

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 Up to 20x Application
- Recordable Optical Data Storage Devices

1. Description

The ATR1874 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, and 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 ATR1874 is especially suited for application with restricted height requirements like SLIM and UltraSLIM drives.



10-channel High-speed Photo Detector IC for DVD/CD

ATR1874

Summary

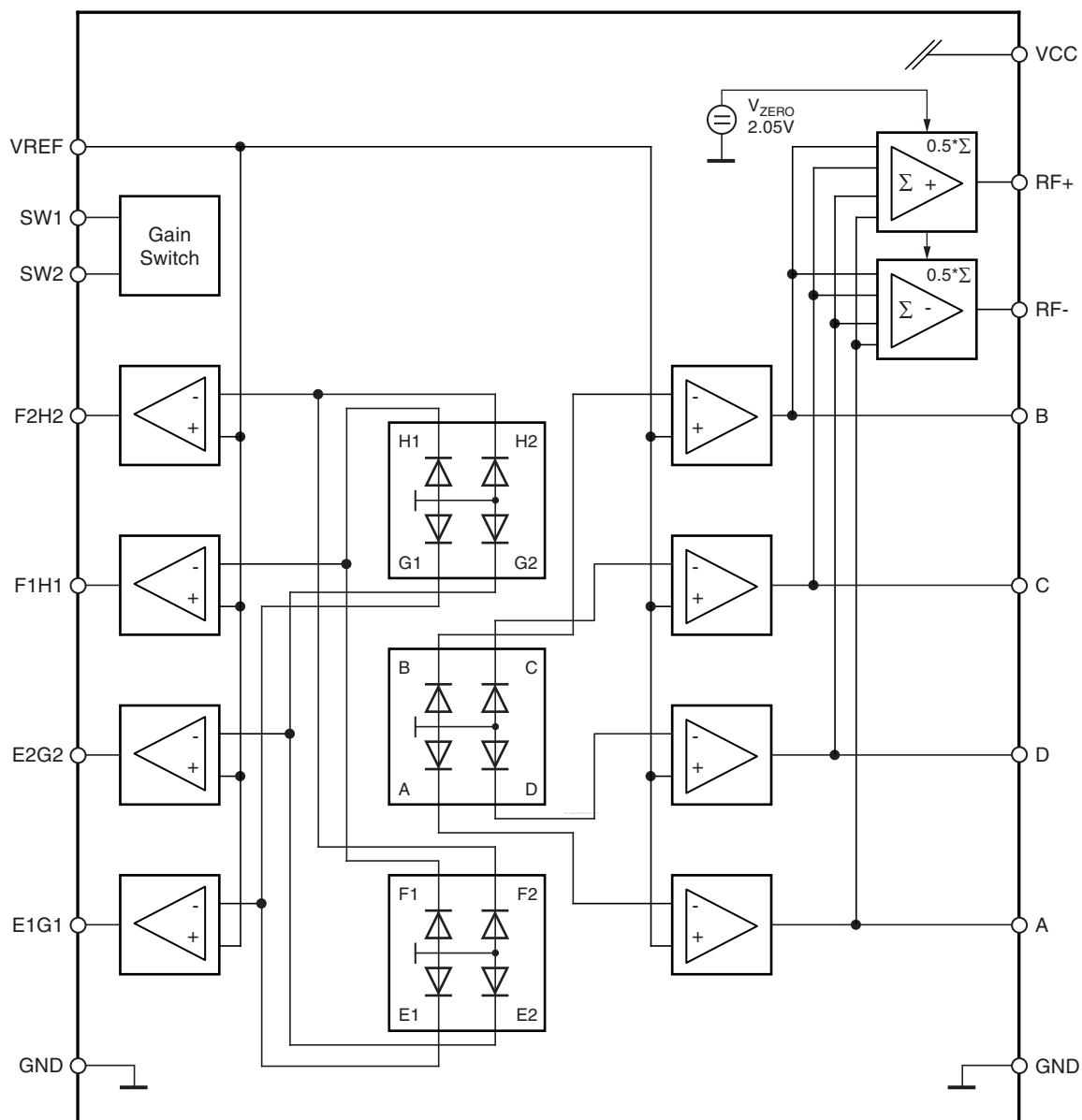
Preliminary

NOTE: This is a summary document. The complete document is available under NDA. For more information, please contact your local Atmel sales office.

