

G E SOLID STATE

01 DE 3875081 0017542 7

3875081 G E SOLID STATE

01E 17542 D.T-33-21  
Pro Electron Power Transistors

File Number 667

BD277

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

For Applications in Series and Shunt Regulators

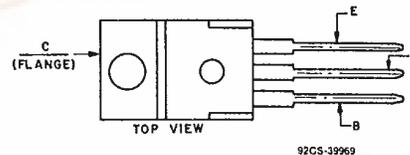
### Features:

- Maximum safe-area-of-operation curves
- Low saturation voltage
- How 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.

### TERMINAL DESIGNATIONS



JEDEC TO-220AB

### MAXIMUM RATINGS, Absolute-Maximum Values:

<b>COLLECTOR-TO-BASE VOLTAGE:</b>			
With emitter open . . . . .	V <sub>CBO</sub>	-45	V
<b>COLLECTOR-TO-EMITTER VOLTAGE:</b>			
With base open . . . . .	V <sub>CEO</sub>	-45	V
<b>EMITTER-TO-BASE VOLTAGE:</b>			
With collector open . . . . .	V <sub>EB0</sub>	-4	V
COLLECTOR CURRENT (Continuous) . . . . .	I <sub>C</sub>	-7	A
BASE CURRENT (Continuous) . . . . .	I <sub>B</sub>	-3	A
<b>TRANSISTOR DISSIPATION:</b>			
At case temperatures up to 25°C . . . . .	P <sub>T</sub>	70	W
At case temperatures above 25°C . . . . .		Derate linearly at 0.56 W/°C (see Fig. 2.)	
<b>TEMPERATURE RANGE:</b>			
Storage & Operating (Junction) . . . . .		-65 to 150	°C
<b>LEAD TEMPERATURE (During Soldering):</b>			
At distance ≥ 1/8 in. (3.17 mm) from case for 10 s max. . . . .		235	°C



3875081 G E SOLID STATE

01E 17543 D T-33-21

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.	
		VCE	VCB	VEB	IC	IB	IE			
Collector Cutoff Current: With emitter open	ICBO		-45				0	-	-0.1	mA
With emitter open and $T_C = 150^\circ\text{C}$			-40				0	-	-2.0	
With base open	ICEO	-30					0	-	-1.0	
Emitter Cutoff Current: With collector open	IEBO			-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	VBE	-2			-1.75*			-	1.2	V
DC Forward-Current Transfer Ratio	hFE	-2			-1.75*			30	150	
Collector-to-Emitter Saturation Voltage	VCE(sat)				-1.75*	-0.1		-	-0.5	V
Gain-Bandwidth Product	fT	-4			-0.5			10	-	MHz
Thermal Resistance:										
Junction-to-Case	RθJC							-	1.78	°C/W
Junction-to-Ambient	RθJA							-	70	

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

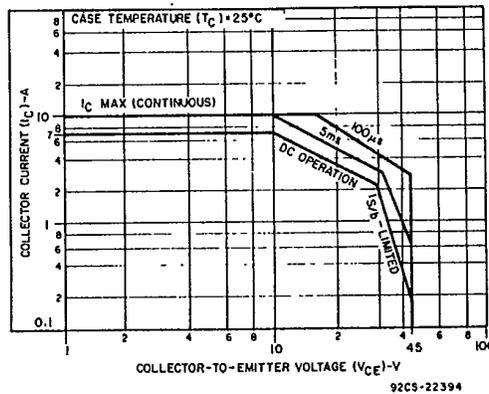


Fig.1 - Maximum operating area.

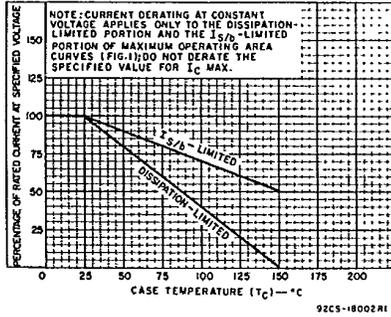


Fig. 2 — Derating curves.

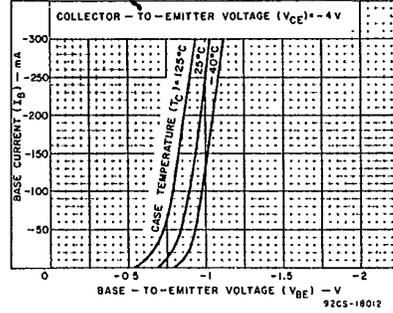


Fig. 3 — Typical input characteristics.

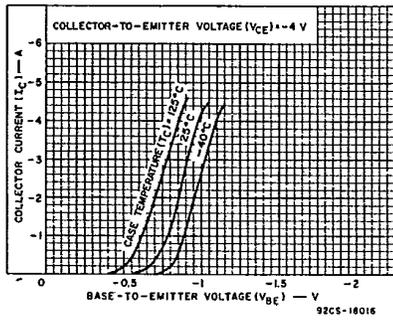


Fig. 4 — Typical transfer characteristics.

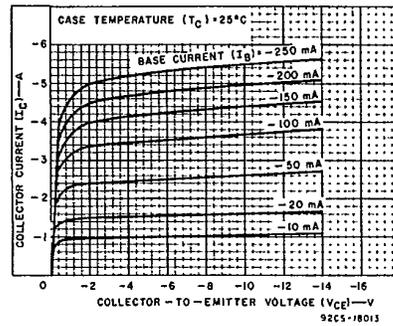


Fig. 5 — Typical output characteristics.

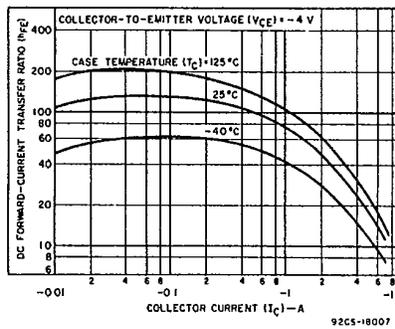


Fig. 6 — Typical dc beta characteristics.