


## High Speed, Constant Bandwidth Differential APC Amplifier

### FEATURES

- Dual wavelength 650 and 780nm
- 150 MHz Bandwidth over all gains
- 400 V/ $\mu$ s Slew Rate
- 5 ns Setting Time
- 10 mV Differential Output Offset Voltage
- Potentiometer, Voltage or DAC programmable gain
- $\pm 6$  dB External Gain Adjust
- Small 8-pin OPLGA package

VCC	1	 SP8027 8-Pin OPLGA	8	VOUT+
GAIN	2		7	VOUT-
VBG	3		6	VG2
GND	4		5	VG1

### APPLICATION

- CD-R, and CD-RW
- DVD+/-R, DVD+/-RW, and DVD-RAM

### GENERAL DESCRIPTION

The SP8027 represents the next generation in Automatic Power Control (APC) amplifiers designed specifically for demanding pick-up head applications. Whereas typical APC products exhibit degradation of bandwidth and slower settling times at higher gain levels, the SP8027 features constant bandwidth (150MHz) and fast settling times (5ns) across the entire gain adjust range.

With its integrated photo detector, the SP8027 monitors light intensity of the laser diode in CD-R, CD-RW, DVD+/-R, DVD+/-RW, and DVD-RAM assemblies and converts this light to an output voltage. The magnitude of this voltage signal corresponds to the laser power intensity and is subsequently fed back to the laser diode driver to control the laser output power.

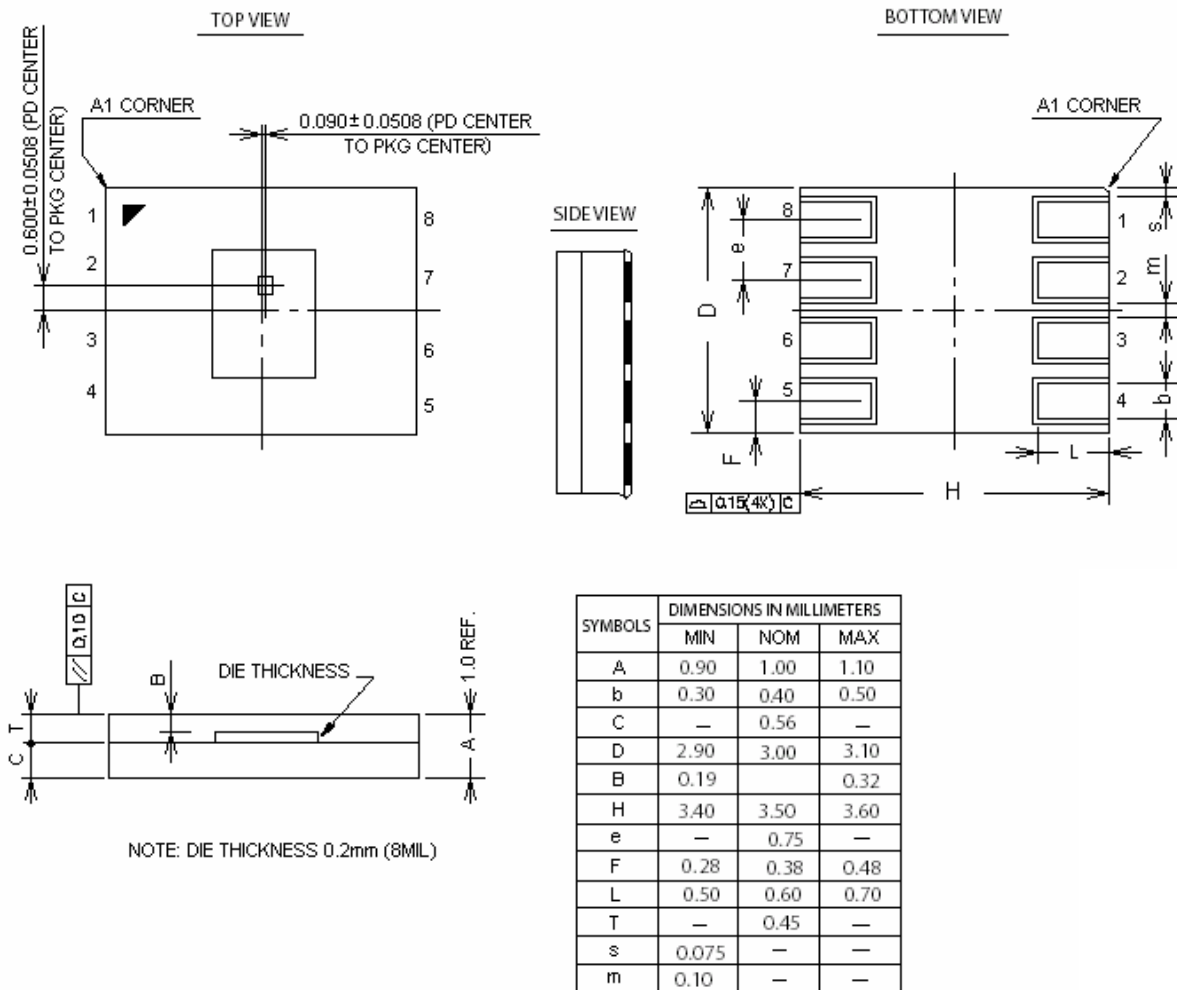
The SP8027 on-chip photo detector transforms incident laser light into a proportional current, which is then converted to a voltage through a trans-impedance amplifier. The SP8027 achieves an unparalleled level of performance by combining excellent DC stability and low noise with outstanding AC performance.

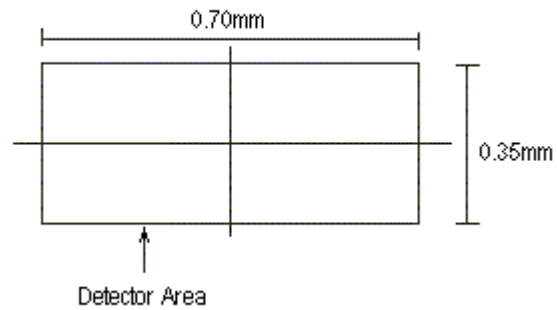
The SP8027 is offered with a nominal sensitivity 3600 V/W and is packaged in a 3.0 x 3.5 mm, 8-lead OPLGA package.

PIN ASSIGNMENTS

Pin #	Pin Name	Pin Function
1	Vcc	Supply Voltage. Bypass to GND with ceramic capacitor 0.1μF
2	Gain	Gain Switch Input. Low level or Open selects pin VG1, high level selects pin VG2
3	VBG	Common connection bias voltage output for Potentiometer1 and Potentiometer2
4	GND	Supply Ground
5	VG1	Gain Adjust Potentiometer1 wiper connection or control voltage input
6	VG2	Gain Adjust Potentiometer2 wiper connection or control voltage input
7	Vout(-)	Output Voltage Negative Swing
8	Vout(+)	Output Voltage Positive Swing

OPLGA 8-pin PACKAGE DIMENSIONS



**PHOTO DETECTOR PATTERN****ORDERING INFORMATION**

<b>Part number</b>	<b>Temperature range</b>	<b>Package Type</b>
SP8027CG	0 + 70 <sup>0</sup> C	8-pin OPLGA