4998AS-DVD-05/07



Figure 1-1. Block Diagram



2. Pin Configuration

Figure 2-1. Pinning QFN16L

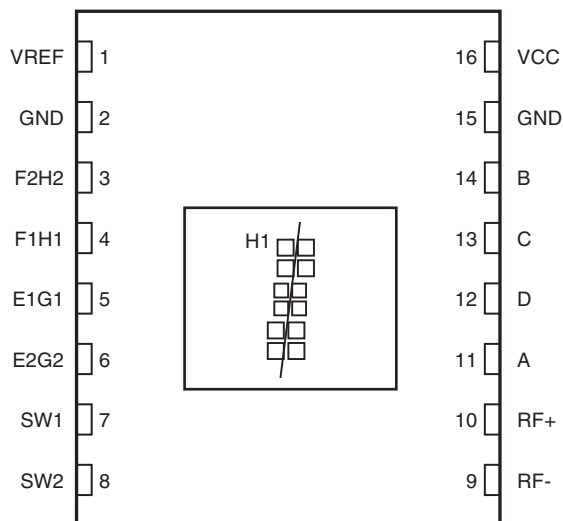


Table 2-1. Pin Description

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	V_{CC}	–0.5 to +6.0	V
Input voltage at any input	V_{in}	–0.5 to $V_{CC} - 0.5$	V
Storage temperature	T_{stg}	–40 to +100	°C
Soldering temperature QFN_Open package	T_{sol}	260	°C

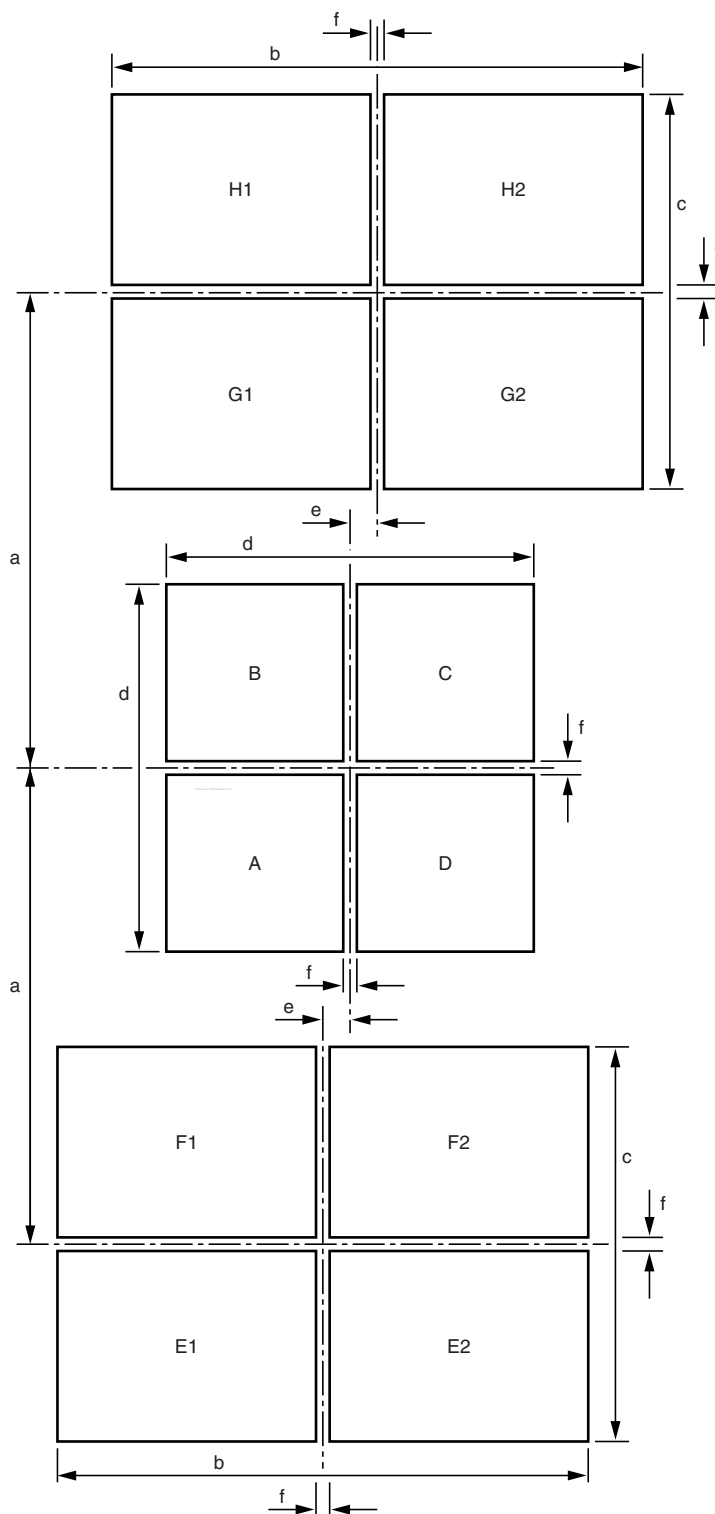
4. Recommended Operating Conditions

Parameters	Symbol	Value	Unit
Supply voltage	V_{CC}	4.5 to 5.5	V
Reference voltage	V_{REF}	1.5 to 2.3	V
Operating temperature range	T_{amb}	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



