

## Features

- 2-kV ESD Protection
- Two Comparators with Common Reference
- Tight Threshold Tolerance
- Threshold Matched to PTC Characteristic of Incandescent Lamps
- Temperature Compensated
- NPN Output
- Interference and Damage-protection According to VDE 0839
- EMI Protection
- Reversal Polarity Protection
- Load-dump Protection



## Automotive Lamp-outage Monitor IC

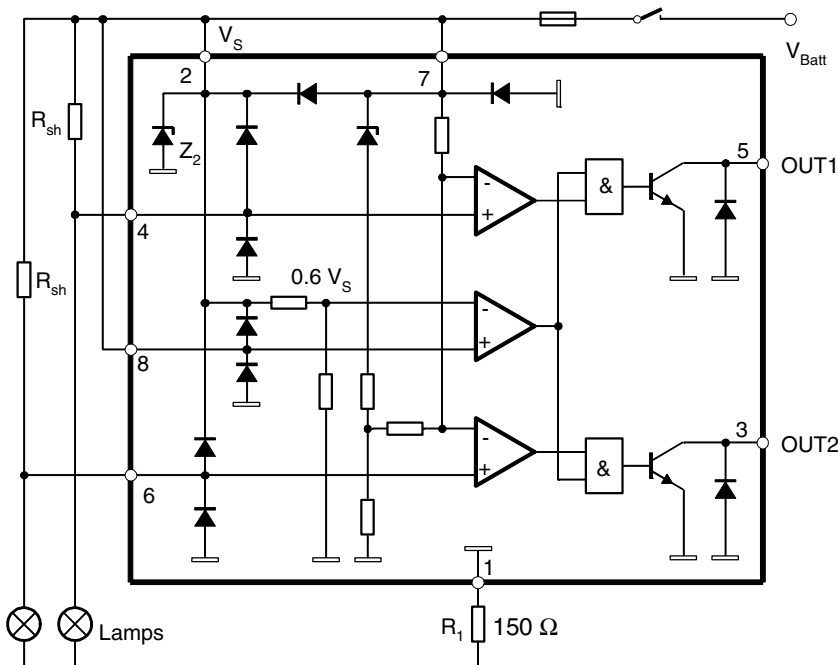
### U479B

## 1. Description

The monolithic integrated bipolar circuit, U479B, is designed as a monitor for lamp failure in automobiles. The comparator threshold is matched to the PTC characteristic of incandescent lamps. The threshold is tied to  $V_{4,6} = V_S - V_T$  where  $V_T = 8$  mV.

If the voltage drop across the shunt resistor,  $R_{sh}$ , exceeds 8 mV, the output is turned off, otherwise, the output is turned on. Without supply voltage or open input pin 8, the output is turned off. A comparator input, which is not used, must be connected to pin 7.

Figure 1-1. Schematic and Application Circuit



## 2. Pin Configuration

Figure 2-1. Pinning DIP8/SO8

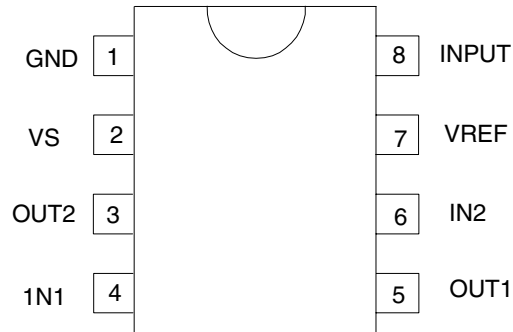


Table 2-1. Pin Description

Pin	Symbol	Function
1	GND	Reference point, ground
2	VS	Supply voltage
3	OUT2	Output 2
4	IN1	Input 1
5	OUT1	Output 1
6	IN2	Input 2
7	VREF	Reference voltage
8	INPUT	Input switch

