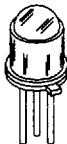


# Sensors Hermetic Optoschmitts

Hermetically sealed optoschmitts are available in TO-18 and TO-46 metal-can packages, with different pinouts. They are graded on input sensitivity with radiant intensity maximum ranging from 2.5 mW/cm<sup>2</sup> (SD5600-001, SD5620-001) to 0.13mW/cm<sup>2</sup> (SDXX4-003). The devices are tested using a monochromatic IRED operating at 935nm.


These devices consist of a photodiode, linear amplifier, Schmitt trigger, and an output stage. Device polarity is determined in the output stage. For that reason, all electrical specifications are listed together and followed by an output cross-reference to allow proper choice for output configuration and polarity.

## SD5004, SD5014, SD5304, SD5314, SD5604 and SD5614

Package Style	Parameter	min.	max.	units	Test Conditions	
	Supply Voltage	4.5	16.0	V	SD5304, 5314, 5604 and 5614	
		4.5	7.0	V	SD5004, 5014	
	Supply Current		15.0	mA	V <sub>CC</sub> = 16V, H = 0 to 10 mW/cm <sup>2</sup>	
	Output Saturation Voltage		0.4	V	I <sub>OL</sub> = 12.8mA, V <sub>CC</sub> = 5.5V	
	Radiant Threshold	-301		1.50	mW/cm <sup>2</sup>	V <sub>CC</sub> = 5.0V
		-302		0.25	mW/cm <sup>2</sup>	V <sub>CC</sub> = 5.0V
		-303		0.13	mW/cm <sup>2</sup>	V <sub>CC</sub> = 5.0V
	Hysteresis (Note 1)	33	67	%	V <sub>CC</sub> = 5.0V	
	Propagation Delay LO to HI, HI to LO			5.0	μs	V <sub>CC</sub> = 5.0V, R <sub>L</sub> = 390Ω (totem-pole, 8TTL loads)
		Rise Time		70	ns	same as propagation delay
		Fall Time		70	ns	same as propagation delay

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## SD5600, SD5610, SD5620 and SD5630

Package Style	Parameter	min.	max.	units	Test Conditions	
	Supply Voltage	4.5	16.0	V		
	Supply Current		12.0	mA	V <sub>CC</sub> = 5.0V, H = 0	
	Supply Current		15.0	mA	V <sub>CC</sub> = 16.0V, H = 0	
	Output Saturation Voltage		0.4	V	I <sub>OL</sub> = 12.8 mA, V <sub>CC</sub> = 5.0V	
	Radiation Threshold	SD5600-1, SD5610-1		2.5	mW/cm <sup>2</sup>	V <sub>CC</sub> = 5.0V
		SD5620-1, SD5630-1		0.25	mW/cm <sup>2</sup>	V <sub>CC</sub> = 5.0V
		SD5620-2, SD5630-2		0.13	mW/cm <sup>2</sup>	V <sub>CC</sub> = 5.0V
	Hysteresis (Note 1)	5.0	30.0	%	V <sub>CC</sub> = 5.0	
	Propagation Delay LO to HI, HI to LO			5.0	μs	R <sub>L</sub> = 390Ω, C <sub>L</sub> = 50pf
		Rise Time		150.0	ns	same as propagation delay
		Fall Time		15.0	ns	same as propagation delay

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## OUTPUT CROSS REFERENCE

Part Number(s)	Polarity	Output Definition	Output Type
SD5004	buffer	LO with H = 0	totem-pole
SD5014	inverter	HI with H = 0	totem-pole
SD5304	buffer	LO with H = 0	open-collector
SD5314	inverter	HI with H = 0	open-collector
SD5604, 5600, 5620	buffer	LO with H = 0	10KΩ pull-up to V <sub>CC</sub>
SD5614, 5610, 5630	inverter	HI with H = 0	10KΩ pull-up to V <sub>CC</sub>


**NOTE 1:** Hysteresis is defined as the difference between the operating and release threshold intensities, expressed as a percentage of the operate threshold intensity.

