

**MCS2400X**  
**MCS2400,MCS2**



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

**APPROVALS**

- UL recognised, File No. E91231

**'X' SPECIFICATION APPROVALS**

- VDE 0884 in 2 available lead forms : -  
 - STD  
 - G form

**DESCRIPTION**

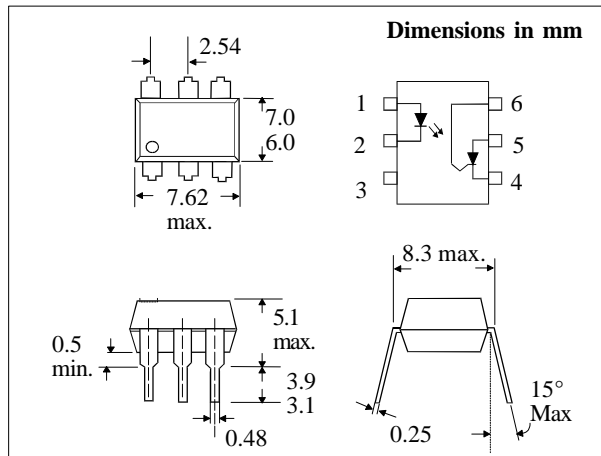
The MCS2, MCS2400 are optically coupled isolators consisting of infrared light emitting diode and a light activated silicon controlled rectifier in a standard 6pin dual in line plastic package.

**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 (200V\*1, 400V\*1)
- Low Turn on Current (5mA typical)
- All electrical parameters 100% tested
- Custom electrical selections available

**APPLICATIONS**

- 10A, TTL compatible, Solid State Relay
- 25W Logic Indicator Lamp Driver
- 400V Symmetrical transistor coupler



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

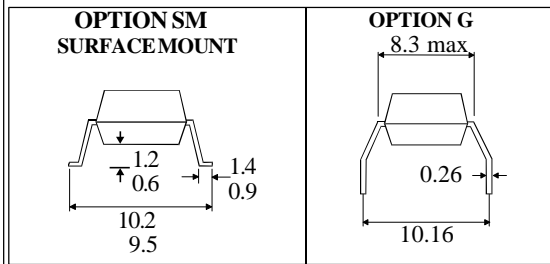
Storage Temperature \_\_\_\_\_ -55°C to + 150°C  
 Operating Temperature \_\_\_\_\_ -55°C to + 100°C  
 Lead Soldering Temperature  
 (1/16 inch (1.6mm) from case for 10 secs) 260°C

**INPUT DIODE**

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

**DETECTOR**

Peak Forward Voltage  
 MCS2 \_\_\_\_\_ 200V\*1  
 MCS2400 \_\_\_\_\_ 400V\*1  
 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<sub>GK</sub> < 56kΩ)