### 3. Absolute Maximum Ratings

Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Parameters	Pin	Symbol	Value	Unit
Supply voltage	2, 7	$V_S$	16.5	V
Current consumption, $t = 2$ ms	1	$I_1$	1.5	A
Output current	3, 5	$I_{3,5}$	20	mA
Input voltage Reference point pin 7	4, 6	$-V_{4,6}$	6	V
Power dissipation $T_{amb} = 95^\circ\text{C}$	DIP8	$P_{tot}$	420	mW
	SO8	$P_{tot}$	360	mW
$T_{amb} = 60^\circ\text{C}$	DIP8	$P_{tot}$	690	mW
	SO8	$P_{tot}$	560	mW
Ambient temperature range		$T_{amb}$	-40 to +95	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	-55 to +125	$^\circ\text{C}$
Junction temperature		$T_j$	150	$^\circ\text{C}$

### 4. Thermal Resistance

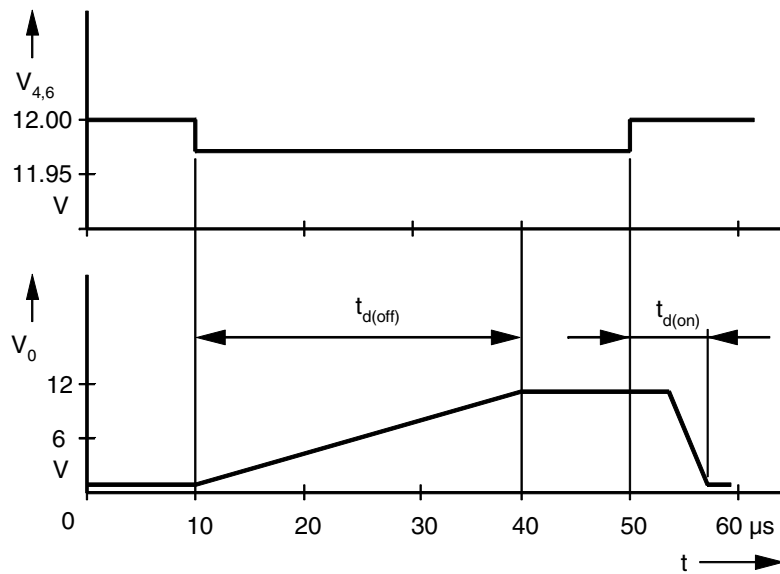
Parameters		Symbol	Value	Unit
Junction ambient	DIP8	$R_{thJA}$	110	K/W
	SO8	$R_{thJA}$	160	K/W

## 5. Electrical Characteristics

$V_S = 9V$  to  $15V$ ,  $T_{amb} = -40$  to  $+95^\circ C$ , [Figure 1-1 on page 1](#), unless otherwise specified.

Parameters	Test Conditions	Pin	Symbol	Min.	Typ.	Max.	Unit
Supply voltage		2, 7	$V_S$	9		15	V
Internal Z-diode $Z_2$		2	$V_Z$	20			V
Current consumption	$V_S = 12V$	1	$I_1$		4.5	6	mA
Output saturation voltage	$V_S = 9V$ , $I_{3,5} = 10 mA$ $T_{amb} = 25^\circ C$	3, 5	$V_{sat}$			0.5	V
Control signal threshold	Reference point $V_{Pin 7}$ $I_{3,5} = 3 mA$ $V_S = 12V$ $V_S = 15V$	4, 6	$-V_T$	6.5	8	9.5	mV
			$-V_T$	7.8	9.3	10.8	mV
Voltage drift	$\Delta V = \frac{V_{T(15V)} - V_{T(12V)}}{15V - 12V}$		$\Delta V$		0.45		mV/V
Threshold voltage	Switch identification	8	$V_8$		$0.6 V_S$		V
Input currents	Input 1/input 2	4, 6	$I_I$		100		nA
	Input switch	8	$I_I$		5		$\mu A$
Delay time	Switch-on, high to low	3, 5	$t_{d(on)}$		6		$\mu s$
	Switch-off, low to high		$t_{d(off)}$		30		$\mu s$

