



# THE DATASHEET OF SFH618A-3X



SFH618A-2X, SFH618A-3X, SFH618A-4X,  
SFH618-2, SFH618-3, SFH618-4



# ISOCOM

COMPONENTS

## LOW INPUT CURRENT 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
- Certified to EN60950 by :-  
Nemko - Certificate No. P01102465

### DESCRIPTION

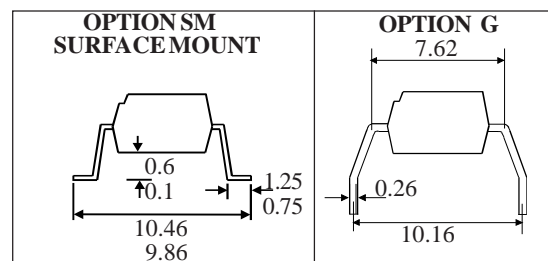
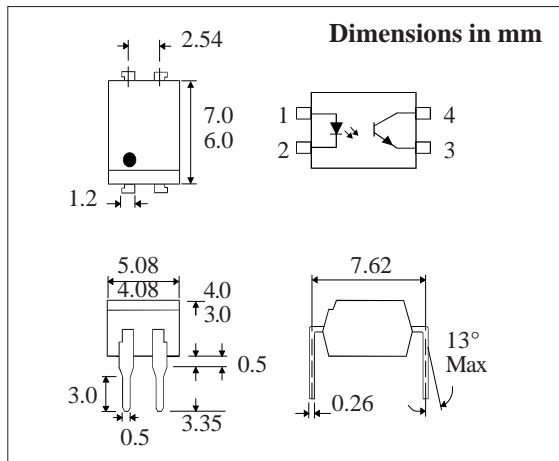
The SFH618 series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

### 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 0.5mA  $I_F$
- High Current Transfer Ratios (63-320% at 1mA, 32% min at 0.5mA)
- High Isolation Voltage (5.3kV<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- High BV<sub>CEO</sub> (55V min)
- All electrical parameters 100% tested
- Custom electrical selections available

### APPLICATIONS

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



**ISOCOM COMPONENTS LTD**  
Unit 25B, Park View Road West,  
Park View Industrial Estate, Brenda Road  
Hartlepool, Cleveland, TS25 1YD  
Tel: (01429) 863609 Fax :(01429) 863581

### 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	50mA
Reverse Voltage	6V
Power Dissipation	70mW

### OUTPUT TRANSISTOR

Collector-emitter Voltage $BV_{CEO}$	55V
Emitter-collector Voltage $BV_{ECO}$	6V
Collector Current	50mA
Power Dissipation	150mW

### POWER DISSIPATION

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

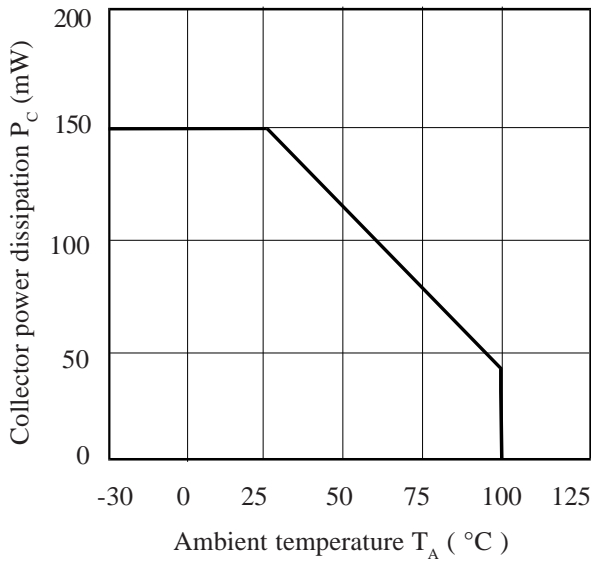
### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ Unless otherwise noted )

