

IS605, IS606



## PHOTON COUPLED ISOLATOR Ga As INFRARED EMITTING DIODE & LIGHT ACTIVATED SCR

### APPROVALS

- UL recognised, File No. E91231

### DESCRIPTION

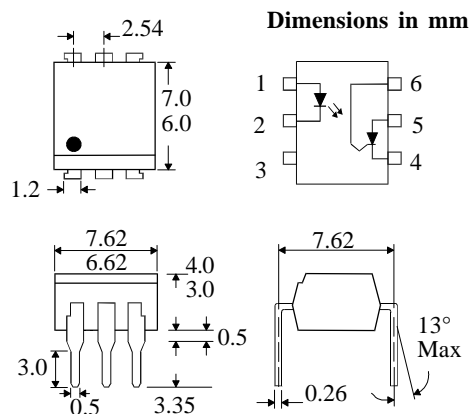
The IS605, IS606 are optically coupled isolators consisting of infrared light emitting diode and a light activated silicon controlled rectifier in a standard 6pin dual in line plastic package.

### 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.
- High Isolation Voltage (5.3kV<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- High Surge Anode Current (5.0 A)
- High Blocking Voltage (400V\*<sup>1</sup>, 625V\*<sup>1</sup>)
- Low Turn on Current (5mA typical)
- All electrical parameters 100% tested
- Custom electrical selections available

### APPLICATIONS

- 10A, T<sup>2</sup>L compatible, Solid State Relay
- 25W Logic Indicator Lamp Driver
- 400V Symmetrical transistor coupler



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

Storage Temperature	-55°C to + 150°C
Operating Temperature	-55°C to + 100°C
Lead Soldering Temperature (1/16 inch (1.6mm) from case for 10 secs)	260°C

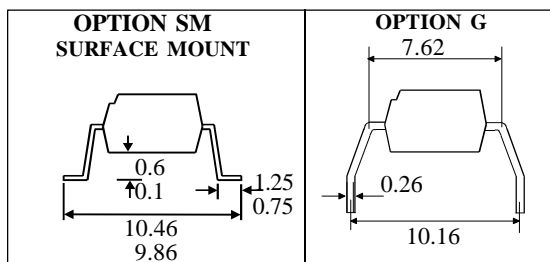
### INPUT DIODE

Forward Current	60mA
Forward Current (Peak) (1µs pulse, 300pps)	3A
Reverse Voltage	6V
Power Dissipation	100mW

### DETECTOR

Peak Forward Voltage	
IS605	400V* <sup>1</sup>
IS606	625V* <sup>1</sup>
Peak Reverse Gate Voltage	6V
RMS On-state Current	300mA
Peak On-state Current (100µs, 1% duty cycle)	10A
Surge Current (10ms)	5A
Power Dissipation	300mW

\*1 IMPORTANT : A resistor must be connected between gate and cathode (pins 4 & 6) to prevent false firing ( $R_{GK} < 56k\Omega$ )



