

## Features

- 650 nm and 780 nm Wavelengths Supported
- 150 MHz Data Channel Bandwidth
- Fast Settling Time
- 4 Configurable Gain Steps
- 12 Photo Diodes
- Low Offset Voltage
- Power-down Mode
- Pb-free Optical 16-pin Package

## Applications

- DVD +RW with CD-RW Capability
- DVD -RW with CD-RW Capability
- DVD-RAM with CD-RW Capability
- DVD 18x Application
- Recordable Optical Data Storage Devices

## 1. Description

The ATR0874 is a Photo Detector Integrated Circuit (PDIC) for operation in high speed DVD applications like DVD-RAM and DVD+/-RW at a wavelength of 650 nm and CD-RW at a wavelength of 780 nm. It includes 10 channels with 4 different gain steps. The four channels A, B, C, D are high speed channels whereas the channels E1G1, E2G2, F1H1, F2H2 are high gain channels at average speed for tracking control, sector information etc.. The remaining two channels RF+ and RF- are RF paraphase outputs. Channels A to D are summed together at the RF outputs.

Setting of the gain and entering/exiting sleep mode is controlled using the two tri-state inputs SW1 and SW2.

All channels are set to tri-state during sleep mode.

Due to its small package size the ATR0874 is especially suited for application with low height requirements like SLIM and UltraSLIM drives.