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ )			1.5	V	$I_F = 5\text{mA}$
	Reverse Current ( $I_R$ )			10	$\mu\text{A}$	$V_R = 6\text{V}$
Output	Collector-emitter Breakdown ( $BV_{CEO}$ ) (Note 2)	55			V	$I_C = 1\text{mA}$
	Emitter-collector Breakdown ( $BV_{ECO}$ )	6			V	$I_E = 100\mu\text{A}$
	Collector-emitter Dark Current ( $I_{CEO}$ )			200	nA	$V_{CE} = 10\text{V}$
Coupled	Current Transfer Ratio (CTR) (Note 2)					
	SFH618-2	63		125	%	$1\text{mA } I_F, 0.5\text{V } V_{CE}$
	SFH618-2	32			%	$0.5\text{mA } I_F, 1.5\text{V } V_{CE}$
	SFH618-3	100		200	%	$1\text{mA } I_F, 0.5\text{V } V_{CE}$
	SFH618-3	50			%	$0.5\text{mA } I_F, 1.5\text{V } V_{CE}$
	SFH618-4	160		320	%	$1\text{mA } I_F, 0.5\text{V } V_{CE}$
	SFH618-4	80			%	$0.5\text{mA } I_F, 1.5\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CESAT}$					
	SFH618-2			0.4	V	$1\text{mA } I_F, 0.32\text{mA } I_C$
	SFH618-3			0.4	V	$1\text{mA } I_F, 0.5\text{mA } I_C$
SFH618-4			0.4	V	$1\text{mA } I_F, 0.8\text{mA } I_C$	
Input to Output Isolation Voltage $V_{ISO}$	5300				$V_{RMS}$	See note 1
	7500				$V_{PK}$	See note 1
Input-output Isolation Resistance $R_{ISO}$	$5 \times 10^{10}$				$\Omega$	$V_{IO} = 500\text{V}$ (note 1)
Output Rise Time, tr		4	18		$\mu\text{s}$	$V_{CE} = 2\text{V}, I_C = 2\text{mA}$
Output Fall Time, tf		3	18		$\mu\text{s}$	$R_L = 100\Omega$

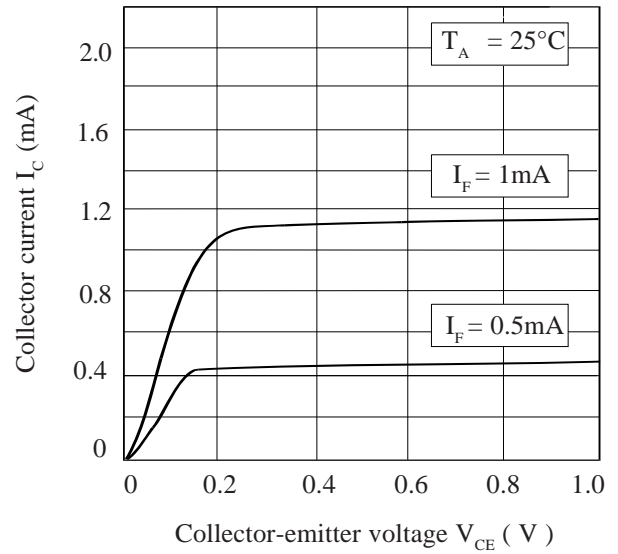
Note 1 Measured with input leads shorted together and output leads shorted together.

Note 2 Special Selections are available on request. Please consult the factory.

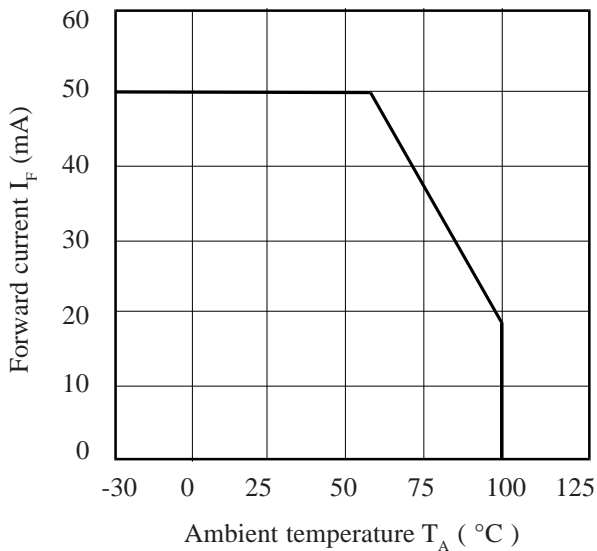
**Collector Power Dissipation vs. Ambient Temperature**



