

SFH617A-1, SFH617A-2, SFH617A-3, SFH617A-4,  
SFH617A-1X, SFH617A-2X, SFH617A-3X, SFH617A-4X



# 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

### DESCRIPTION

The SFH617A series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

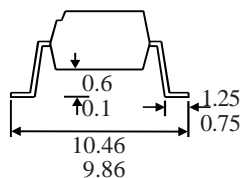
### FEATURES

- 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 1mA  $I_F$
- High Current Transfer Ratios (40-320% at 10mA, 13% min at 1mA)
- High Isolation Voltage (5.3kV<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- High BV<sub>CEO</sub> (70V min)
- All electrical parameters 100% tested

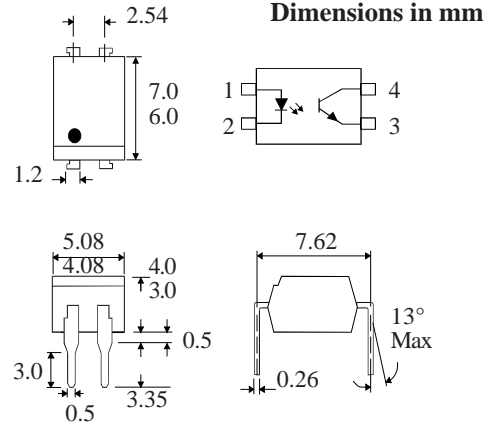
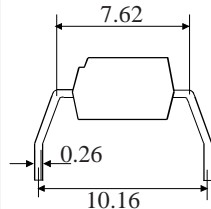
### APPLICATIONS

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

#### OPTION SM SURFACE MOUNT



#### OPTION G



### 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<sub>CEO</sub> \_\_\_\_\_ 70V  
Emitter-collector Voltage BV<sub>ECO</sub> \_\_\_\_\_ 6V  
Collector Current \_\_\_\_\_ 50mA  
Power Dissipation \_\_\_\_\_ 150mW

### POWER DISSIPATION

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

### ISOCOM COMPONENTS LTD

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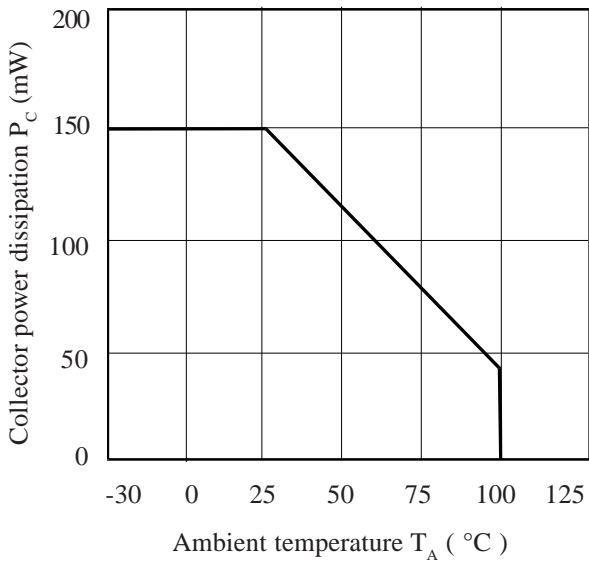
**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION	
Input	Forward Voltage ( $V_F$ )			1.65	V	$I_F = 50\text{mA}$	
	Reverse Current ( $I_R$ )			10	$\mu\text{A}$	$V_R = 6\text{V}$	
Output	Collector-emitter Breakdown ( $BV_{CEO}$ ) ( 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 ( $I_{CEO}$ ) SFH617A-1,2 SFH617A-3,4			50 100	nA nA	$V_{CE} = 10\text{V}$	
Coupled	Current Transfer Ratio (CTR) (Note 2) SFH617A-1 SFH617A-2 SFH617A-3 SFH617A-4	40		80	%	$10\text{mA } I_F, 5\text{V } V_{CE}$	
		63		125	%		
		100		200	%		
		160		320	%		
	SFH617A-1 SFH617A-2 SFH617A-3 SFH617A-4	13				%	$1\text{mA } I_F, 5\text{V } V_{CE}$
		22				%	
		34				%	
		56				%	
	Collector-emitter Saturation Voltage $V_{CESAT}$			0.4	V	$10\text{mA } I_F, 2.5\text{mA } I_C$	
	Input to Output Isolation Voltage $V_{ISO}$	5300 7500			$V_{RMS}$ $V_{PK}$	See note 1 See note 1	
Input-output Isolation Resistance $R_{ISO}$	$5 \times 10^{10}$			$\Omega$	$V_{IO} = 500\text{V}$ (note 1)		
Response Time (Rise), tr		4		$\mu\text{s}$	$V_{CE} = 2\text{V}, I_C = 2\text{mA}$		
Response Time (Fall), tf		3		$\mu\text{s}$	$R_L = 100\Omega$		

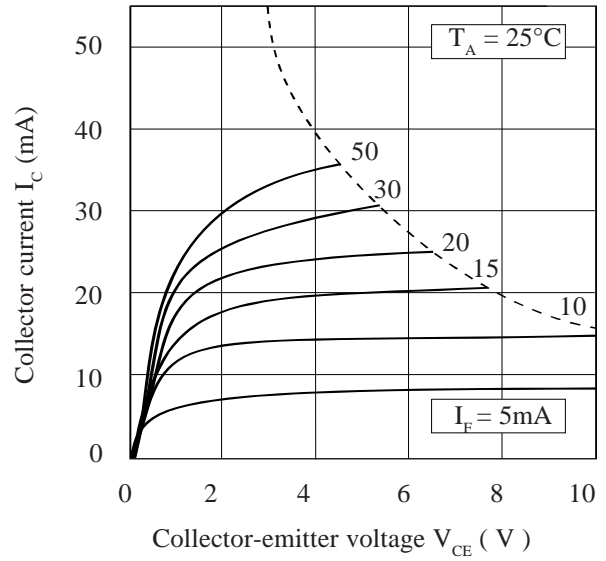
Note 1 Measured with input leads shorted together and output leads shorted together.

