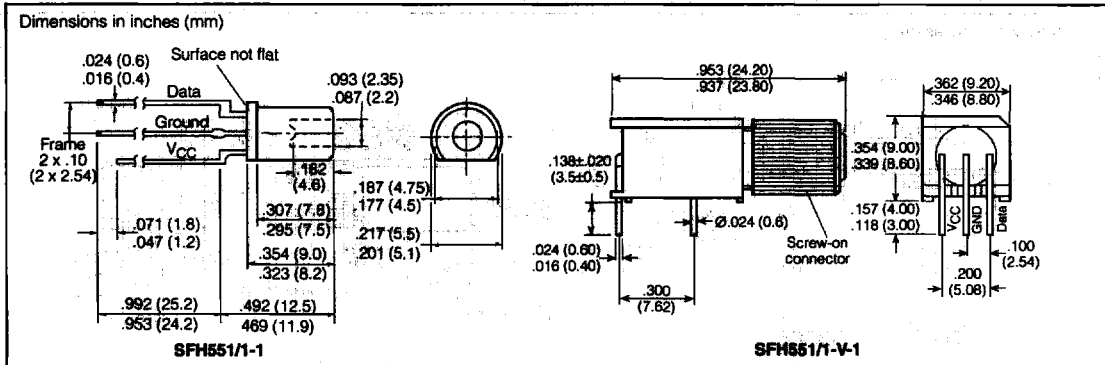


**SIEMENS**

**5 mm LED PACKAGE SFH551/1-1**  
**RIGHT ANGLE HOUSING SFH551/1V-1**  
**Plastic Fiber Optic Integrated Photodetector**



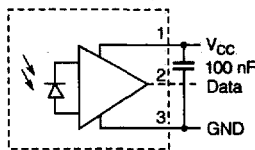
**FEATURES**

- Bipolar IC with open-collector output
- Digital output, TTL compatible, open collector
- Uses Schmidt trigger for noise immunity
- Suitable for 2.2 mm plastic fiber with 1 mm core diameter
- Transfer rate  $\leq 5$  MBI/s
- Low switching threshold
- High sensitivity from integrated  $\mu$ lens
- SFH551/1-1: T1<sup>3</sup>/<sub>4</sub> (5 mm) package
- SFH551/1V-1: right angle plastic housing
- SFH551/1V-1: easy coupling to plastic fiber without stripping or decladding

**Maximum Ratings**

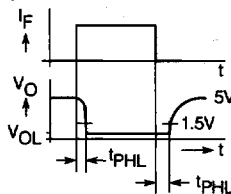
Storage Temperature Range ( $T_{STG}$ ) ..... -55 to 100°C  
 Operating Temperature Range ( $T_{OP}$ ) ..... -40 to 85°C  
 Supply Voltage ( $V_{CC}$ ) ..... -0.5 to 15 V  
 Output Voltage ( $V_O$ ) ..... -0.5 to 15 V  
 Output Current ( $I_O$ ) ..... 50 mA  
 Power Dissipation (output) ( $P_O$ ) ..... 85 mW

**Block Diagram**



A bypass capacitor (100 nF) near the device is necessary between  $V_{CC}$  and ground.

**Delay Time**



**DESCRIPTION**

The SFH551/1-1 is a photodetector to be used with 1000 micron plastic optical fiber. This device amplifies incoming signals via a DC coupled trans-impedance amplifier, and its open collector output is TTL compatible. The SFH551/1-1 includes a Schmidt trigger function to provide stable outputs over the entire dynamic range. This helps prevent false data signals due to noise on the power supply or ground line.

The SFH551/1-1 comes in a T1<sup>3</sup>/<sub>4</sub> plastic package with a tubular aperture wide enough to accommodate fiber and cladding. The SFH551/1V-1 is housed in a unique plastic right angle package for easy coupling between the fiber and the photodetector.

The SFH551/1V-1 is suitable for data communication uses such as: LANs, medical equipment, and automotive electronics.

**Characteristics  $T_A=25^\circ\text{C}$ ,  $V_{CC}=4.75$  V to 5.25 V**

Parameter	Symbol	Value	Unit	Condition
Current Consumption without output current	$I_{CC}$	4 (<8)	mA	$V_{CC}=5$ V
Output Voltage, Low	$V_{OL}$	0.4 ( $\leq 0.6$ )	V	$I_{OL}=13$ mA, $\Phi_{out} \geq 4$ mW
Output Current, High	$I_{OH}$	5 ( $\leq 300$ )	$\mu$ A	$V_{OH}=5.25$ V, $\Phi_{out} \leq 0.1$ mW
Optical Power, Low	$\Phi_{outL}$	6 to 500 -22 to -3	$\mu$ W dBm	$\lambda=660$ nm
Optical Power, High	$\Phi_{outH}$	$\leq 0.1$ -40	$\mu$ W dBm	$\lambda=660$ nm
Delay Times	$t_{pHL}$ $t_{pLH}$	<100 <250	ns ns	$\Phi_{out} = 6$ $\mu$ W to 50 $\mu$ W $R_L=390$ $\Omega$ , $C_L=15$ pF, $I=1$ m
Pull Up Resistance	$R_L$	>330	$\Omega$	$V_{CC}=5$ V

See Appnote 40, 41, 43 for application information.

Fiber Optics  
Components  
Linear Elements