Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

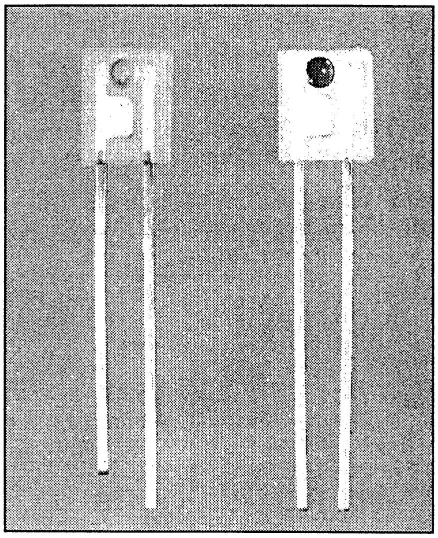
We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

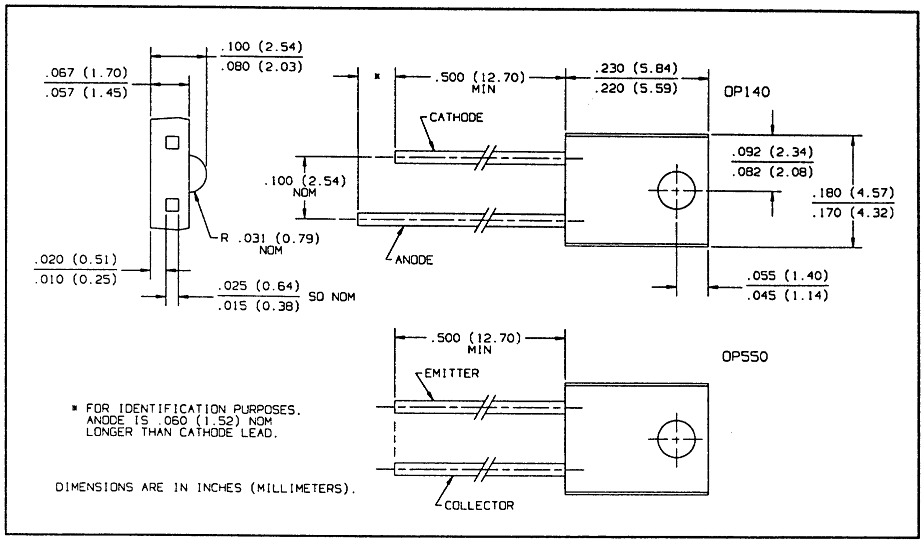
Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

Product Bulletin OPS690
July 1996

LED and Photosensor Pair
Types OPS690, OPS691, OPS692, OPS693





Features

- Lateral side-looking clear plastic package
- High current transfer ratio
- Low cost plastic package

Description

The OPS690 through OPS693 each consist of a gallium arsenide infrared emitting diode (OP140) and an NPN silicon phototransistor (OP550) mounted in matched lateral side-looking plastic packages. Matched pairs are desirable where the application is unique and the quantity required does not justify assembly tooling costs. If separation between the LED and the sensor is greater than two times the specified $I_{C(ON)}$ distance, proper alignment becomes critical. It should be remembered that the sensor is sensitive to ambient light. Although sold as pairs, emitters are packaged separately from sensors for ease of handling.

Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Storage and Operating Temperature . . . . -40° C to +100° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron] . . . . 260° C[1]

Input Diode

Continuous Forward Current . . . . 50 mA
Peak Forward Current (1 µs pulse width, 300 pps) . . . . 3.0 A
Reverse Voltage . . . . 2.0 V
Power Dissipation. . . . . 100 mW[2]

Output Phototransistor

Collector-Emitter Voltage . . . . 30 V
Emitter-Collector Voltage . . . . 5.0 V
Power Dissipation. . . . . 100 mW[2]

Notes:
(1) RMA flux is recommended. Duration can be extended to 10 sec. max when flow soldering. Max. 20 grams force may be applied to leads when soldering.
(2) Derate linearly 1.33 mW/° C above 25° C.
(3) Distance from lens tip to lens tip is 0.125 inches (3.18 mm).