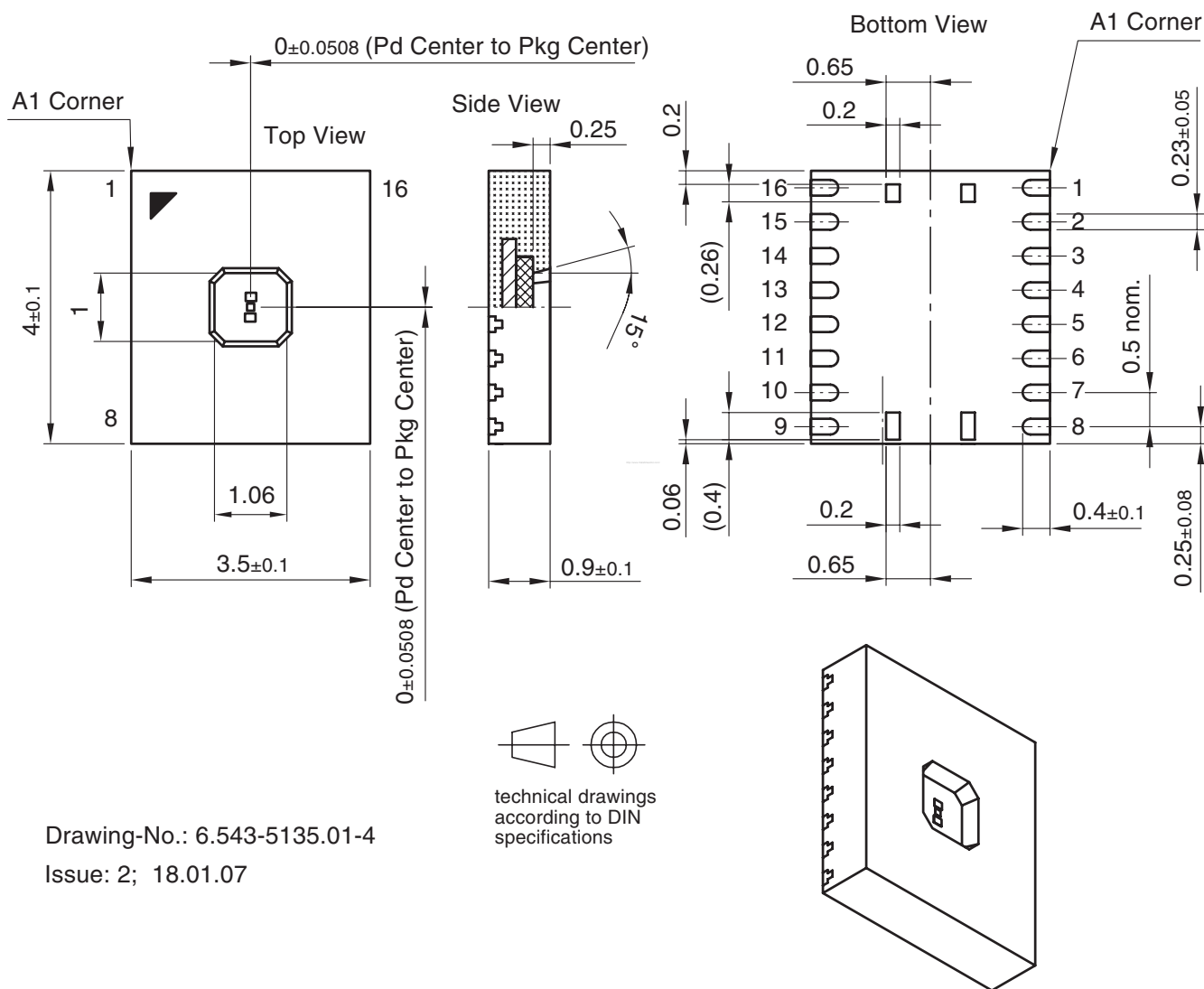
6. Ordering Information

Extended Type Number	Package	Remarks
ATR1874-PZQW	QFN_OPEN_4x3.5_16L	Taped and reeled, Pb-free

7. Package Information

Package: QFN_OPEN_4 x 3.5_16L_W1 x 1.06

Dimensions in mm



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