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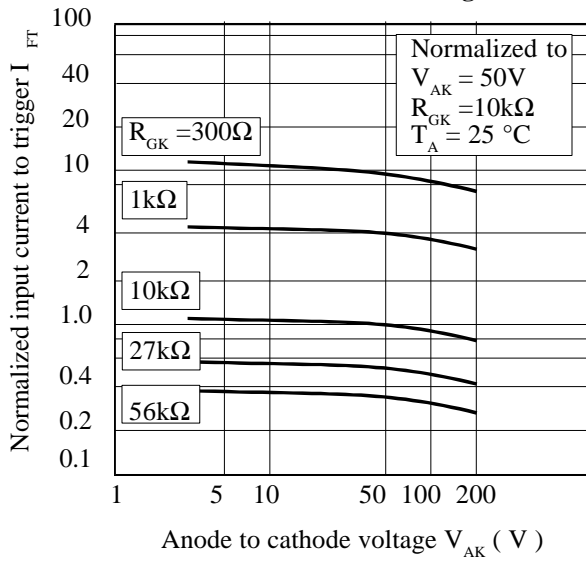
**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ )		1.2	1.5	V	$I_F = 10\text{mA}$
	Reverse Voltage ( $V_R$ )	3			V	$I_R = 10\mu\text{A}$
Output (note 2)	Peak Off-state Voltage ( $V_{DM}$ ) IS605	400			V	$R_{GK} = 10\text{k}\Omega, I_D = 2\mu\text{A}$
	IS606	625			V	$R_{GK} = 10\text{k}\Omega, I_D = 2\mu\text{A}$
	Peak Reverse Voltage ( $V_{RM}$ ) IS605	400			V	$R_{GK} = 10\text{k}\Omega, I_D = 2\mu\text{A}$
	IS606	625			V	$R_{GK} = 10\text{k}\Omega, I_D = 2\mu\text{A}$
	On-state Voltage ( $V_{TM}$ )		1.1	1.3	V	$I_{TM} = 300\text{mA}$
	Off-state Current ( $I_{DM}$ ) IS605			2	$\mu\text{A}$	$R_{GK} = 10\text{k}\Omega, I_F = 0,$ $V_{DM} = 400\text{V}$
	IS606			2	$\mu\text{A}$	$R_{GK} = 10\text{k}\Omega, I_F = 0,$ $V_{DM} = 625\text{V}$
	Reverse Current ( $I_R$ ) IS605			2	$\mu\text{A}$	$R_{GK} = 10\text{k}\Omega, I_F = 0,$ $V_{DM} = 400\text{V}$
	IS606			2	$\mu\text{A}$	$R_{GK} = 10\text{k}\Omega, I_F = 0,$ $V_{DM} = 625\text{V}$
	Coupled	Input Current to Trigger ( $I_{FT}$ ) (note 2) IS605			11	mA
IS606				14	mA	$V_{AK} = 100\text{V}, R_{GK} = 27\text{k}\Omega$
Turn on Time ( $t_{on}$ )				50	$\mu\text{s}$	$R_{GK} = 27\text{k}\Omega, I_F = 30\text{mA},$ $V_{AK} = 20\text{V}, R_L = 200\Omega$
Coupled dv/dt, Input to Output (dv/dt)		500			V/ $\mu\text{s}$	
Input to Output Isolation Voltage $V_{ISO}$		5300 7500			$V_{RMS}$ $V_{PK}$	See note 1 See note 1
Input-output Isolation Resistance $R_{ISO}$		$10^{11}$			$\Omega$	$V_{IO} = 500\text{V}$ (note 1)
Input-output Capacitance $C_f$				2	pF	$V = 0, f = 1\text{MHz}$

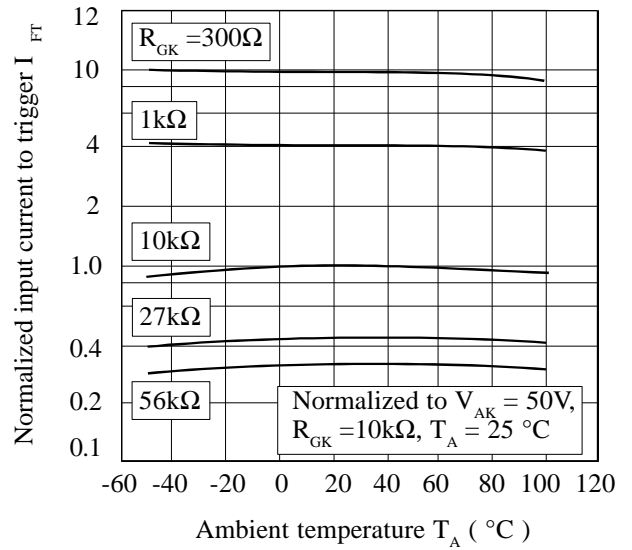
Note 1 Measured with input leads shorted together and output leads shorted together.

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

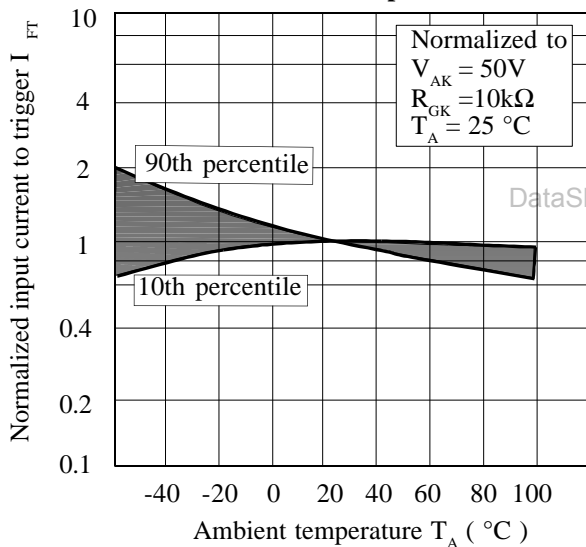
**Input Current to Trigger vs. Anode to Cathode Voltage**