Types OPS690, OPS691, OPS692, OPS693

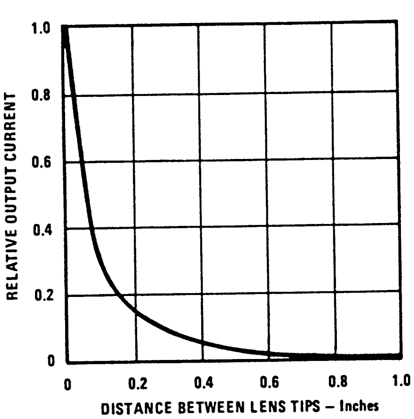
Electrical Characteristics (T_A = 25° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage			1.60	V	I_F = 20 mA
I_R	Reverse Current			100	µA	V_R = 2.0 V
Output Phototransistor						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30			V	I_C = 100 µA, Ee = 0
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0			V	I_E = 100 µA, Ee = 0
I_{CEO}	Dark Current			100	nA	V_{CE} = 10 V, Ee = 0
Coupled						
$V_{CE(SAT)}$	Saturation Voltage			0.40	V	I_F = 20 mA, I_C = 50 µA(3)
$I_{C(ON)}$	On-State Collector Current OPS690 OPS691 OPS692 OPS693	100 500 1.0 2.0			µA µA mA mA	V_{CE} = 10 V, I_F = 20 mA(3)

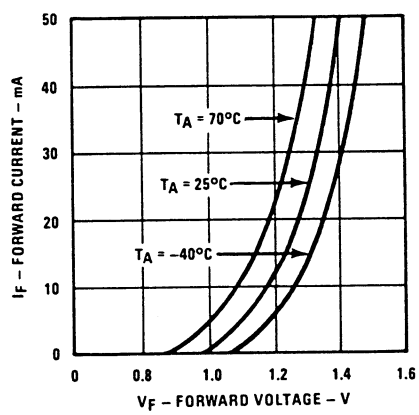
MATCHED PAIRS

Typical Performance Curves

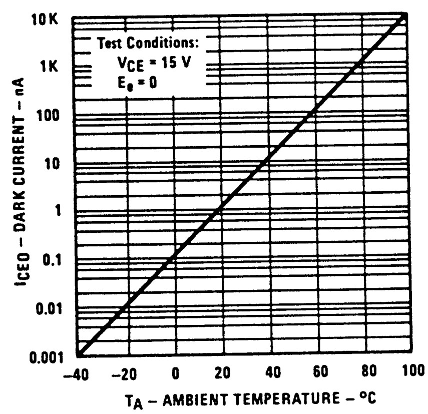
Coupling Characteristics of OP140 and OP550



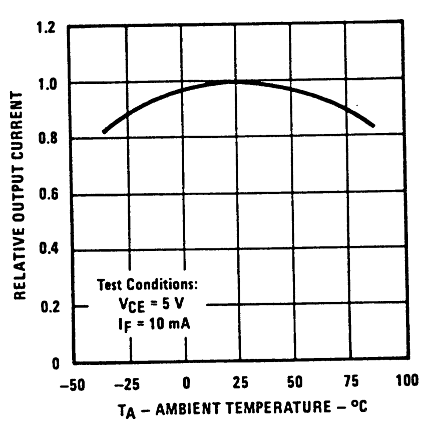
Forward Current vs Forward Voltage



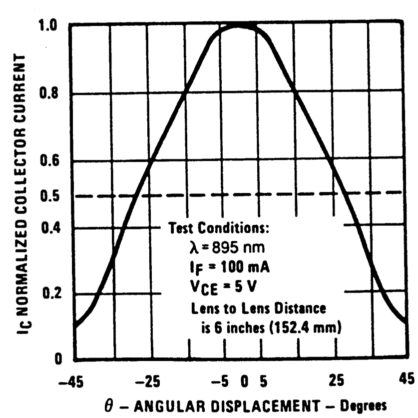
Dark Current vs Free Air Temperature



Relative Output Current vs Free Air Temperature



Normalized Collector Current vs Angular Displacement



Relative Power Output vs Forward Current (LED)