VISHAY INTERTECHNOLOGY, INC.

INFRARED (IR) RECEIVERS

- Remote Control
- 3DTV Active Glasses Synchronization
- Reflective and Transmissive Sensors

OPTOELECTRONICS

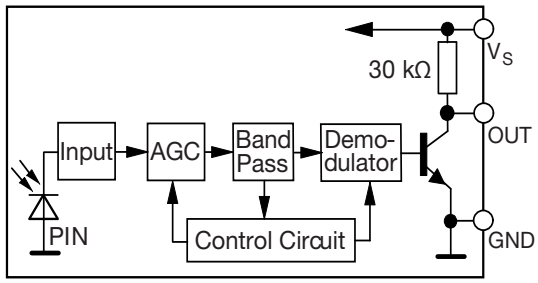
SELECTOR GUIDE

www.vishay.com

INFRARED (IR) RECEIVERS

Vishay Semiconductors

Vishay is the world's leading supplier of infrared (IR) receivers. No other supplier offers a similar breadth of products, holders, application and technical support, and overall knowledge of infrared communication. Our customers have confidence that our IR receivers will receive remote control signals while filtering out noise in the most demanding ambient environments. Vishay's IR receivers are used for remote control, for 3DTV active glasses synchronization and for transmisive and reflective sensors.



Remote Control

No single automatic gain control (AGC) algorithm can completely suppress all noise and pass data signals. Vishay has developed five different AGC response algorithms based on coding schemes and ambient noise conditions. These AGC algorithms allow developers to choose the most appropriate receiver for their application and coding scheme.

Holders and Bends.
Over 60 different holders and 20 different lead bend and cut options available.

IR Receivers for Remote Control

Code	Carrier Freq. (kHz)	Best AGC	5.0 x 4.5 x 1.3H	6.8 x 3.0 x 2.3H	6.8 x 3.0 x 3.2H	8.0 x 3.3 x 2.7H	7.5 x 5.3 x 4.0H	6.0 x 5.6 x 6.9H	5.0 x 4.8 x 6.9H
Sony SIRCS 15 and 20 bit	40	2	TSOP85240AP5	TSOP77240W	TSOP77240	TSOP85240	TSOP6240	TSOP4840	TSOP58240
Sony 12 bit	40	4	TSOP85240AP5	TSOP77440W	TSOP77440	TSOP85240	TSOP6440	TSOP4840	TSOP58440
RC-5	36	4	TSOP85436AP5	TSOP75436W TSOP77436W	TSOP75436 TSOP77436	TSOP85436	TSOP35436 TSOP6436	TSOP34436 TSOP4436	TSOP38436 TSOP58436
RC-6	36	4							
Panasonic	36.7	4							
NEC	38	4	TSOP85438AP5	TSOP75438W TSOP77438W	TSOP75438 TSOP77438	TSOP85438	TSOP35438 TSOP6438	TSOP34438 TSOP4438	TSOP38438 TSOP58438
Sharp	38	4							
r-step	38	4							
r-step	56	4	TSOP85456AP5	TSOP75456W TSOP77456W	TSOP75456 TSOP77456	TSOP85456	TSOP35456 TSOP6456	TSOP34456 TSOP4456	TSOP38456 TSOP58456
Thomson RCA	56	4							
MCIR	36	3 or 5	TSOP85536AP5[1]	TSOP75536W TSOP77336W	TSOP75536 TSOP77336	TSOP85536	TSOP35536 TSOP6336	TSOP34536 TSOP4336	TSOP38536 TSOP58336
RCMM	36	3 or 5							
Mitsubishi	38	3 or 5	TSOP85538AP5[1]	TSOP75538W TSOP77338W	TSOP75538 TSOP77338	TSOP85538	TSOP35538 TSOP6338	TSOP34538 TSOP4338	TSOP38538 TSOP58338
RECS-80 Code	38	3 or 5							
r-map	38	3 or 5							
XMP-1, XMP-2	38	5	TSOP85538AP5[1]	TSOP75538W	TSOP75538	TSOP85538	TSOP35538	TSOP34538	TSOP38538

Note: part dimensions shown in millimeter (mm)