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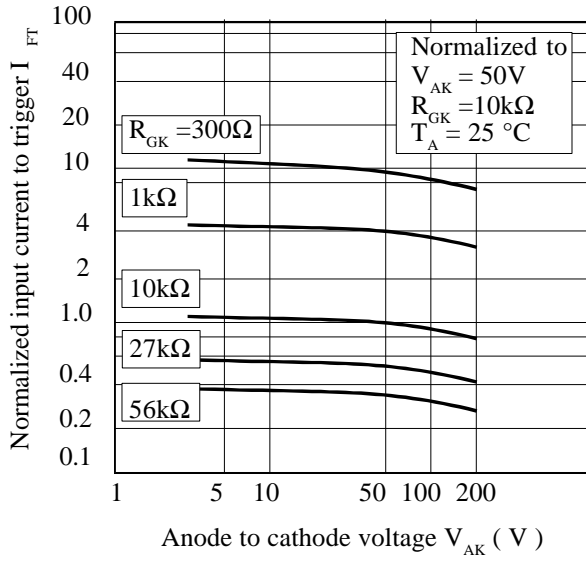
**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ )		1.2	1.5	V	$I_F = 20\text{mA}$
	Reverse Voltage ( $V_R$ )	3			V	$I_R = 10\mu\text{A}$
Output (note 2)	Peak Off-state Voltage ( $V_{DM}$ ) MCS2	200			V	$R_{GK}=10\text{k}\Omega, I_D=150\mu\text{A}, T_A=100^\circ\text{C}$
	MCS2400	400			V	$R_{GK}=10\text{k}\Omega, I_D=150\mu\text{A}, T_A=100^\circ\text{C}$
	Peak Reverse Voltage ( $V_{RM}$ ) MCS2	200			V	$I_D=150\mu\text{A}, T_A=100^\circ\text{C}$
	MCS2400	400			V	$I_D=150\mu\text{A}, T_A=100^\circ\text{C}$
	On-state Voltage ( $V_{TM}$ ) Off-state Current ( $I_{DM}$ ) MCS2		1.1	1.3	V	$I_{TM} = 100\text{mA}$
	MCS2400			2	$\mu\text{A}$	$R_{GK}=27\text{k}\Omega, I_F=0, V_{DM}=200\text{V}$
	Reverse Current ( $I_R$ ) MCS2			2	$\mu\text{A}$	$I_F=0, V_{DM}=200\text{V}$
	MCS2400			2	$\mu\text{A}$	$I_F=0, V_{DM}=400\text{V}$
	Holding Current ( $I_H$ )	10		500	$\mu\text{A}$	$R_{GK}=27\text{k}\Omega, V_{FX}=50\text{V}$
	Coupled	Input Current to Trigger ( $I_{FT}$ ) (note 2)	0.5		14	mA
Turn on Time ( $t_{on}$ )				50	$\mu\text{s}$	$R_{GK}=10\text{k}\Omega, I_F=30\text{mA}, V_{AK}=50\text{V}, R_L=200\Omega$
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 $R_{ISO}$ Input-output Capacitance $C_f$		$10^{11}$		2	$\Omega$ pF	$V_{IO} = 500\text{V}$ (note 1) $V = 0, f = 1\text{MHz}$

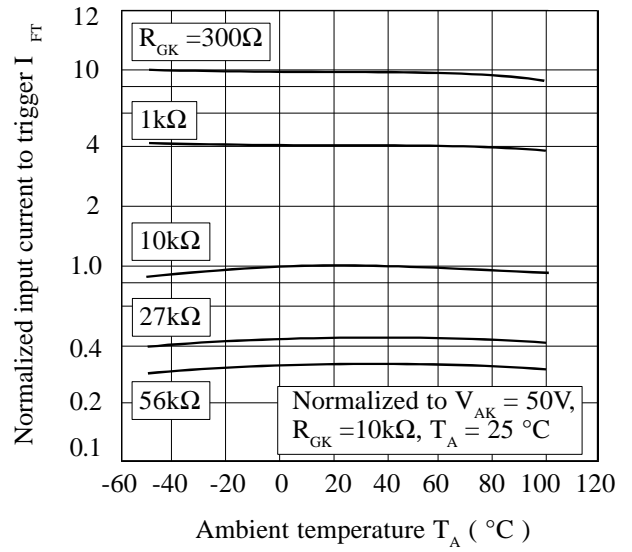
Note 1 Measured with input leads shorted together and output leads shorted together.