**Figure 5-1.** Delay Times



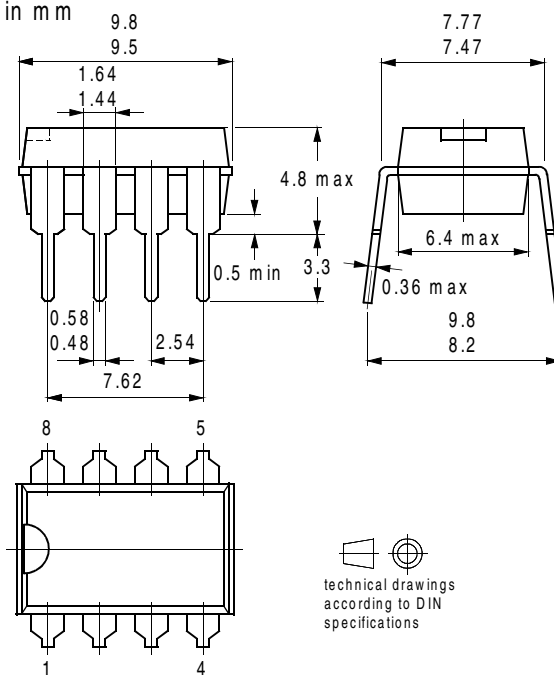
## 6. Ordering Information

Extended Type Number	Package	Remarks
U479B-MY	DIP8	Pb-free
U479B-MFPY	SO8	Tubed, Pb-free
U479B-MFPG3Y	SO8	Taped and reeled, Pb-free

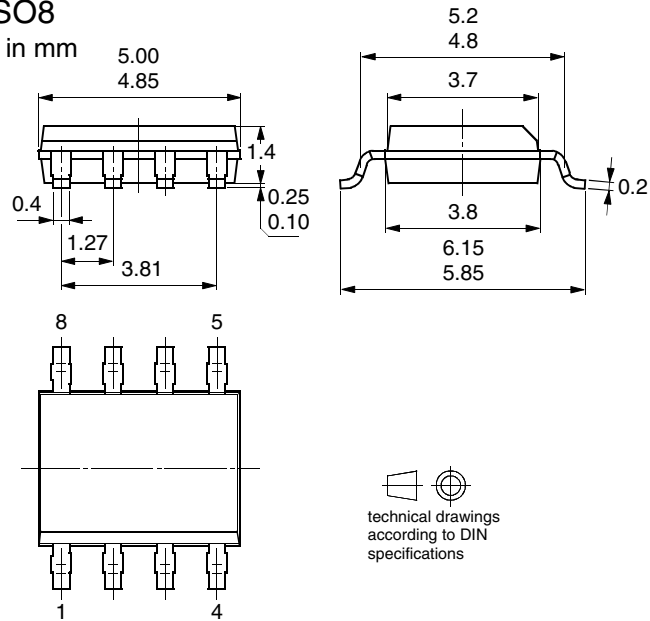
## 7. Package Information

### Package DIP8

Dimensions in mm



Package SO8  
Dimensions in mm



## 8. Revision History

Please note that the following page numbers referred to in this section refer to the specific revision mentioned, not to this document.

Revision No.	History
4775B-AUTO-09/05	<ul style="list-style-type: none"> <li>• Put datasheet in a new template</li> <li>• Pb-free logo on page 1 added</li> <li>• Ordering Information on page 5 changed</li> </ul>



## Atmel Corporation

2325 Orchard Parkway  
San Jose, CA 95131, USA  
Tel: 1(408) 441-0311  
Fax: 1(408) 487-2600

## Regional Headquarters

### Europe

Atmel Sarl  
Route des Arsenaux 41  
Case Postale 80  
CH-1705 Fribourg  
Switzerland  
Tel: (41) 26-426-5555  
Fax: (41) 26-426-5500

