



LOW INPUT CURRENT PHOTOTRANSISTOR OPTICALLY COUPLED ISOLATORS

APPROVALS

- UL recognised, File No. E91231
'X' SPECIFICATION APPROVALS
- VDE 0884 approval pending

DESCRIPTION

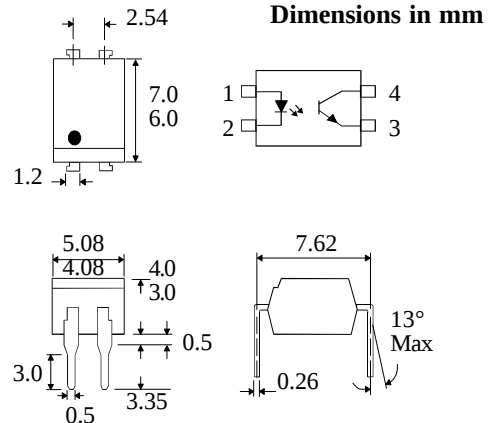
The SFH618A series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages.

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_{RMS}, 7.5kV_{PK})
- High BV_{CEO} (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



ABSOLUTE MAXIMUM RATINGS (25°C unless otherwise specified)

Storage Temperature _____ -55°C to + 125°C
Operating Temperature _____ -55°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

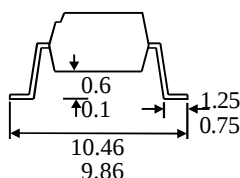
OUTPUT TRANSISTOR

Collector-emitter Voltage BV_{CEO} _____ 55V
Emitter-collector Voltage BV_{ECO} _____ 6V
Power Dissipation _____ 150mW

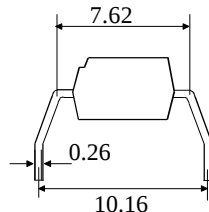
POWER DISSIPATION

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

OPTION SM SURFACE MOUNT



OPTION G



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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)	6		1.5	V	$I_F = 5\text{mA}$ $I_R = 10\mu\text{A}$ $V_R = 6\text{V}$
	Reverse Voltage (V_R)				V	
	Reverse Current (I_R)			10	μA	
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)					
	SFH618A-2	63		125	%	$1\text{mA } I_F, 0.5\text{V } V_{CE}$
	SFH618A-2	32			%	$0.5\text{mA } I_F, 1.5\text{V } V_{CE}$
	SFH618A-3	100		200	%	$1\text{mA } I_F, 0.5\text{V } V_{CE}$
	SFH618A-3	50			%	$0.5\text{mA } I_F, 1.5\text{V } V_{CE}$
	SFH618A-4	160		320	%	$1\text{mA } I_F, 0.5\text{V } V_{CE}$
	SFH618A-4	80			%	$0.5\text{mA } I_F, 1.5\text{V } V_{CE}$
	Collector-emitter Saturation Voltage V_{CESAT}					
	SFH618A-2			0.4	V	$1\text{mA } I_F, 0.32\text{mA } I_C$
	SFH618A-3			0.4	V	$1\text{mA } I_F, 0.5\text{mA } I_C$
	SFH618A-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}	5×10^{10}			Ω	$V_{IO} = 500\text{V}$ (note 1)

- 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.

SWITCHING CHARACTERISTICS

$I_C = 2\text{mA}$, $V_{CC} = 5\text{V}$, $R_L = 100\Omega$, $T_A = 25^{\circ}\text{C}$ (Fig 1)

			UNITS
Turn-on Time	t_{on}	6.0	μs
Rise Time	t_r	3.5	μs
Turn-off Time	t_{off}	5.5	μs
Fall Time	t_f	5.0	μs

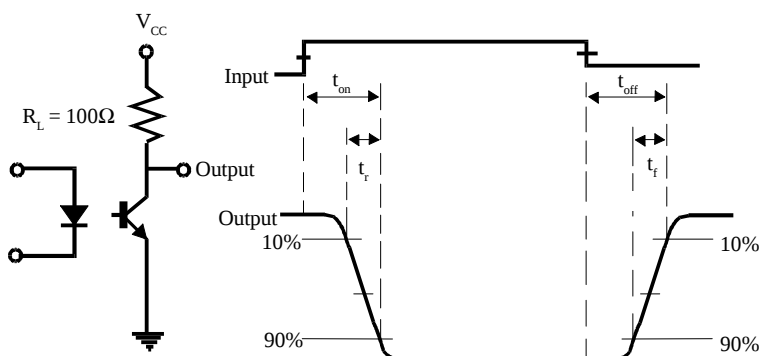
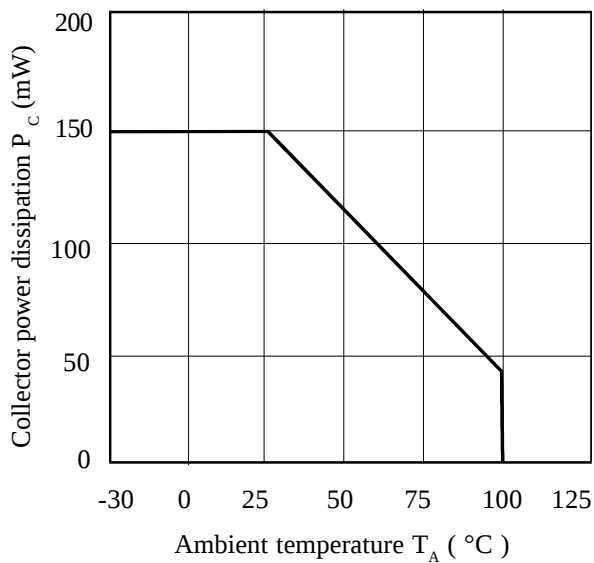
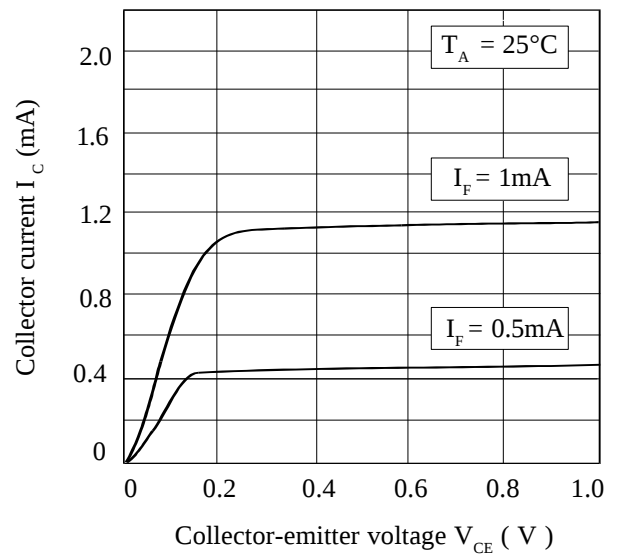