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

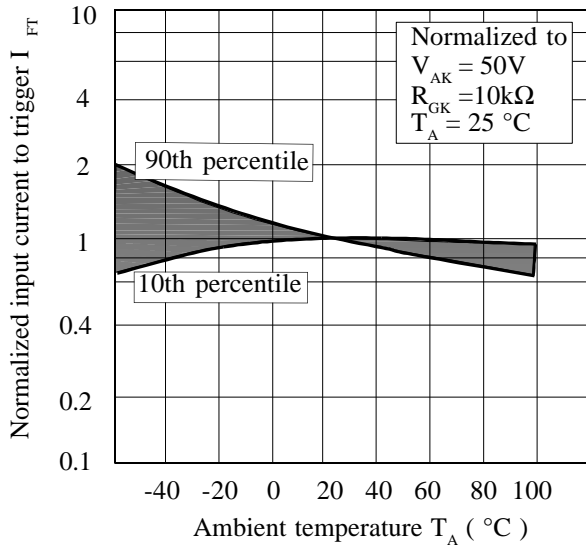
**Input Current to Trigger vs. Anode to Cathode Voltage**



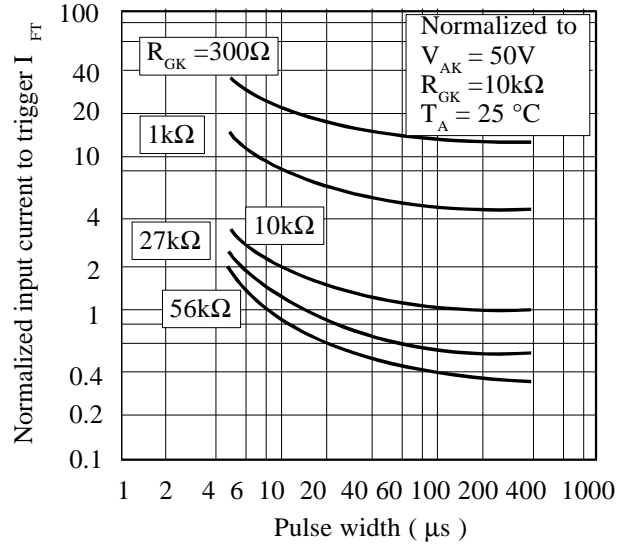
**Input Current to Trigger vs. Ambient Temperature**



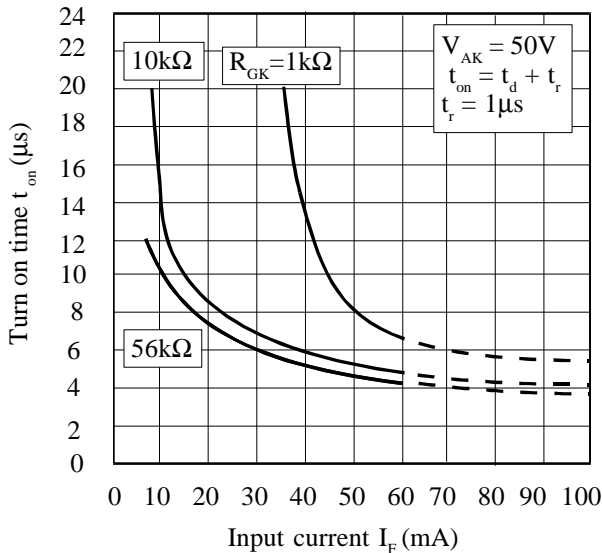
**Input Current to Trigger Distribution vs. Ambient Temperature**



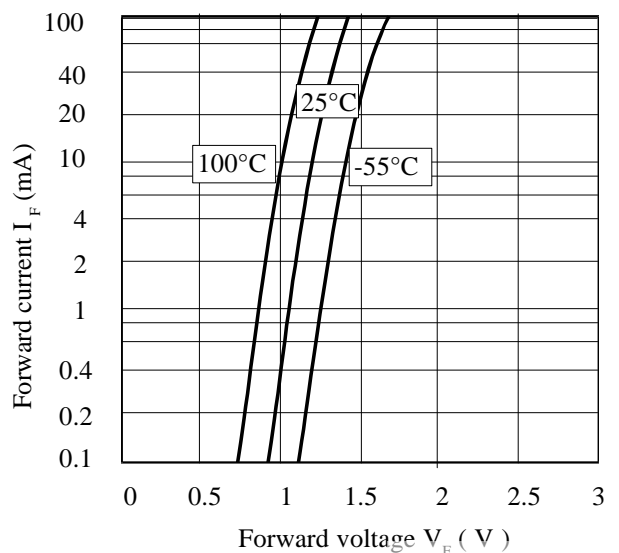
**Input Current to Trigger vs. Pulse Width**



