SFH618A-2, SFH618A-3, SFH618A-4

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.

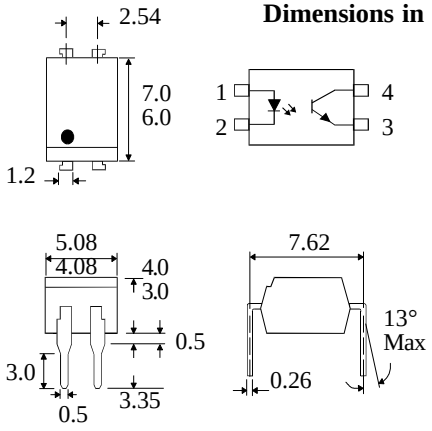
FEATURES

- 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

Dimensions in mm



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

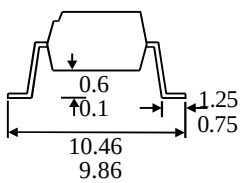
OUTPUT TRANSISTOR

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

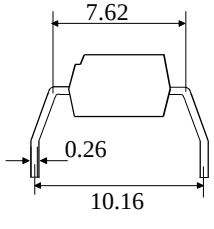
POWER DISSIPATION

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°C Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)			1.5	V	I_F = 5mA
	Reverse Voltage (V_R)	6			V	I_R = 10µA
	Reverse Current (I_R)			10	µA	V_R = 6V
Output	Collector-emitter Breakdown (BV_{CEO}) (Note 2)	55			V	I_C = 1mA
	Emitter-collector Breakdown (BV_{ECO})	6			V	I_E = 100µA
	Collector-emitter Dark Current (I_{CEO})			200	nA	V_{CE} = 10V
Coupled	Current Transfer Ratio (CTR) (Note 2)					
	SFH618A-2	63		125	%	1mA I_F, 0.5V V_{CE}
	SFH618A-2	32			%	0.5mA I_F, 1.5V V_{CE}
	SFH618A-3	100		200	%	1mA I_F, 0.5V V_{CE}
	SFH618A-3	50			%	0.5mA I_F, 1.5V V_{CE}
	SFH618A-4	160		320	%	1mA I_F, 0.5V V_{CE}
	SFH618A-4	80			%	0.5mA I_F, 1.5V V_{CE}
	Collector-emitter Saturation Voltage V_{CESAT}					
	SFH618A-2			0.4	V	1mA I_F , 0.32mA I_C
	SFH618A-3			0.4	V	1mA I_F , 0.5mA I_C
	SFH618A-4			0.4	V	1mA I_F , 0.8mA 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}	$5x10^{10}$			Ω	V_{IO} = 500V (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 = 2mA, V_{CC} = 5V, R_L = 100Ω, T_A = 25°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

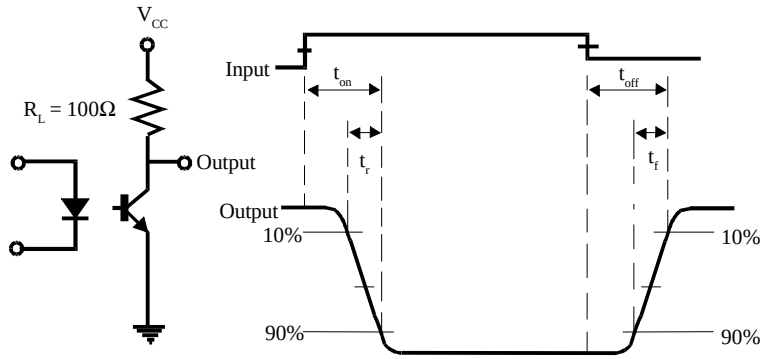
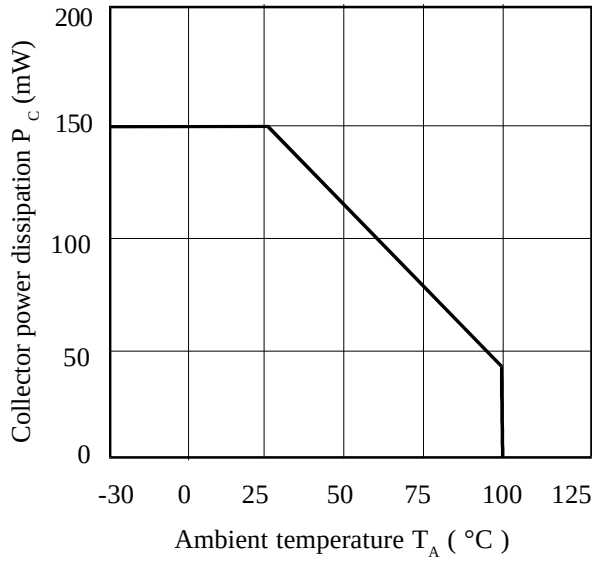
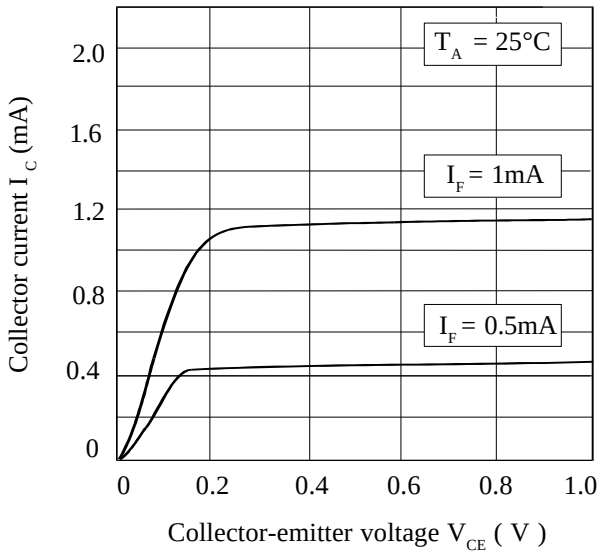