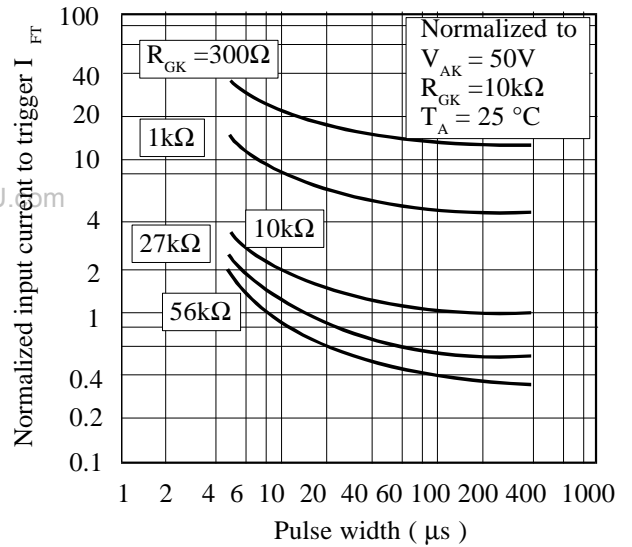
**Input Current to Trigger vs. Ambient Temperature**



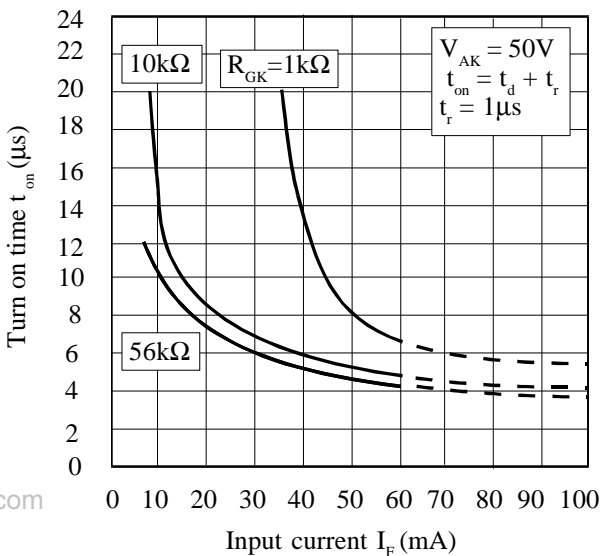
**Input Current to Trigger Distribution vs. Ambient Temperature**



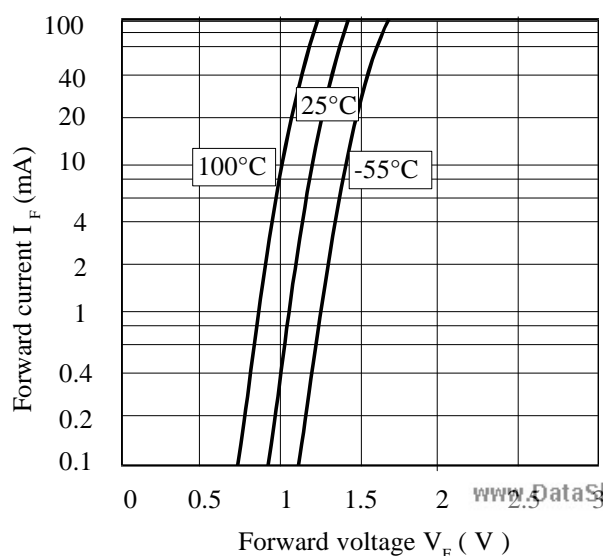
**Input Current to Trigger vs. Pulse Width**



