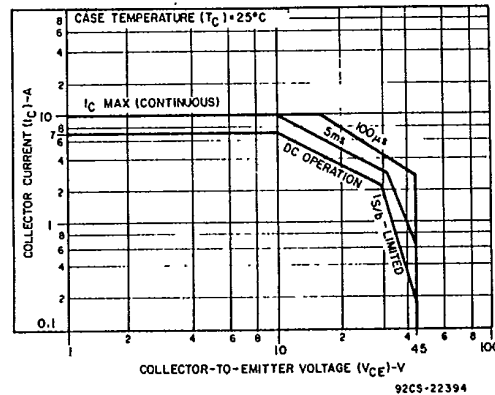


Fig.1 - Maximum operating area.

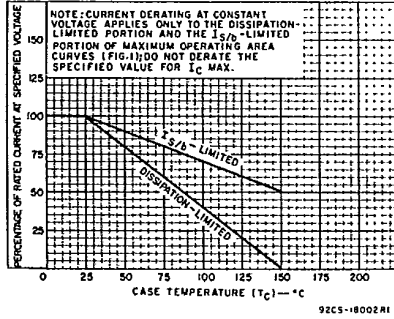


Fig. 2 — Derating curves.

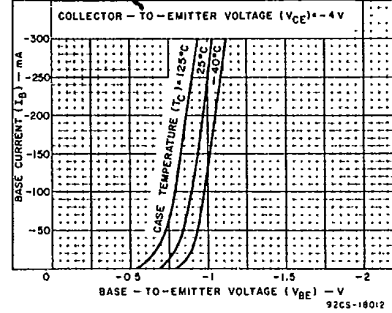


Fig. 3 — Typical input characteristics.

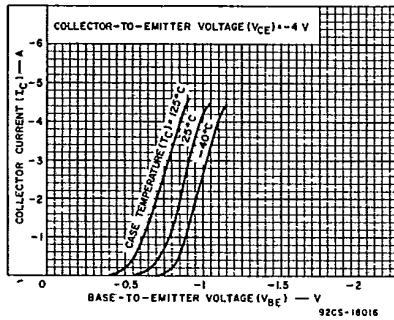


Fig. 4 — Typical transfer characteristics.

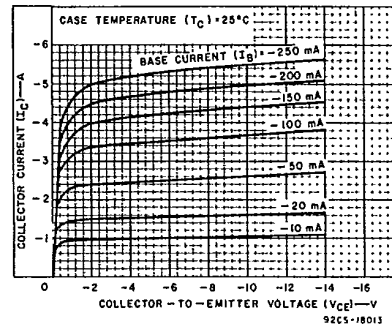


Fig. 5 — Typical output characteristics.

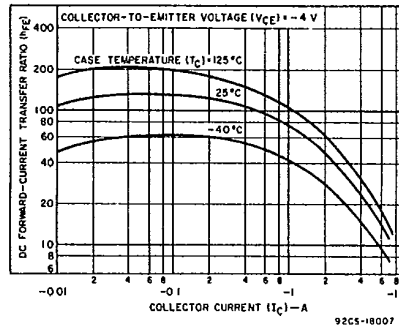


Fig. 6 — Typical dc beta characteristics.