

SFH620A-1, SFH620A-2, SFH620A-3  
SFH620A-1X, SFH620A-2X, SFH620A-3X



# ISOCOM

COMPONENTS

## AC INPUT PHOTOTRANSISTOR OPTICALLY COUPLED ISOLATORS



### APPROVALS

- UL recognised, File No. E91231  
Package Code "EE "
- 'X' SPECIFICATION APPROVALS
- VDE 0884 in 3 available lead form : -
  - STD
  - G form
  - SMD approved to CECC 00802

### DESCRIPTION

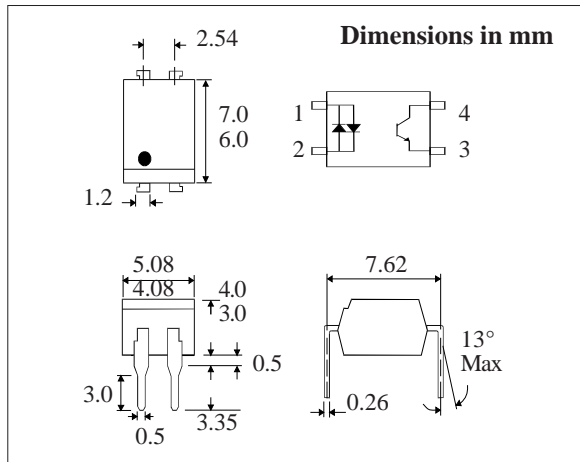
The SFH620A series of optically coupled isolators consist of inverse parallel infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

### FEATURES

- Options :-
  - 10mm lead spread - add G after part no.
  - Surface mount - add SM after part no.
  - Tape&reel - add SMT&R after part no.
- Low input current  $\pm 1\text{mA } I_F$
- High Current Transfer Ratios  
(40-320% at  $\pm 10\text{mA}$ , 13% min at  $\pm 1\text{mA}$ )
- High Isolation Voltage ( $5.3\text{kV}_{\text{RMS}}, 7.5\text{kV}_{\text{PK}}$ )
- High  $BV_{\text{CEO}}$  (70V min)
- AC or polarity insensitive input
- All electrical parameters 100% tested
- Custom electrical selections available

### APPLICATIONS

- Computer terminals
- Industrial systems controllers
- Measuring instruments
- Telephone sets, Telephone exchanges
- Signal transmission between systems of different potentials and impedances



### ABSOLUTE MAXIMUM RATINGS (25°C unless otherwise specified)

Storage Temperature \_\_\_\_\_ -55°C to + 125°C  
 Operating Temperature \_\_\_\_\_ -30°C to + 100°C  
 Lead Soldering Temperature  
 (1/16 inch (1.6mm) from case for 10 secs) 260°C

### INPUT DIODE

Forward Current \_\_\_\_\_  $\pm 50\text{mA}$   
 Power Dissipation \_\_\_\_\_ 70mW

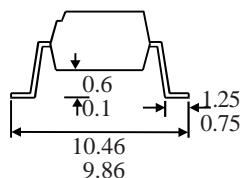
### OUTPUT TRANSISTOR

Collector-emitter Voltage  $BV_{\text{CEO}}$  \_\_\_\_\_ 70V  
 Emitter-collector Voltage  $BV_{\text{ECO}}$  \_\_\_\_\_ 6V  
 Collector Current \_\_\_\_\_ 50mA  
 Power Dissipation \_\_\_\_\_ 150mW

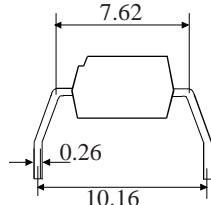
### POWER DISSIPATION

Total Power Dissipation \_\_\_\_\_ 200mW  
 (derate linearly 2.67mW/°C above 25°C)

### OPTION SM SURFACE MOUNT



### OPTION G



### ISOCOM COMPONENTS LTD

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**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