## 10-channel High Speed Photo Detector IC for DVD/CD

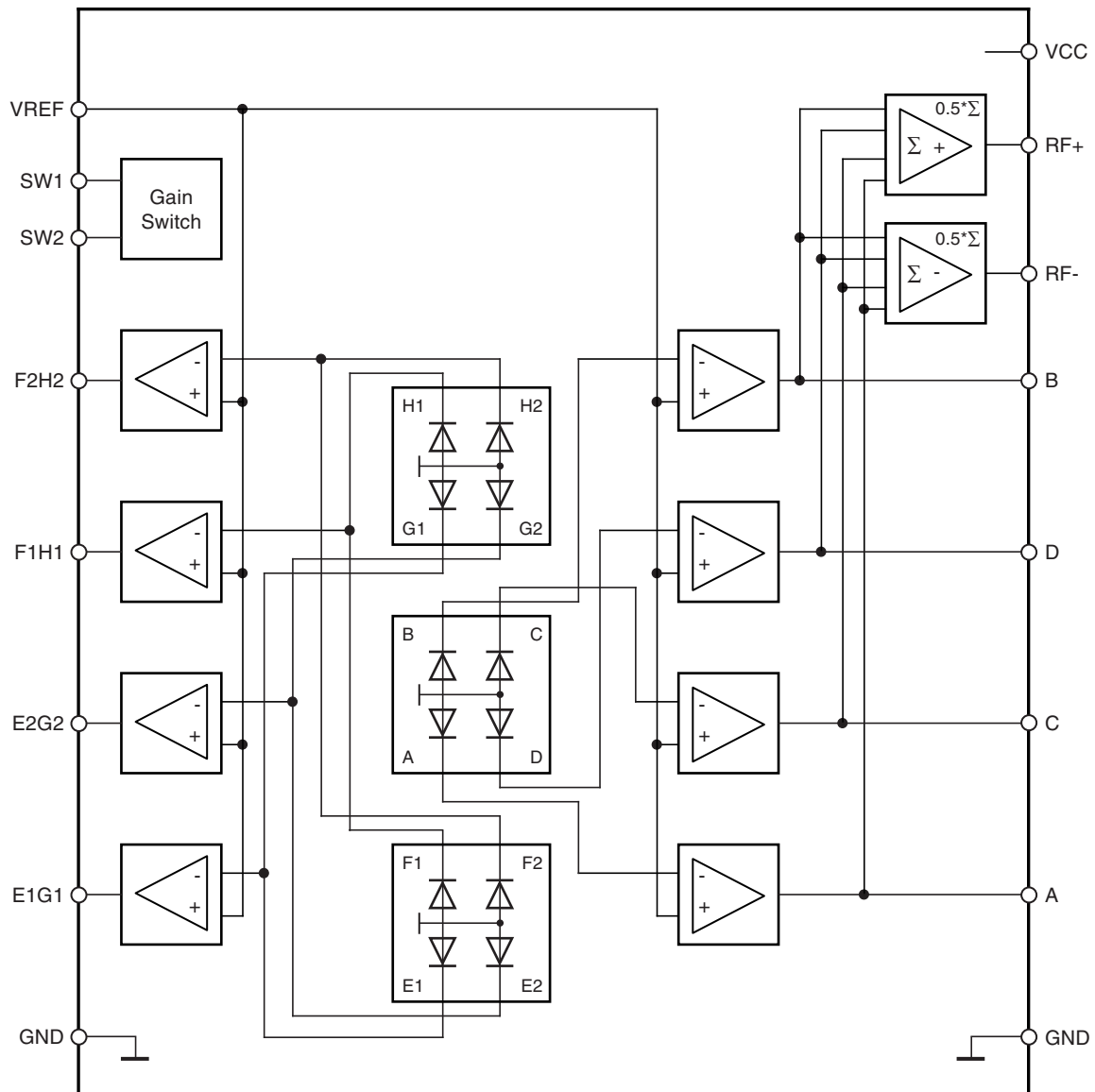
### ATR0874

## Summary

## Preliminary



**Figure 1-1.** Block Diagram



## 2. Pin Configuration

Figure 2-1. Pinning QFN16L

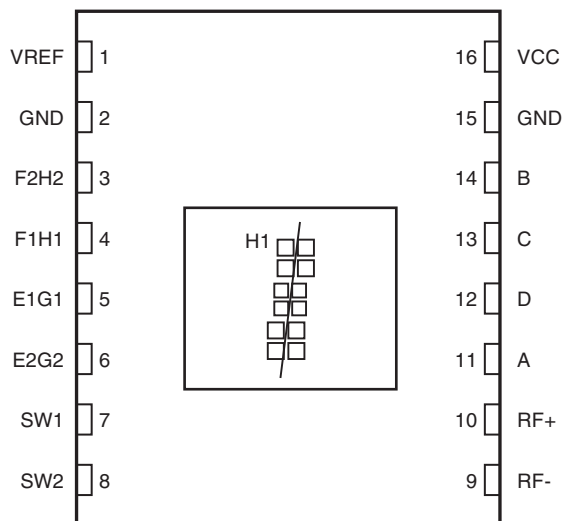


Table 2-1. Pin Description

Pin	Symbol	Type	Function
1	VREF	Analog	Reference voltage
2	GND	Supply	Ground
3	F2H2	Analog	Output channel F2H2
4	F1H1	Analog	Output channel F1H1
5	E1G1	Analog	Output channel E1G1
6	E2G2	Analog	Output channel E2G2
7	SW1	Tri-state	Gain switch
8	SW2	Tri-state	Gain switch
9	RF-	Analog	Output RF-
10	RF+	Analog	Output RF+
11	A	Analog	Output channel A
12	D	Analog	Output channel D
13	C	Analog	Output channel C
14	B	Analog	Output channel B
15	GND	Supply	Ground
16	VCC	Supply	Supply voltage

### 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	Symbol	Value	Unit
Supply voltage	VCC	−0.5 to +6.0	V
Input voltage at any input	V <sub>in</sub>	−0.5 to VCC − 0.5	V
Storage temperature	T <sub>stg</sub>	−40 to +100	°C
Soldering temperature COB package	T <sub>sol</sub>	235	°C
Soldering temperature QFN_Open package	T <sub>sol</sub>	260	°C