FIG 1

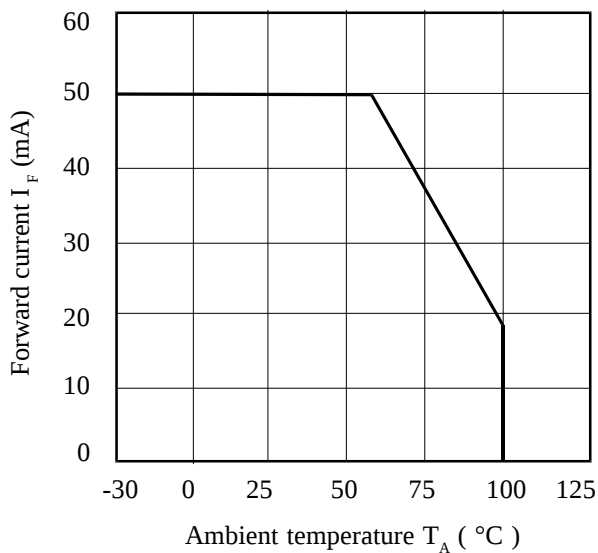
Collector Power Dissipation vs. Ambient Temperature



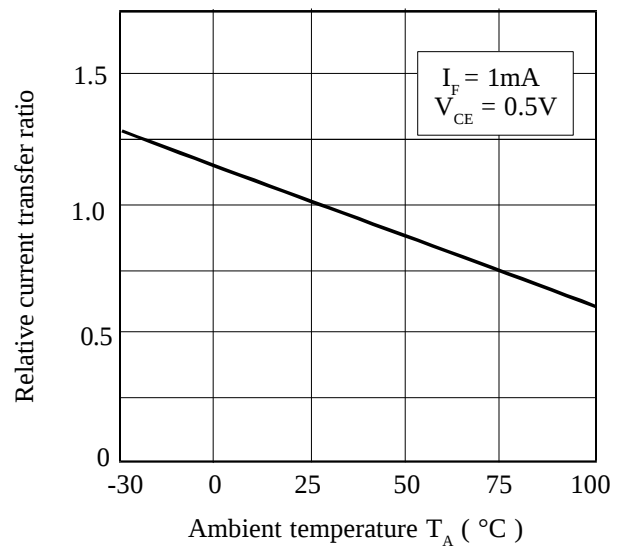
Collector Current vs. Low Collector-emitter Voltage (normalized to SFH618A-2 & SFH618A-3)



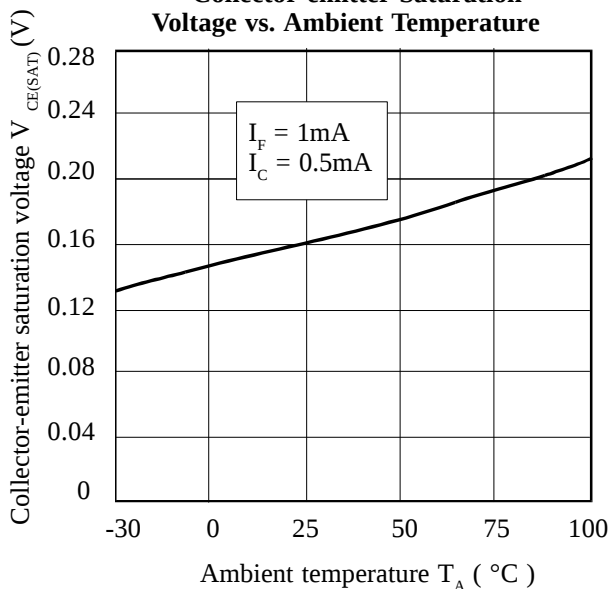
Forward Current vs. Ambient Temperature



Relative Current Transfer Ratio vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current (normalized to SFH618A-2 & SFH618A-3)