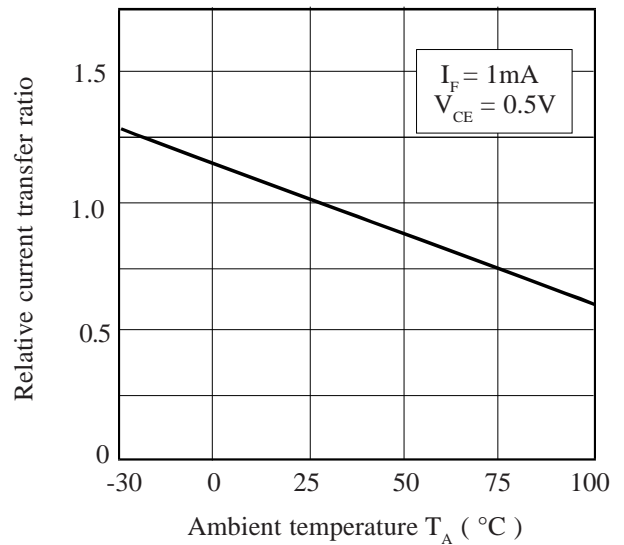
**Collector Current vs. Low Collector-emitter Voltage (normalized to SFH618-2 & SFH618-3)**



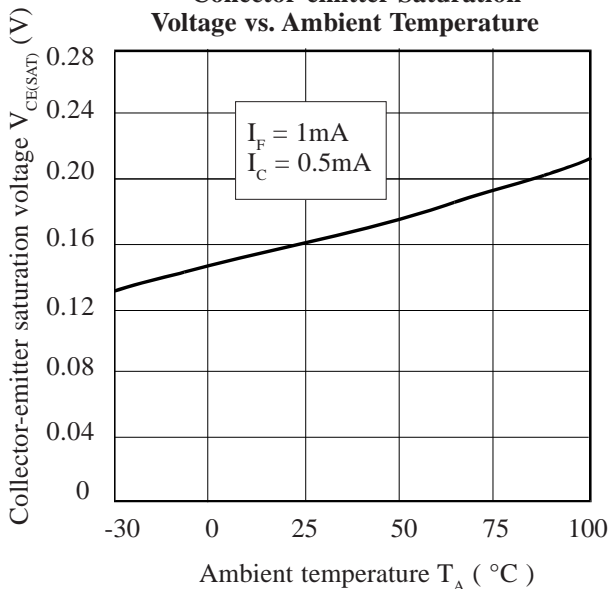
**Forward Current vs. Ambient Temperature**



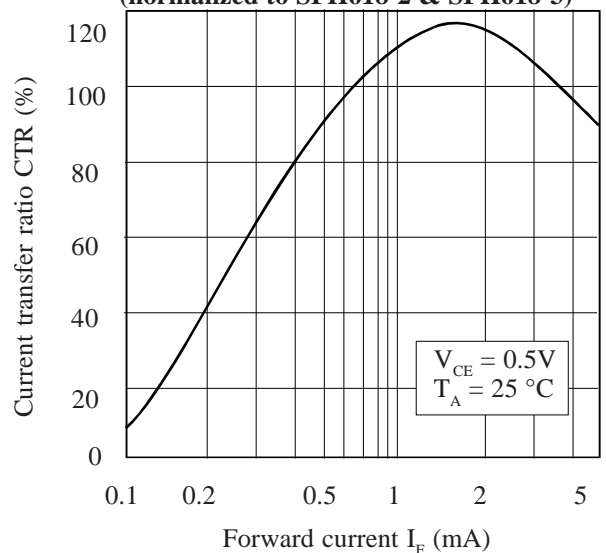
**Relative Current Transfer Ratio vs. Ambient Temperature**



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





**Current Transfer Ratio vs. Forward Current (normalized to SFH618-2 & SFH618-3)**









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-  [Isocom Components 2004 LTD Information](#)

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