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

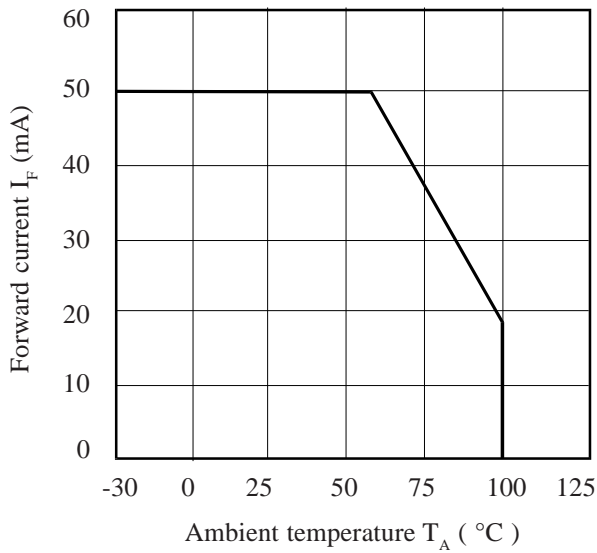
**Collector Power Dissipation vs. Ambient Temperature**



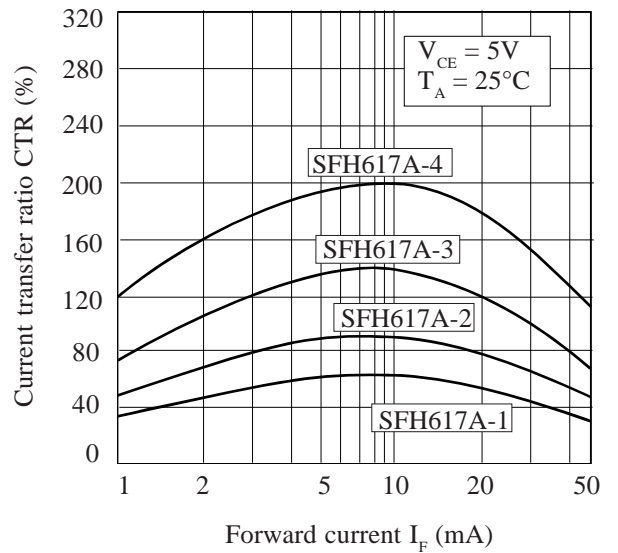
**Collector Current vs. Collector-emitter Voltage (normalised to SFH617A-3)**



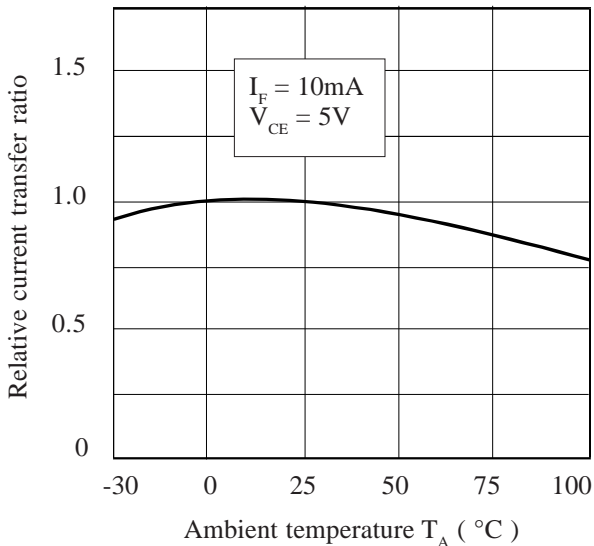
**Forward Current vs. Ambient Temperature**



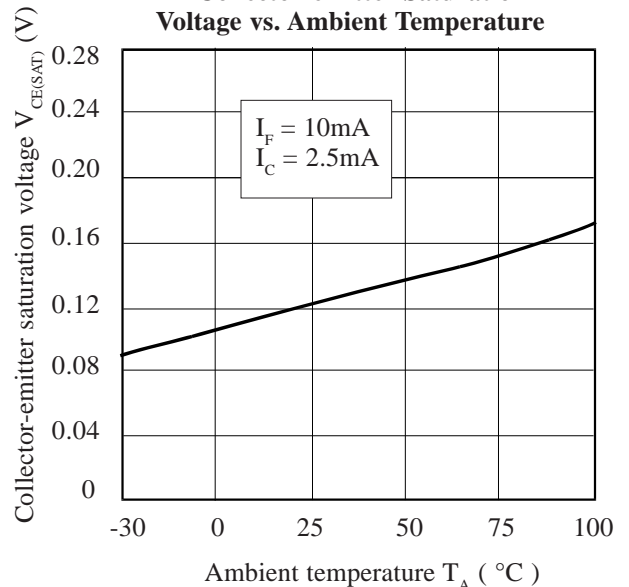
**Current Transfer Ratio vs. Forward Current**



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



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



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