# Plastic Encapsulated Optoschmitts Sensors

Plastic encapsulated optoschmitts are available in two side-looking packages; pinouts are identical, but lead spacing and forming are different. They are graded on input sensitivity with radiant intensity maximum ranging from 2.5 mW/cm<sup>2</sup> to 0.37mW/cm<sup>2</sup>. The devices are tested using a monochromatic IRED operating at 935nm.


These devices consist of a photodiode, linear amplifier, Schmitt trigger, and an output stage. Device polarity is determined in the output stage. For that reason, all electrical specifications are listed together and followed by an output cross-reference to allow proper choice for output configuration and polarity.

## SDP8004, SDP8014, SDP8304, SDP8314, SDP8604, and SDP8614

Package Style	Parameter	min.	max.	units	Test Conditions
	Supply Voltage	4.5	5.5	V	SDP8004, SDP8014
	Supply Voltage	4.5	16.0	V	SDP8304, 8314, 8604, 8614
	Supply Current		15.0	mA	V <sub>CC</sub> = 16V, H = 0 to 10mW/cm <sup>2</sup>
	Output Saturation Voltage		0.4	V	I <sub>OL</sub> = 12.8mA, V <sub>CC</sub> = 5.5V
	Radiant Threshold				
	-301	.08	.37	mW/cm <sup>2</sup>	V <sub>CC</sub> = 5.0V
	Hysteresis (Note 1)	33	67	%	V <sub>CC</sub> = 5.0V
	Propagation Delay				
	LO to HI, HI to LO		5.0	μs	V <sub>CC</sub> = 5.0V, R <sub>L</sub> = 390Ω (totem-pole, 8TTL loads)
	Rise Time		70	ns	same as propagation delay
	Fall Time		70	ns	same as propagation delay

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## SDP8600, SDP8601, SDP8602, SDP8610, SDP8611, and SDP8612

Package Style	Parameter	min.	max.	units	Test Conditions
	Supply Voltage	4.5	16.0	V	
	Supply Current		12.0	mA	V <sub>CC</sub> = 5.0V, H = 0
	Supply Current		15.0	mA	V <sub>CC</sub> = 16.0V, H = 0
	Output Saturation Voltage		0.4	V	I <sub>OL</sub> = 12.8mA, V <sub>CC</sub> = 5.0V
	Radiant Threshold				
	-1		2.5	mW/cm <sup>2</sup>	V <sub>CC</sub> = 5.0V
	-2		1.2	mW/cm <sup>2</sup>	V <sub>CC</sub> = 5.0V
	-3		0.6	mW/cm <sup>2</sup>	V <sub>CC</sub> = 5.0V
	Hysteresis (Note 1)	5.0	30.0	%	V <sub>CC</sub> = 5.0V
	Propagation Delay				
	LO to HI, HI to LO		5.0	μs	R <sub>L</sub> = 390Ω, C <sub>L</sub> = 50pf
Rise Time		150.0	ns	same as propagation delay	
Fall Time		15.0	ns	same as propagation delay	

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## OUTPUT CROSS REFERENCE

Part Number(s)	Polarity	Output Definition	Output Type
SDP8004	buffer	LO with H = 0	totem-pole
SDP8014	inverter	HI with H = 0	totem-pole
SDP8304	buffer	LO with H = 0	open-collector
SDP8314	inverter	HI with H = 0	open-collector
SDP8600, 8601, 8602	buffer	LO with H = 0	10KΩ pull-up to V <sub>CC</sub>
SDP8604	buffer	LO with H = 0	10KΩ pull-up to V <sub>CC</sub>
SDP8610, 8611, 8612	inverter	HI with H = 0	10KΩ pull-up to V <sub>CC</sub>
SDP8614	inverter	HI with H = 0	10KΩ pull-up to V <sub>CC</sub>

NOTE 1: Hysteresis is defined as the difference between the operating and release threshold intensities, expressed as a percentage of the operate threshold intensity.