

3875081 G E SOLID STATE

01E 17560 DY-33-15
Pro Electron Power Transistors

File Number 819

BDY29

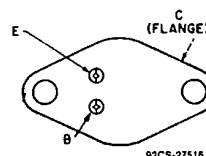
High-Power High-Current Transistor

Silicon N-P-N Devices for Applications
in Industrial and Commercial Equipment

Features:

- High dissipation capability
- High V_{CEX} ratings
- 15-A specification for h_{FE} and $V_{CE(sat)}$
- Low saturation voltage with high beta

TERMINAL DESIGNATIONS



JEDEC TO-204AA

The RCA-BDY29 is a silicon n-p-n transistor intended for a wide variety of high-power high-current applications. Typical applications for the BDY29 include power-switching circuits, audio amplifiers, series and shunt-regulators, driver and output stages, dc-to-dc converters, inverters, and solenoid (hammer)/relay driver service.

The device is supplied in the popular JEDEC TO-204AA package.

MAXIMUM RATINGS, Absolute-Maximum Values:

COLLECTOR-TO-BASE VOLTAGE	V_{CBO}	100	V
COLLECTOR-TO-EMITTER VOLTAGE:			
With -1.5 V (V_{BE}) & $R_{BE} = 100 \Omega$	V_{CEX}	90	V
With base open	V_{CEO}	75	V
EMITTER-TO-BASE VOLTAGE	V_{EBO}	7	V
CONTINUOUS COLLECTOR CURRENT	I_C	30	A
PEAK COLLECTOR CURRENT	I_{CM}	30	A
CONTINUOUS BASE CURRENT	I_B	7.5	A
TRANSISTOR DISSIPATION:	P_T		
At case temperatures up to 25°C		220	W
At case temperatures above 25°C		See Figs. 1 and 2	
TEMPERATURE RANGE:			
Storage & Operating (Junction)		-65 to 200	$^\circ\text{C}$
PIN TEMPERATURE (During soldering):			
At distance $\geq 1/32$ in. (0.8 mm) from seating plane for 10 s max.		230	$^\circ\text{C}$

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ELECTRICAL CHARACTERISTICS, At Case Temperature (T_C) = 25°C Unless Otherwise Specified

CHARACTERISTIC	SYMBOL	TEST CONDITIONS						LIMITS		UNITS
		VOLTAGE V dc			CURRENT A dc		BDY29			
		V _{CB}	V _{CE}	V _{BE}	I _C	I _B	Min.	Max.		
Collector Cutoff Current: With emitter open	I _{CBO}	100					—	1	mA	
With base-emitter junction reverse-biased	I _{CEX}		100	−1.5			—	1	mA	
With base-emitter junction reverse-biased & T _C = 150°C	I _{CEX}		100	−1.5			—	10	mA	
With base open	I _{CEO}		60			0	—	2	mA	
Emitter Cutoff Current	I _{EBO}			−7	0		—	2	mA	
DC Forward Current Transfer Ratio	h _{FE}		2		15 ^a		15	60	V	
Collector-to-Emitter Sustaining Voltage: With base-emitter junction reverse-biased (R _{BE})= 100 Ω	V _{CEX(sus)}			−1.5	0.2		90	—		
With external base-to-emitter resistance (R _{BE}) = 100 Ω	V _{CER(sus)}				0.2		85	—		
With base open	V _{CEO(sus)}				0.2	0	75	—		
Base-to-Emitter Voltage	V _{BE}		4		30 ^a		—	3.5	V	
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}				15 ^a	1.5	—	1.2	V	
Second-Breakdown Collector Current: With base forward-biased and 1-s, nonrepetitive pulse	I _{S/b} ^b		60				3.66	—	A	
Magnitude of Common-Emitter, Small-Signal, Short-Circuit, Forward Current Transfer Ratio: f = 0.05 MHz	h _{fe}		4		1		4	16 (Typ.)		
Common-Emitter, Small-Signal, Short-Circuit, Forward Current Transfer Ratio: f = 1 kHz	h _{fe}		4		1		40	—		
Thermal Resistance: Junction-to-Case	R _{θJC}						—	0.8	°C/W	

^a Pulsed; pulse duration = 300 μs, rep. rate = 60 Hz; duty factor ≤ 2%.^b I_{S/b} is defined as the current at which second breakdown occurs at a specified collector voltage with the emitter-base junction forward biased for transistor operation in the active region.