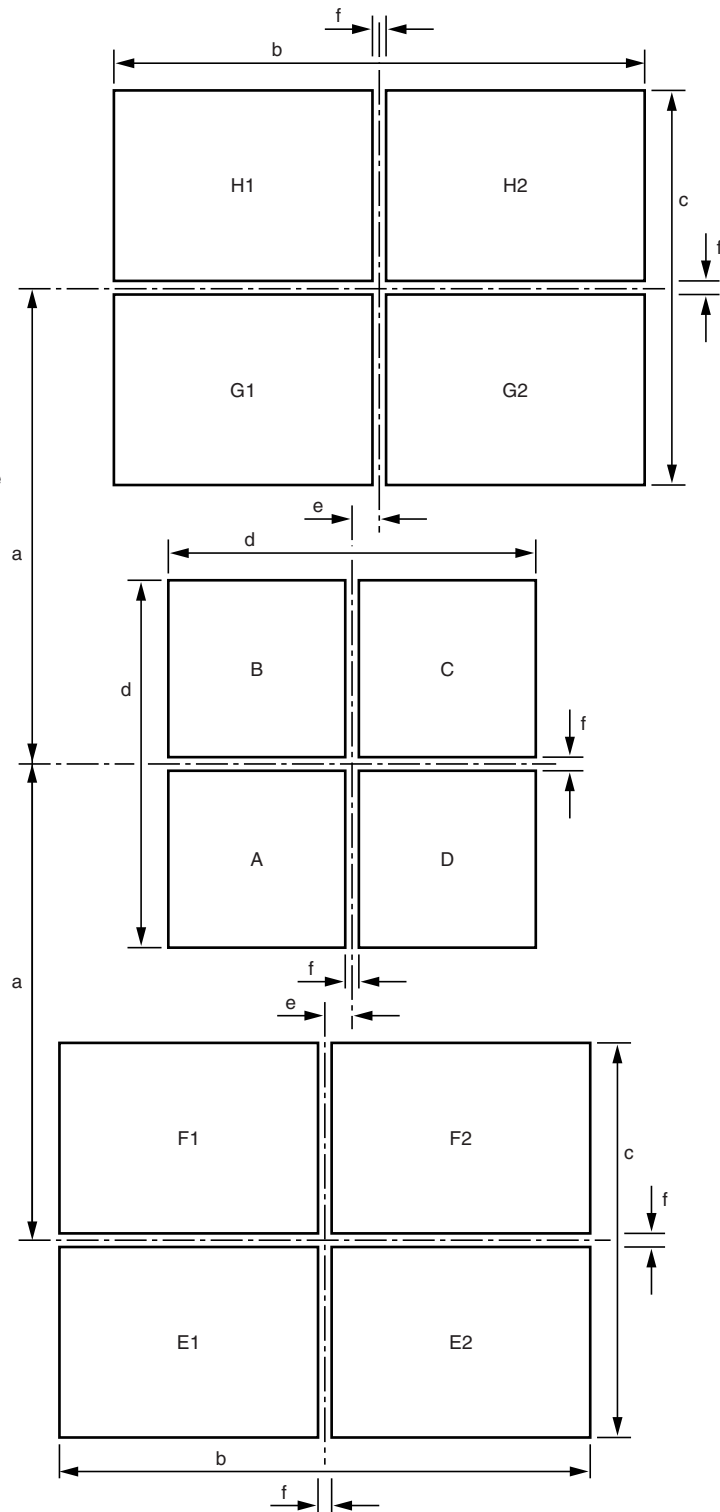
### 4. Recommended Operating Conditions

Parameters	Symbol	Value	Unit
Supply voltage	VCC	4.5 to 5.5	V
Reference voltage	V <sub>REF</sub>	1.5 to 2.3	V
Operating temperature range	T <sub>amb</sub>	0 to +80	°C

## 5. Photo Diode Arrangement

Figure 5-1. Photo Diode Arrangement

Photo diode is symmetrically centered  
to the center of the chip and package  
Symmetrical axis is parallel to the package



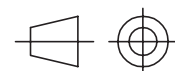
## 6. Ordering Information

Extended Type Number	Package	Remarks
ATR0874-PZQW	QFN_OPEN_4x3.5_16L	Taped and reeled, Pb-free

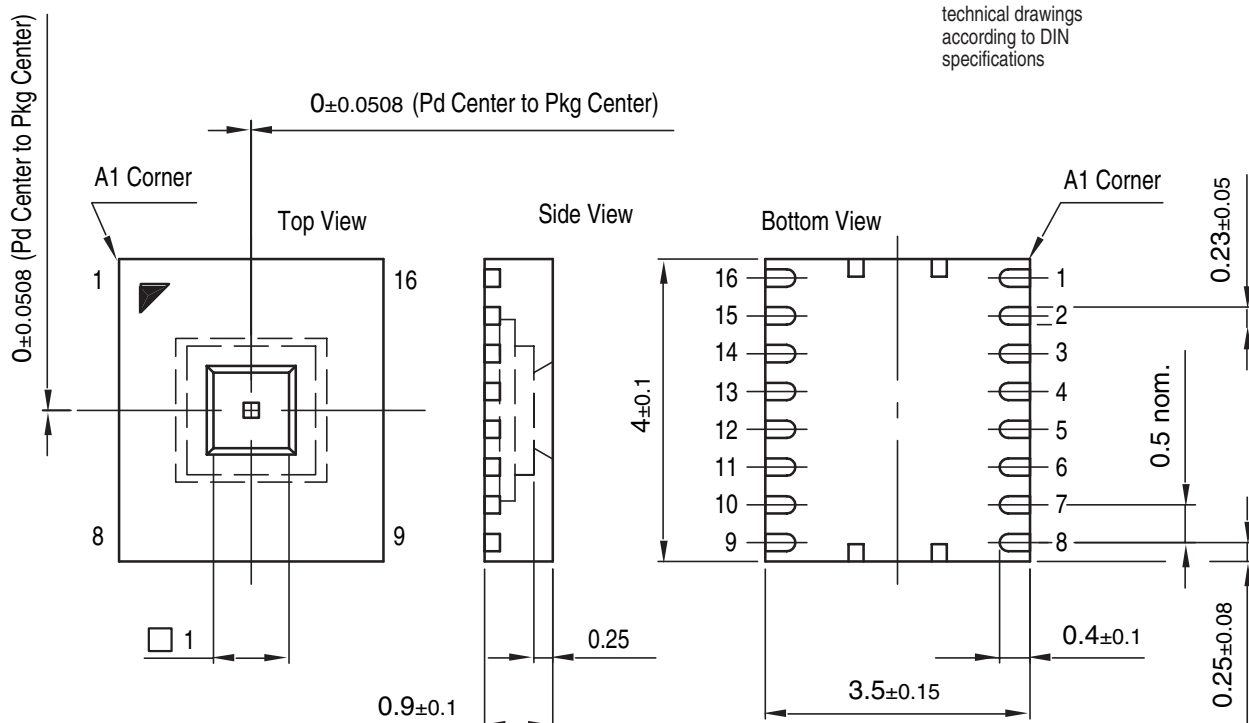
## 7. Package Information

Package: QFN\_OPEN\_4x3.5\_16L

Dimensions in mm



technical drawings  
according to DIN  
specifications



Drawing-No.: 6.543-5116.01-4

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## 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 Chantreterie  
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

Avenue de Rochepleine  
BP 123  
38521 Saint-Egreve Cedex, France  
Tel: (33) 4-76-58-47-50  
Fax: (33) 4-76-58-47-60

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