Darlington Lamp Driver

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 resistance on B, C1, C2.

Features

- DC Current Gain 1000
- 80 V Breakdown Voltage
- Reverse Battery Protection

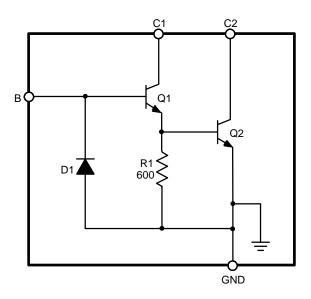


Figure 1. Block Diagram



ON Semiconductor™

http://onsemi.com

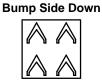
PIN CONNECTIONS

Flip Chip

Bump Side Up

B O O C1

GND O O C2



ORDERING INFORMATION

Device	Package	Shipping
CS299H Flip Chip Contact		Contact Sales

CS299

MAXIMUM RATINGS*

Rating		Unit
Storage Temperature Range, T _S		°C
Ambient Operating Temperature		°C
Collector Breakdown Voltage		V

^{*}The maximum package power dissipation must be observed.

ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}C$, unless otherwise specified.)

Characteristic	Test Conditions	Min	Тур	Max	Unit
Supply Requirements					
Saturation Voltage	$I_{B1} = 0.6 \text{ mA}, I_{C2} = 350 \text{ mA}$ $T_{J} = -30^{\circ}\text{C}$ $T_{J} = 150^{\circ}\text{C}$	- - -	- - -	0.60 0.55 0.65	V V V
Collector Breakdown Voltage	$I_{C1} = I_{C2} = 1.0 \text{ mA}, R_{BE} = 200, V_{C1} = V_{C2}$	80	_	-	V
Collector Cut Off Current (I _{CEO})	V _{CE1} = V _{CE2} = 60 V, R _{BE} = 200	-	-	10	μΑ
DC Current Gain (HFE)	$V_{C1} = V_{C2} = 1.0 \text{ V}, I_{B1} = 100 \mu\text{A}$	1000	-	-	$(I_{C1} + I_{C2})/I_{B1}$
NPN β (Q1)	$I_{B1} = 1.0 \mu A, V_{CE2} = 0 V, V_{CE1} = 1.5 V$	50	-	_	I _{C1} /I _{B1}
V _{BE} (in saturation)	I _{B1} = 0.6 mA, I _{C1} = 50 mA, I _{C2} = 350 mA	_	-	2.0	V
Diode Forward Voltage (D1)	I _{D1} = 25 mA	0.5	-	1.5	V

PACKAGE PIN DESCRIPTION

PIN SYMBOL	FUNCTION	
В	Base of input darlington.	
C1	Collector of darlington input device.	
C2	Collector of darlington output driver.	
GND	Ground. Emitter of dartlington driver. Base/Emitter resistor and substrate are also connected here.	

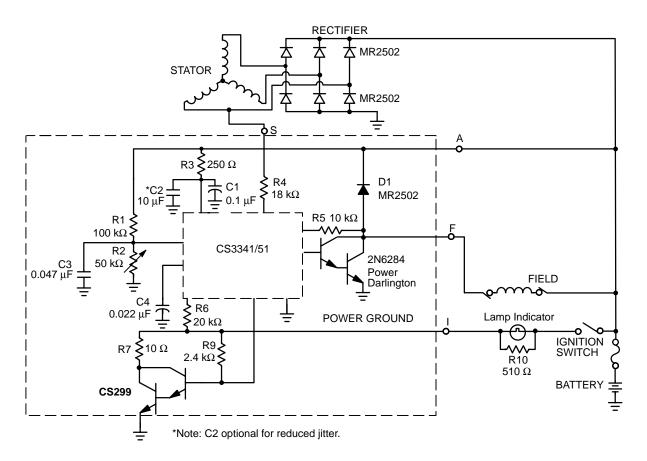
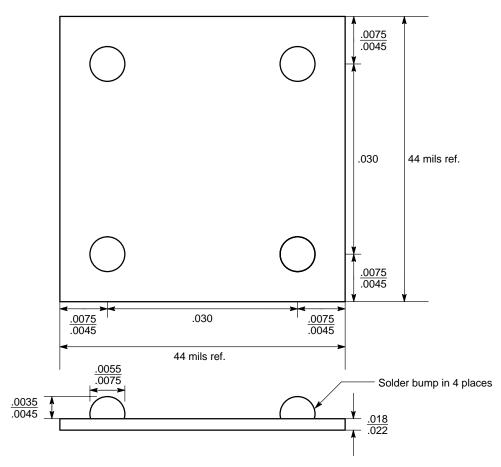


Figure 2. Typical Application Dlagram



Note: All dimensions are in inches.

Figure 3. Flip Chip Dimensions and Solder Bump Locations, Bump Side Up

ON Semiconductor and are trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer.

PUBLICATION ORDERING INFORMATION

Literature Fulfillment:

Literature Distribution Center for ON Semiconductor P.O. Box 5163, Denver, Colorado 80217 USA

Phone: 303–675–2175 or 800–344–3860 Toll Free USA/Canada **Fax**: 303–675–2176 or 800–344–3867 Toll Free USA/Canada

Email: ONlit@hibbertco.com

N. American Technical Support: 800-282-9855 Toll Free USA/Canada

JAPAN: ON Semiconductor, Japan Customer Focus Center 4–32–1 Nishi–Gotanda, Shinagawa–ku, Tokyo, Japan 141–0031

Phone: 81–3–5740–2700 Email: r14525@onsemi.com

ON Semiconductor Website: http://onsemi.com

For additional information, please contact your local Sales Representative.