

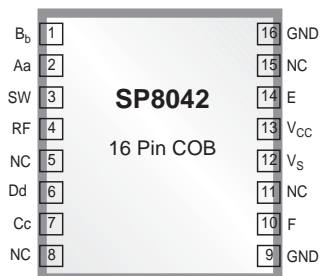
7 Channel Photo Detector IC

FEATURES

- Dual Wave length 650 and 780nm
- 55MHz Data Channel Bandwidth
- Built-in Media Switch
- Available in Wafer Form or 5.0 x 4.0mm
16 Pin COB Package

APPLICATIONS

- DVD Player



DESCRIPTION

The SP8042 is a seven channel photo detector IC (PDIC) designed for DVD-ROM and CD-ROM applications and can operate at wavelength of 650 and 780 nm. The device contains four photo diode (sensor) arrays, two of them with four identical sensors (A – D, and a – d respectively) and two with a single sensors (E, F). The seven channels consist of four high speed channels (Aa, Bb, Cc, and Dd), two slow channels (E, F), and one RF channel. The high speed channel output provides a signal from one of the two different sensor arrays (A – D or a – d) depending the position of the media switch (SW). A high logic level at the SW pin selects CD mode (A – D sensors) while a low level selects DVD mode (a – d sensors). The E and F channels output is used for a servo control. The RF channels output is sum of A + B + C + D or a + b + c + d channels (depending upon SW level) with identical weights given to all channels.

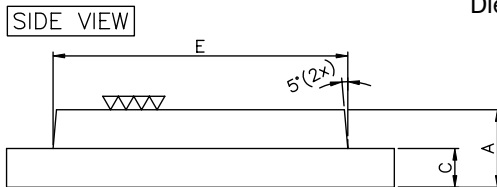
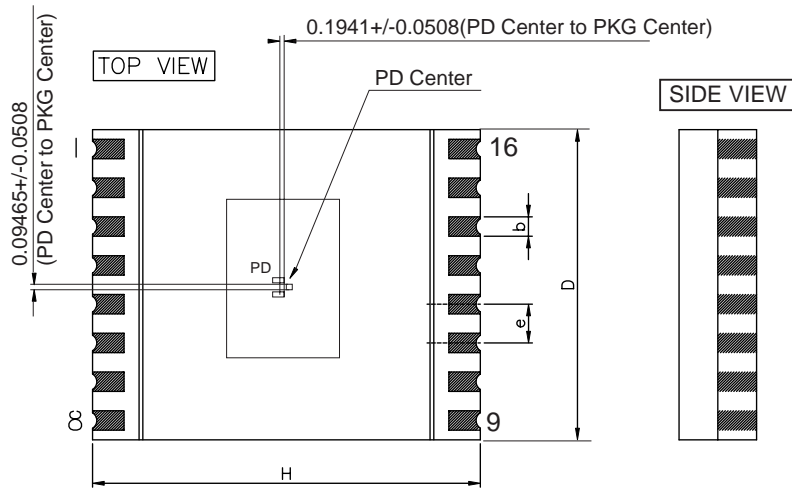
Low noise operation enables data recovery at very low signal levels.
The SP8042 is manufactured with an advanced 10GHz BICMOS technology.

PIN No.	NAME	DESCRIPTION
1	Bb	Output of Bb channel (B or b sensor output depending upon SW position).
2	Aa	Output of Aa channel (A or a sensor output depending upon SW position).
3	SW	Mode switch input. High logic level selects CD mode, low - DVD mode.
4	RF	Output of RF channel. $RF = A + B + C + D$ or $RF = a + b + v + d$ depending upon SW position.
5	NC	No Connection.
6	Dd	Output of Dd channel (D or d sensor output depending upon SW position).
7	Cc	Output of Cc channel (C or c sensor output depending upon SW position)
8	NC	No Connection.
9	GND	Ground Pin.
10	F	Output of F Channel.
11	NC	No Connection.
12	V _S	Reference Voltage. Bypass to GND with ceramic capacitor 0.1 μ F.
13	V _{CC}	Supply Voltage. Bypass to GND with ceramic capacitor 0.1 μ F.
14	E	Output of E Channel.
15	NC	No Connection.
16	GND	Ground Pin.

BOARD LAYOUT AND GROUNDING

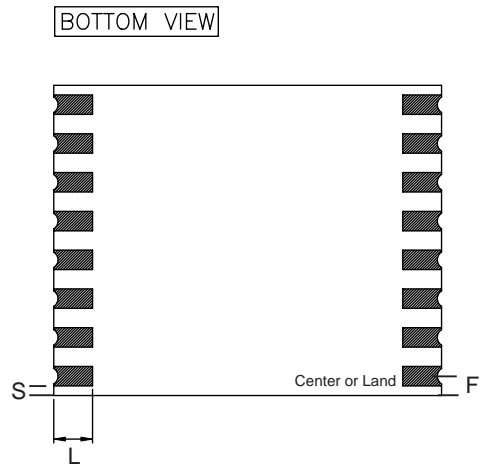
To obtain the best performance from the SP8042, a printed circuit board with ground plane is required. Both ground pins (pins #9 and #16) should be connected to the ground plane. High quality, low series resistance ceramic 0.1 μ F bypass capacitors should be used at the V_{CC} and V_S pins (pins 12 and 13). These capacitors must be located as close to the pins as possible.

The traces connection the pins to the ground plane, V_{CC}, V_S, and bypassing capacitors must be kept short and should be made as wide as possible.



Die Center at 0.05285mm, - 0.06165mm

SYMBOLS	MIN	NOM	MAX
A	0.85	0.95	1.05
b	0.20	0.25	0.30
C	-	0.40	-
D	3.90	4.00	4.10
E	3.70	3.80	3.90
e	-	0.50	-
H	-	5.00	-
L	0.60	0.70	0.80
F	0.17	0.25	0.33
S	0.02	0.10	0.18



16 Pin COB

Part Number	Temperature Range	Package Type
SP8042DB	-30°C to 80°C	16 Pin COB
SP8042W	-30°C to 80°C	Wafer



ANALOG EXCELLENCE

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