| PARAMETER  |  | MIN          | TYP | MAX                            | UNITS   | TEST CONDITION                            |
|--|--|--------------|-----|--------------------------------|---|---|
| Input  | Forward Voltage ( $V_F$ )  |              |     | 1.65                           | V   | $I_F = \pm 50\text{mA}$                   |
| Output   | Collector-emitter Breakdown ( $BV_{CEO}$ )<br>( Note 2 )                     | 70           |     |                                | V   | $I_C = 1\text{mA}$                        |
|  | Emitter-collector Breakdown ( $BV_{ECO}$ )                                   | 6            |     |                                | V   | $I_E = 100\mu\text{A}$                    |
|  | Collector-emitter Dark Current ( $I_{CEO}$ )<br>SFH620A-1,2<br>SFH620A-3     |              |     | 50<br>100                      | nA<br>nA  | $V_{CE} = 10\text{V}$                     |
| Coupled  | Current Transfer Ratio (CTR) (Note 2)<br>SFH620A-1<br>SFH620A-2<br>SFH620A-3 | 40           |     | 125                            | %   | $\pm 10\text{mA } I_F, 5\text{V } V_{CE}$ |
|  |  | 63           |     | 200                            | %   |   |
|  |  | 100          |     | 320                            | %   |   |
|  | SFH620A-1<br>SFH620A-2<br>SFH620A-3  | 13           |     |                                | %   | $\pm 1\text{mA } I_F, 5\text{V } V_{CE}$  |
|  |  | 22           |     |                                | %   |   |
|  |  | 34           |     |                                | %   |   |
|  | Collector-emitter Saturation Voltage $V_{CESAT}$                             |              |     | 0.4                            | V   | $\pm 10\text{mA } I_F, 2.5\text{mA } I_C$ |
|  | Input to Output Isolation Voltage $V_{ISO}$                                  | 5300<br>7500 |     |                                | $V_{RMS}$<br>$V_{PK}$                                       | See note 1<br>See note 1                  |
| Input-output Isolation Resistance $R_{ISO}$                | $5 \times 10^{10}$   |              |     | $\Omega$                       | $V_{IO} = 500\text{V}$ (note 1)                             |   |
| Response Time (Rise), $t_r$<br>Response Time (Fall), $t_f$ |  | 4<br>3       |     | $\mu\text{s}$<br>$\mu\text{s}$ | $V_{CE} = 2\text{V}, I_C = 2\text{mA}$<br>$R_L = 100\Omega$ |   |

Note 1 Measured with input leads shorted together and output leads shorted together.  
 Note 2 Special Selections are available on request. Please consult the factory.

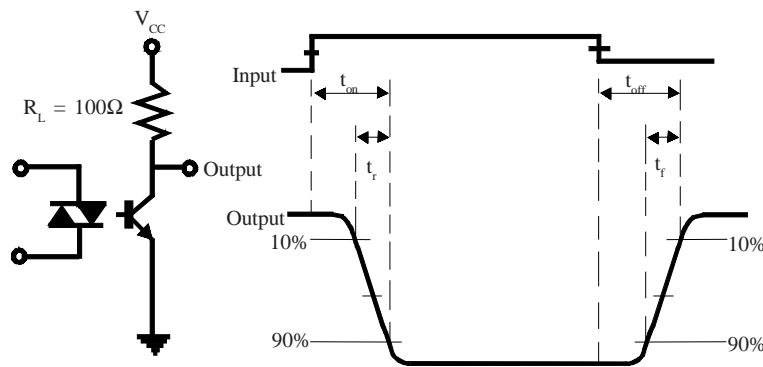
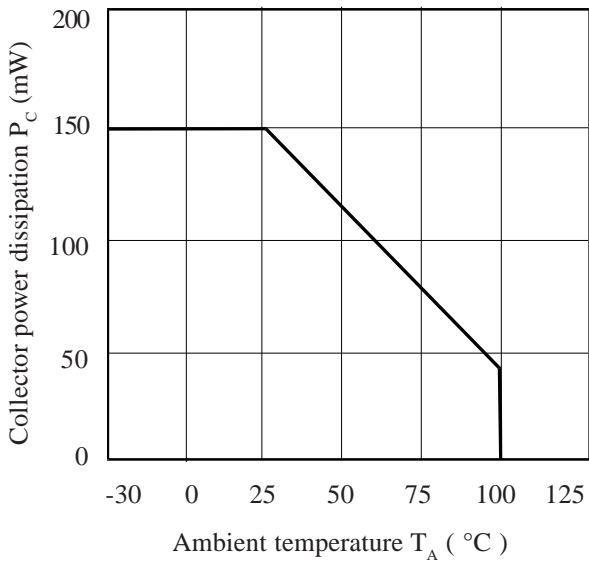
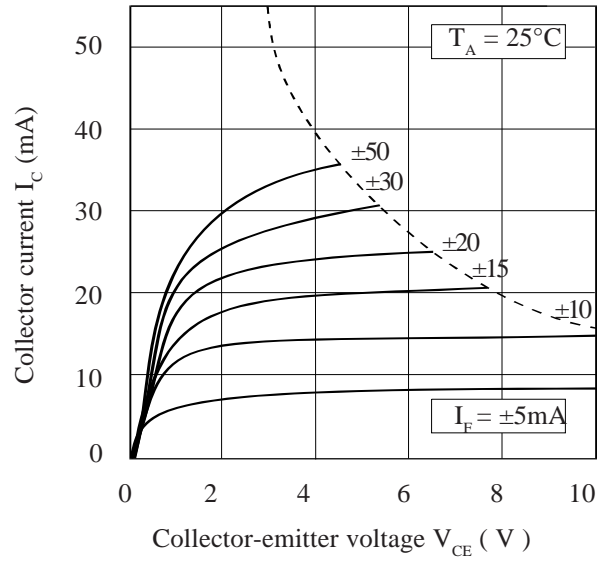