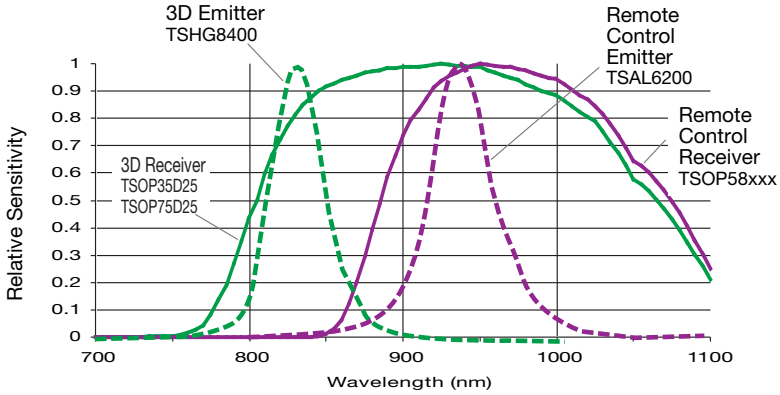
[1] Target specifications, product release pending.

3DTV Active Glasses Synchronization

The 3D synchronization signal must be unaffected by the TV remote control signal and be immune from other optical noise sources such as fluorescent and plasma light. Interference between TV remote and 3D systems can be reduced in two ways: by using a carrier frequency outside of the remote control range and by using a different wavelength for the emitter in the TV used for synchronization.

TV remote control systems typically use a carrier frequency between 36 kHz and 56 kHz and an infrared wavelength of 940 nm.

The TSOP35D25 and TSOP75D25 feature a band pass filter of 25 kHz and are sensitive to 830 nm and 850 nm wavelengths.



TSOP75D25

TSOP35D25

Application	Part Number	Carrier Frequency (kHz)	Dimensions L x W x H (mm)	Sensitivity (mW/m²)	Range [1] (m)
3DTV Active Glasses	TSOP35D25	25	7.5 x 5.3 x 4.0	0.15	26
	TSOP75D25		6.8 x 3.0 x 3.2	0.15	26

[1] TSAL6200, I F = 200 mA, I e = 100 mW/sr

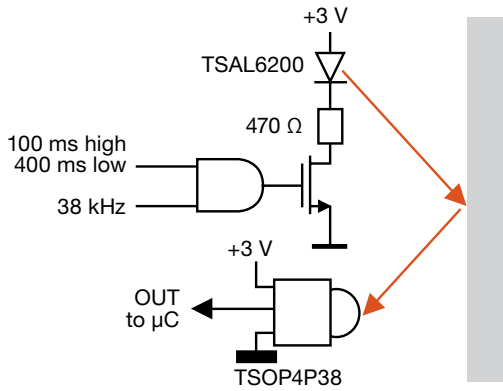
Sensors

Presence of an Object

To avoid false detection, Vishay's TSOP4038, TSOP5038, and TSOP58038 have a **fixed gain**. With a fixed gain, the detection threshold is fixed. Once the design of the optical parameters such as the intensity of the emitter, the aperture in front of the receiver, and the alignment of emitter and detector are defined, the sensor will provide stable, repeatable performance under all lighting conditions. **The output is a simple digital state indicating a detection.**

Proximity of an Object

Many applications require a reflective sensor that detects not only presence but also the strength or weakness of the reflected signal. An analog output is needed. This is possible with Vishay's TSOP4P38, TSOP5P38, and TSOP58P38 infrared sensors with variable gain, also called the "P" or proximity sensors. The length of the sensor's output pulse varies in proportion to the amount of light reflected from the object being detected. For near objects, the output pulse approaches 100 % of the emitted pulse.



TSOP4038
TSOP4P38

TSOP58038
TSOP58P38

TSOP5038
TSOP5P38

Presence (Digital Out)	Proximity (Analog Out)	Supply Current (mA)	Supply Voltage (V)	Viewing Angle (°)	Response Time (µs)	Light curtain Range[1] (m)	Reflective Range (m)
TSOP4038	TSOP4P38	0.85	2.7 to 5.5	± 45°	300	30	0.2 to 3.0
TSOP58038	TSOP58P38						
TSOP5038	TSOP5P38						

[1] only available with Presence part numbers

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