AUTOMOTIVE GRADE

CS299

Darlington Lamp Driver

Description

This integrated circuit is a flip chip lamp driver for use in an automotive alternator system. The circuit drives an indicator lamp located on the dashboard. Reverse battery protection is provided with internal diode, D1, and external resistors on B, C1 and C2.

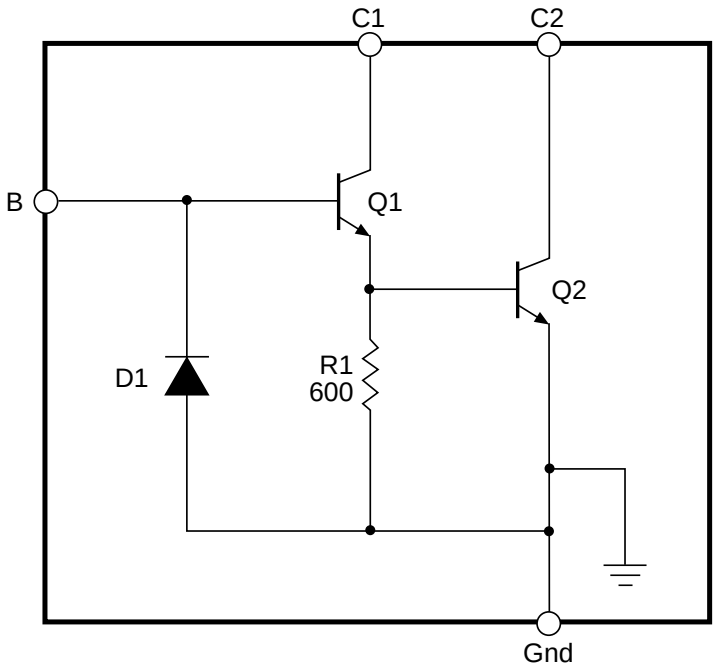
Features

- **DC Current Gain 1000**
- **80V Breakdown Voltage**
- **Reverse Battery protection**

Absolute Maximum Ratings

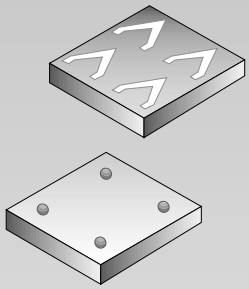
Storage Temperature .....-65°C ~ 150°C
Ambient Operating Temperature .....-40°C ~ 140°C
Collector Breakdown Voltage 80V

Block Diagram



Package Option

Flip Chip



ON Semiconductor
2000 South County Trail, East Greenwich, RI 02818
Tel: (401)885–3600 Fax: (401)885–5786
N. American Technical Support: 800-282-9855
Web Site: www.cherry–semi.com

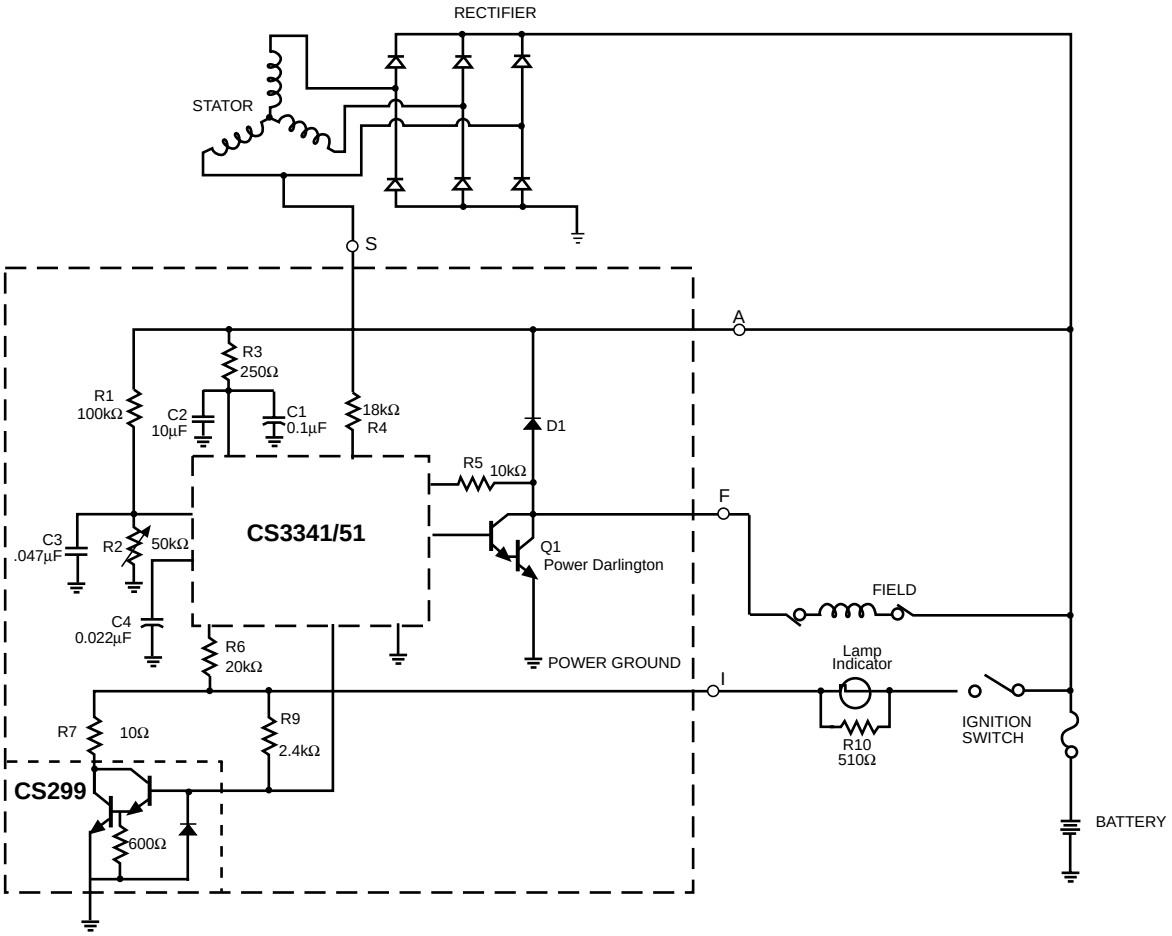
Electrical Characteristics: T_A = 25°C , unless otherwise specified.