FIG 1

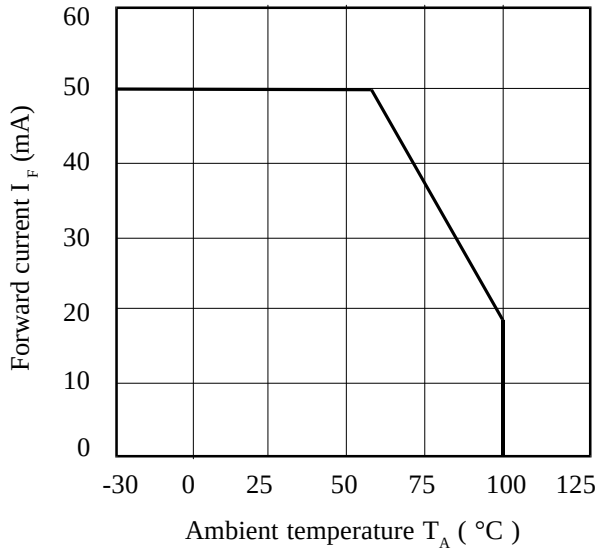
Collector Power Dissipation vs. Ambient Temperature



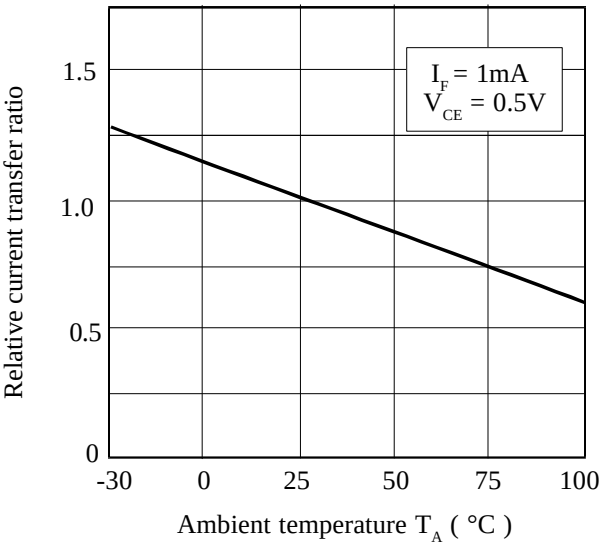
Collector Current vs. Low Collector-emitter Voltage (normalized to SFH618A-2 & SFH618A-3)



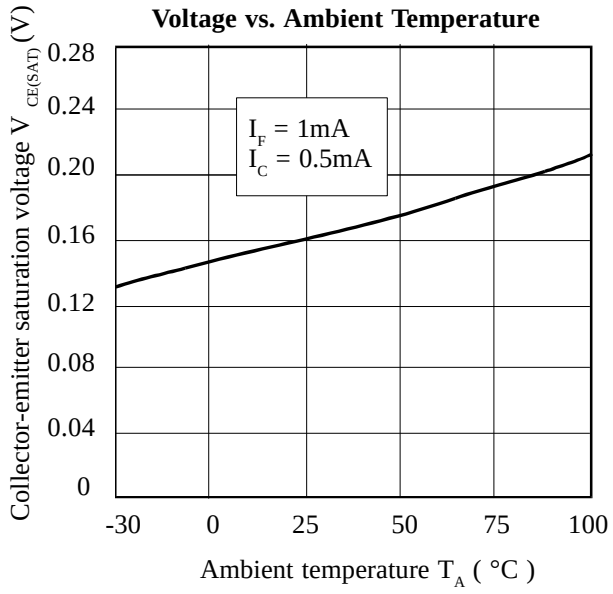
Forward Current vs. Ambient Temperature



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)