### Asia

Room 1219  
Chinachem Golden Plaza  
77 Mody Road Tsimshatsui  
East Kowloon  
Hong Kong  
Tel: (852) 2721-9778  
Fax: (852) 2722-1369

### Japan

9F, Tonetsu Shinkawa Bldg.  
1-24-8 Shinkawa  
Chuo-ku, Tokyo 104-0033  
Japan  
Tel: (81) 3-3523-3551  
Fax: (81) 3-3523-7581

## Atmel Operations

### Memory

2325 Orchard Parkway  
San Jose, CA 95131, USA  
Tel: 1(408) 441-0311  
Fax: 1(408) 436-4314

### Microcontrollers

2325 Orchard Parkway  
San Jose, CA 95131, USA  
Tel: 1(408) 441-0311  
Fax: 1(408) 436-4314

La Chantrerie  
BP 70602  
44306 Nantes Cedex 3, France  
Tel: (33) 2-40-18-18-18  
Fax: (33) 2-40-18-19-60

### ASIC/ASSP/Smart Cards

Zone Industrielle  
13106 Rousset Cedex, France  
Tel: (33) 4-42-53-60-00  
Fax: (33) 4-42-53-60-01

1150 East Cheyenne Mtn. Blvd.  
Colorado Springs, CO 80906, USA  
Tel: 1(719) 576-3300  
Fax: 1(719) 540-1759

Scottish Enterprise Technology Park  
Maxwell Building  
East Kilbride G75 0QR, Scotland  
Tel: (44) 1355-803-000  
Fax: (44) 1355-242-743

### RF/Automotive

Theresienstrasse 2  
Postfach 3535  
74025 Heilbronn, Germany  
Tel: (49) 71-31-67-0  
Fax: (49) 71-31-67-2340

1150 East Cheyenne Mtn. Blvd.  
Colorado Springs, CO 80906, USA  
Tel: 1(719) 576-3300  
Fax: 1(719) 540-1759

### Biometrics/Imaging/Hi-Rel MPU/ High Speed Converters/RF Datacom

Avenue de Rochepleine  
BP 123  
38521 Saint-Egreve Cedex, France  
Tel: (33) 4-76-58-30-00  
Fax: (33) 4-76-58-34-80

---

### Literature Requests

[www.atmel.com/literature](http://www.atmel.com/literature)

**Disclaimer:** The information in this document is provided in connection with Atmel products. No license, express or implied, by estoppel or otherwise, to any intellectual property right is granted by this document or in connection with the sale of Atmel products. **EXCEPT AS SET FORTH IN ATMEL'S TERMS AND CONDITIONS OF SALE LOCATED ON ATMEL'S WEB SITE, ATMEL ASSUMES NO LIABILITY WHATSOEVER AND DISCLAIMS ANY EXPRESS, IMPLIED OR STATUTORY WARRANTY RELATING TO ITS PRODUCTS INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. IN NO EVENT SHALL ATMEL BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE, SPECIAL OR INCIDENTAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS, BUSINESS INTERRUPTION, OR LOSS OF INFORMATION) ARISING OUT OF THE USE OR INABILITY TO USE THIS DOCUMENT, EVEN IF ATMEL HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.** Atmel makes no representations or warranties with respect to the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Atmel does not make any commitment to update the information contained herein. Unless specifically provided otherwise, Atmel products are not suitable for, and shall not be used in, automotive applications. Atmel's products are not intended, authorized, or warranted for use as components in applications intended to support or sustain life.

© Atmel Corporation 2005. All rights reserved. Atmel®, logo and combinations thereof, Everywhere You Are® and others, are registered trademarks or trademarks of Atmel Corporation or its subsidiaries. Other terms and product names may be trademarks of others.



Printed on recycled paper.

4775B-AUTO-09/05

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- [View U479B-M on WIN SOURCE](#)
- [Microchip Technology Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management