

**Features:**

- Operates from IC without predriver
- Low leakage at high temperature
- High reverse second-breakdown capability

**Applications:**

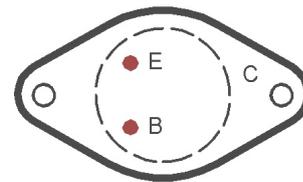
- Power Switching
- Solenoid Drivers
- Automotive Ignition
- Series and shunt regulators

The RCA 8766 Series are monolithic n-p-n silicon darlington transistors designed for automotive electronic power applications. The pi-nu construction of these device provides good forward and reverse second-breakdown capability; their high gain makes it possible for them to be driven directly from integrated circuits.

The device in the series differ primarily in voltage ratings and in current at which the dc gain is specified.

The RCA-8766 Series are supplied in the JEDEC TO-3 hermetic steel package. Formerly Types are the TA8766 Series.

### Terminal Designations



bottom view

### JEDEC TO-3

<b>MAXIMUM RATINGS</b> <i>Absolute-Maximum Values:</i>		
$V_{CBO}$	<b>350</b>	V
$U_{CER}^{(sus)}$ $R_{BE} = 50\Omega$	<b>350</b>	V
$V_{CEO}^{(sus)}$	<b>350</b>	V
$V_{EBO}$	<b>5</b>	V
$I_C$	<b>10</b>	A
$I_{CM}$	<b>15</b>	A
$I_B$	<b>1</b>	A
$P_T$ $T_C \leq 25^\circ C$	<b>150</b>	W
$P_T$ $T_C > 25^\circ C$	<b>derate linearly 1</b>	$^\circ C/W$
$T_{stg}$ $T_J$	<b>-65 to +175</b>	$^\circ C$
$T_L$ At distances $\geq 1/8$ in. (3.17mm) from case for 10s max.	<b>235</b>	$^\circ C$

ELECTRICAL CHARACTERISTICS, at Case Temperature (TC) 25°C unless otherwise specified						
CHARACTERISTIC	TEST CONDITIONS			LIMITS		UNITS
	VOLTAGE V dc	CURRENT A dc		RCA8766A		
	V <sub>CE</sub>	I <sub>C</sub>	I <sub>B</sub>	Min.	Max.	
I <sub>CER</sub> R <sub>BE</sub> = 50Ω  T <sub>C</sub> = 150°C	350			-	1	mA
	350			-	10	
I <sub>EBO</sub> V <sub>BE</sub> = -5V		0		-	60	mA
V <sub>CEO</sub> <sup>(sus)</sup>		0.2 <sup>a</sup>	0	350	-	V
h <sub>FE</sub>	3	4 <sup>a</sup>		100	-	
V <sub>BE</sub>	3	4 <sup>a</sup>		-	2.5	V
V <sub>CE</sub> <sup>(sat)</sup>		4 <sup>a</sup>	0.133 <sup>a</sup>	-	1.5	V
		8 <sup>a</sup>	0.5 <sup>a</sup>	-	2.5	V
V <sub>F</sub>		7 <sup>a</sup>		-	2	V
h <sub>fe</sub>   f = 1MHz	5	1		10	-	
I <sub>S/b</sub> t = 1s, nonrep.	30			5	-	A
R <sub>qJC</sub>				-	1	°C/W

Note a: Pulse duration = 300μs, duty factor = 1.8%

- I<sub>C</sub> - continous collector current
- I<sub>CM</sub> - peak collector current
- I<sub>CER</sub> - collector-cutoff current with specified resistance between base and emitter
- I<sub>B</sub> - continous base current
- I<sub>EBO</sub> - emitter-cutoff current, collector open
- I<sub>S/b</sub> - forward-bias, second break-down collector current
- V<sub>CBO</sub> - collector-to-base voltage, emitter open
- V<sub>CEO</sub> - collector-to-emitter voltage, base open
- V<sub>CEO</sub><sup>(sus)</sup> - collector-to-emitter sustaining voltage, base open
- V<sub>CER</sub><sup>(sus)</sup> - collector-to-emitter sustaining voltage with specified resistance between base and emitter
- V<sub>EBO</sub> - emitter-to-base voltage, collector open
- V<sub>BE</sub> - base-to-emitter voltage
- V<sub>CE</sub><sup>sat</sup> - collector-to-emitter saturation voltage
- V<sub>F</sub> - diode forward voltage drop
- h<sub>FE</sub> - dc forward-current transfer ratio
- |h<sub>fe</sub>| - magnitude of common-emitter, small-signal, short-circuit, forward-current transfer ratio
- R<sub>BE</sub> - external base-to-emitter resistance
- R<sub>θJC</sub> - thermal resistance, junction-to-case
- P<sub>T</sub> - transistor dissipation at specified temperature
- T<sub>C</sub> - case temperature
- T<sub>stg</sub> - storage temperature
- T<sub>J</sub> - operating (junction) temperature
- T<sub>L</sub> - lead temperature during soldering
- θ - conduction angle