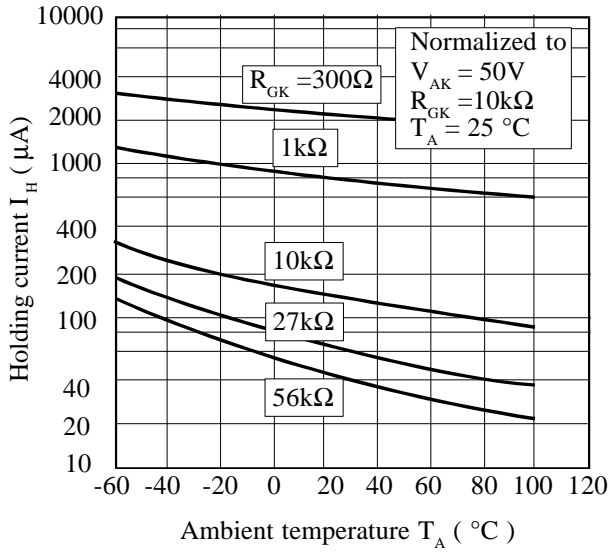
**Turn on Time vs. Input Current**



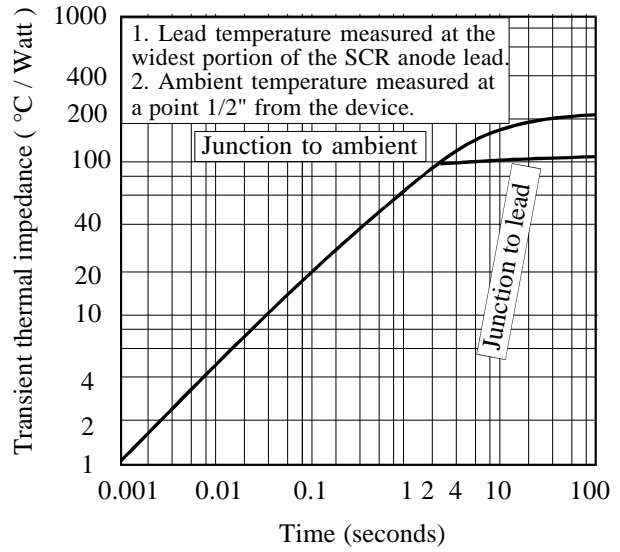
**Input Characteristics  $I_F$  vs.  $V_F$**



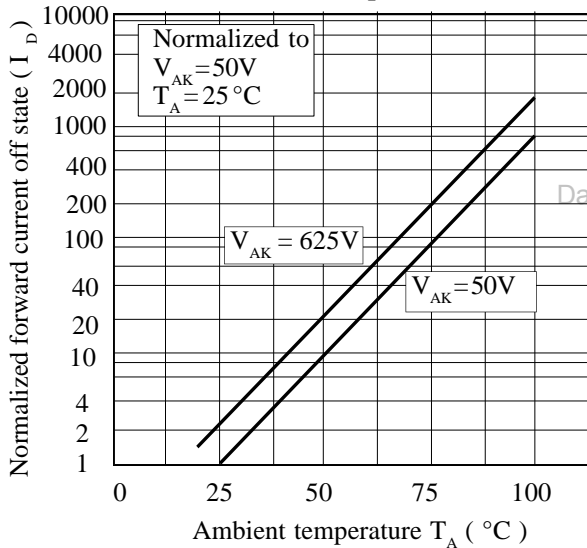
**Holding Current vs. Ambient Temperature**



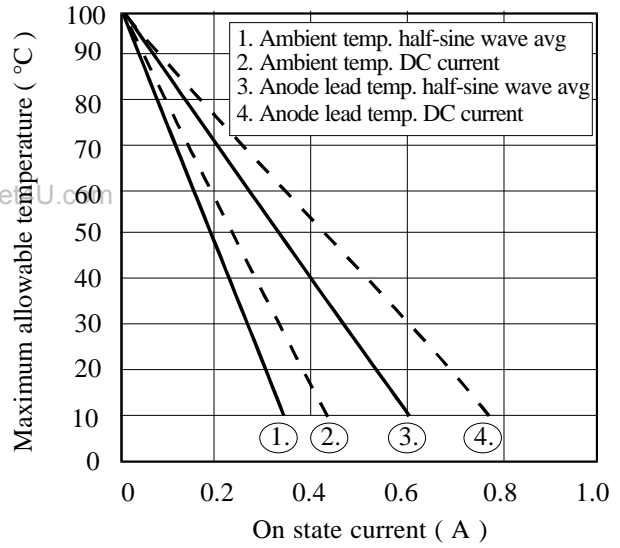
**Maximum Transient Thermal Impedance**



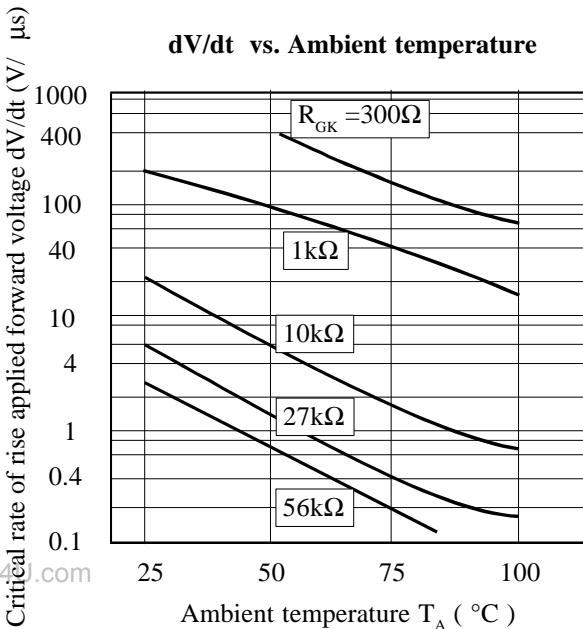
**Off State Forward Current vs. Ambient Temperature**



**On State Current vs. Maximum Allowable Temperature**



**dV/dt vs. Ambient temperature**



**On State Characteristics**

