


High Speed 10-channel Photo Detector IC

FEATURES

- Dual wavelength 650 and 780nm
- Data channel bandwidth 130 MHz
- Eleven selectable gain settings covering 42dB range
- Group delay error less than 1ns up to 72MHz
- Slew rate up to 400V/us
- Small 16-pin OPLGA package

APPLICATION

- DVD-RAM with CD-RW capability
- DVD-RW with CD-RW capability
- Writable data storage optical devices

Vs	1		16	Vcc
Gain 2	2		15	RF+
Gain 1	3		14	RF-
Gain 3	4	SP8062	13	C
E	5	16-Pin	12	B
F	6	OPLGA	11	D
G	7		10	A
H	8		9	GND

GENERAL DESCRIPTION

The SP8062 is a ten channel photo detector IC (PDIC) specially designed for high speed DVD-RAM and DVD-RW applications and can operate at wavelength of 650 and 780 nm. The ten channels consist of four high speed channels (A, B, C, and D), four average speed channels (E, F, G, and H), and two channels with paraphase output (RF+ and RF-). The RF channels output is sum of A + B + C + D channels with identical weights. Low noise operation enables data recovery at very low signal levels.

The SP8062 has three logic inputs for gain control, one of them operating as TTL compatible (Gain 1), and two other operating as three state logic inputs (Gain 2 and Gain 3). The allowable logic states are used to select 10 gain factors and a sleep mode (see table 4).

In sleep mode all channels are in tri-state condition.

The SP8062 is manufactured with an advanced 10GHz BICMOS technology.

ABSOLUTE MAXIMUM RATINGS

These are stress ratings only and functional operation of the device at these ratings or any other above those indicated in the operation sections of the specifications below is not implied. Exposure to absolute maximum rating conditions for extended periods of time may affect reliability.

Supply Voltage (Vcc).....6.0V
Input Voltage at any input....-0.6V to Vcc+0.5V
Output Voltage (Vout)..... Vcc
Storage Temperature.....-40°C to +100°C
Soldering Temperature.....+235°C

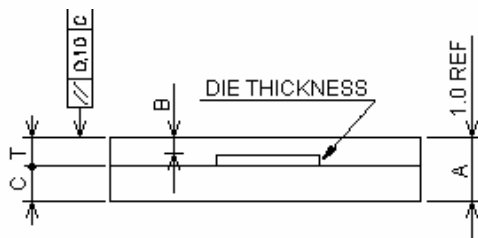
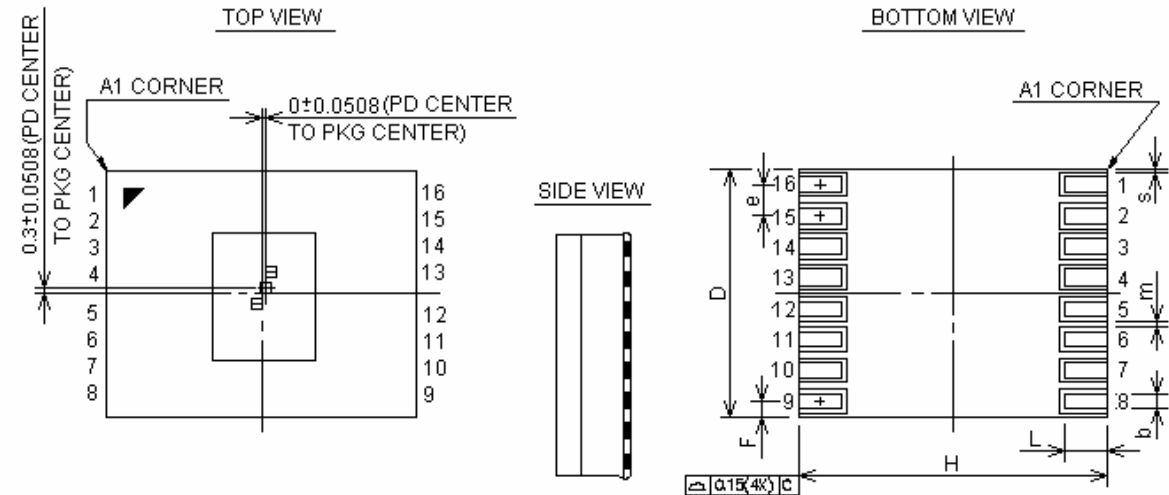
RECOMMENDED OPERATING CONDITIONS

Supply Voltage (Vcc).....4.5V to 5.5V
Reference Voltage (Vs).....1.8V to 2.2V
Operating temperature.....-30 to +80°C

BOARD LAYOUT AND GROUNDING

To obtain the best performance from the SP8062, a printed circuit board with ground plane is required. High quality, low series resistance ceramic 0.1uF bypass capacitors should be used at the Vcc and Vs pins (pins 1 and 16). These capacitors must be located as close to the pins as possible. The traces connecting the pins and the bypassing capacitors must be kept short and should be made as wide as possible.

OPLGA 16L PACKAGE DIMENSIONS



NOTE: DIE THICKNESS 0.2 mm (8mil)

SYMBOLS	DIMENSIONS IN MILLIMETERS		
	MIN	NOM	MAX
A	0.90	1.00	1.10
b	0.20	0.25	0.30
C	—	0.56	—
D	3.85	4.00	4.15
B	0.19	—	0.32
H	4.90	5.00	5.10
e	—	0.5	—
F	0.17	0.25	0.33
L	0.60	0.70	0.80
T	—	0.45	—
s	0.05	—	—
m	0.10	—	—

NOTE ON DETECTOR ORIENTATION WITHIN PACKAGE: Detector “H” is the photo detector element closest to the top of the package (closest to pins 1 and 16).

Clear Mold Compound Characteristics:

Clear Mold Material : NT330HQ

Refractive index : 1.57



ORDERING INFORMATION

Part number	Temperature range	Package Type
SP8062DG	-30 + 80 ^o C	16-pin Optical Land Grid Array (OPLGA)

Rev 1.7 (01-16-04): SP8062 – High Speed 10 Channel PDIC

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