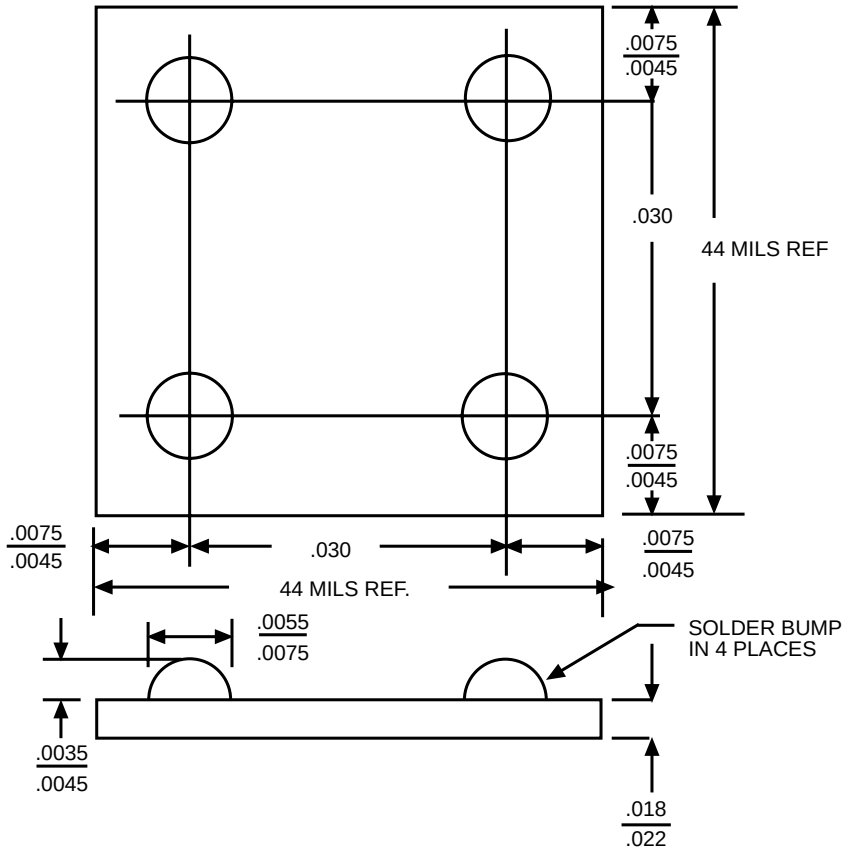
PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
■ Supply Requirements					
Saturation Voltage	I_{B1} = 0.6mA, I_{C2} = 350mA			0.60	V
	T_J = -30°C			0.55	V
	T_J = 150°C			0.65	V
Collector Breakdown Voltage	$I_{C1} = I_{C2}$ = 1.0mA, R_{BE} = 200, $V_{C1} = V_{C2}$	80			V
Collector Cut Off Current (I_{CEO})	$V_{CE1} = V_{CE2}$ = 60V, R_{BE} = 200			10	µA
DC Current Gain (HFE)	$V_{C1} = V_{C2}$ = 1.0V, I_{B1} = 100µA	1000			$\frac{(I_{C1}+I_{C2})}{I_{B1}}$
NPN β (Q1)	I_{B1} = 1µA, V_{CE2} = 0V, V_{CE1} = 1.5V	50			$\frac{I_{C1}}{I_{B1}}$
V_{BE} (in saturation)	I_{B1} = 0.6mA, I_{C1} = 50mA, I_{C2} = 350mA			2.0	V
Diode Forward Voltage (D1)	I_{D1} = 25mA	0.5		1.5	V

Package Pin Description

PACKAGE PIN #	PIN SYMBOL	FUNCTION
Flip Chip		
	B	Base of input darlington.
	C1	Collector of darlington input device.
	C2	Collector of darlington output driver.
	E	Emitter of darlington driver. Base / Emitter resistor and substrate are also connected here.

Application Diagram





Note: All dimensions are in inches.

Ordering Information

Part Number	Description
CS299H	Flip Chip