FIG 1

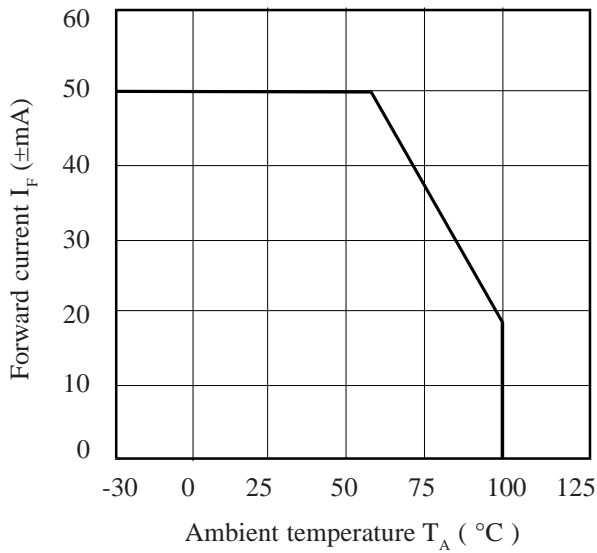
**Collector Power Dissipation vs. Ambient Temperature**



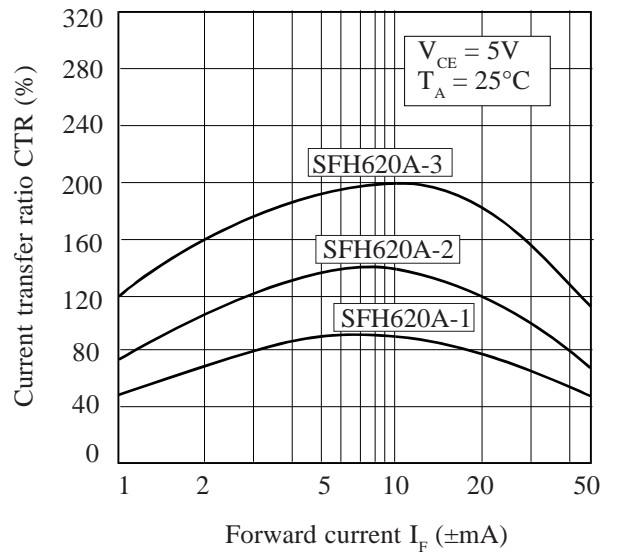
**Collector Current vs. Collector-emitter Voltage (normalized to SFH620A-2 & SFH620A-3)**



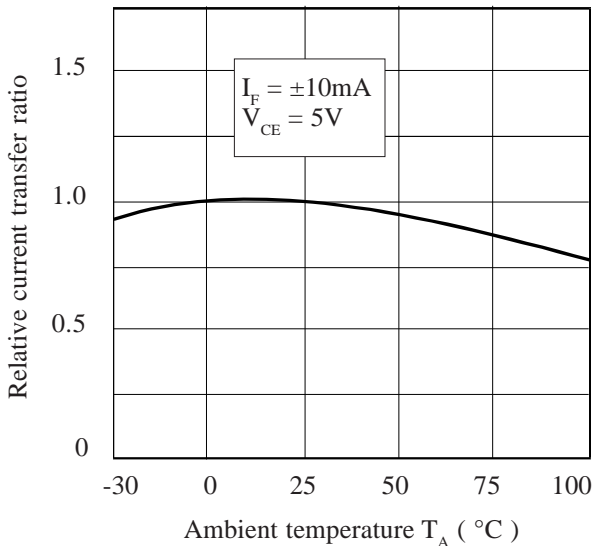
**Forward Current vs. Ambient Temperature**



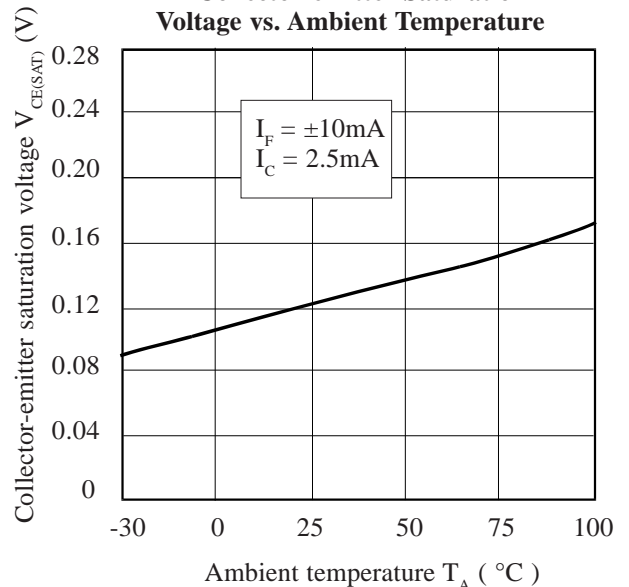
**Current Transfer Ratio vs. Forward Current**



**Relative Current Transfer Ratio vs. Ambient Temperature**



**Collector-emitter Saturation Voltage vs. Ambient Temperature**



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