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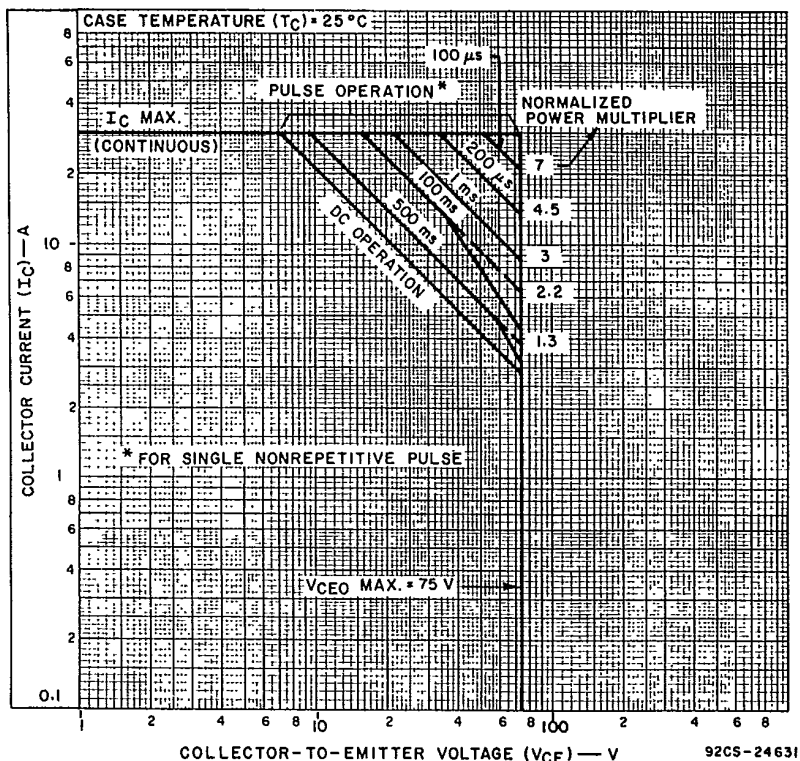


Fig. 1 — Maximum operating areas.

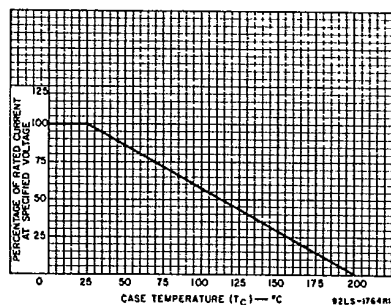


Fig. 2 — Dissipation derating curve.

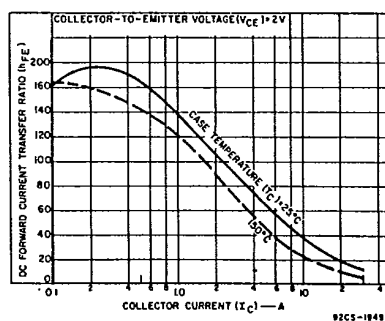


Fig. 3 — Typical dc beta characteristics.

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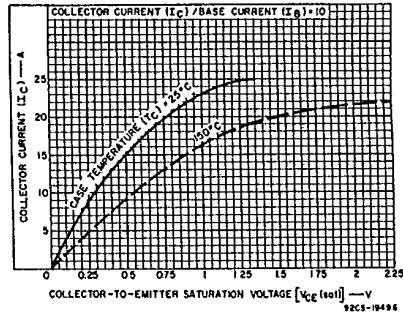


Fig. 4 — Typical saturation-voltage characteristics.

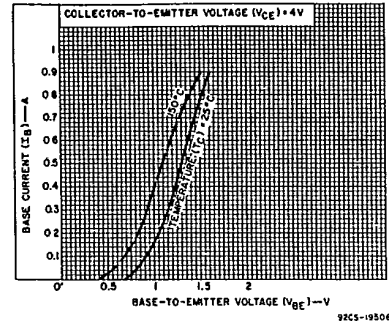


Fig. 5 — Typical input characteristics.

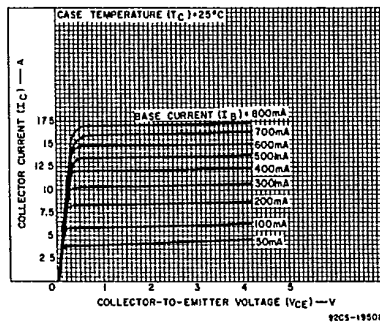


Fig. 6 — Typical output characteristics.

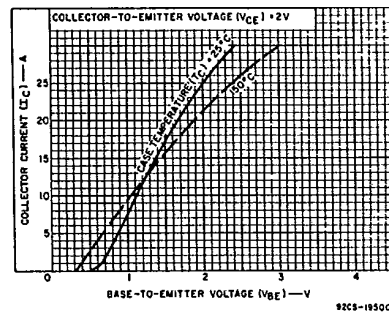


Fig. 7 — Typical transfer characteristics.