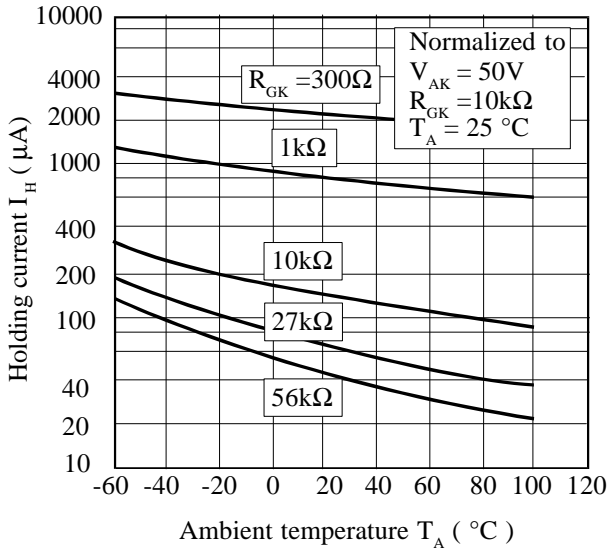
**Turn on Time vs. Input Current**



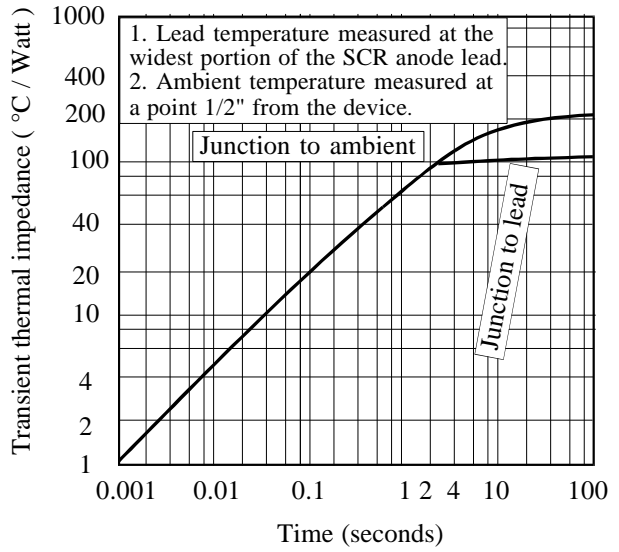
**Input Characteristics I\_F vs. V\_F**



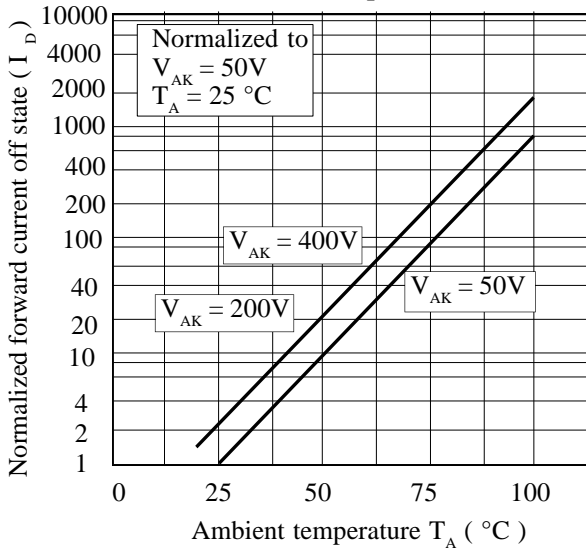
**Holding Current vs. Ambient Temperature**



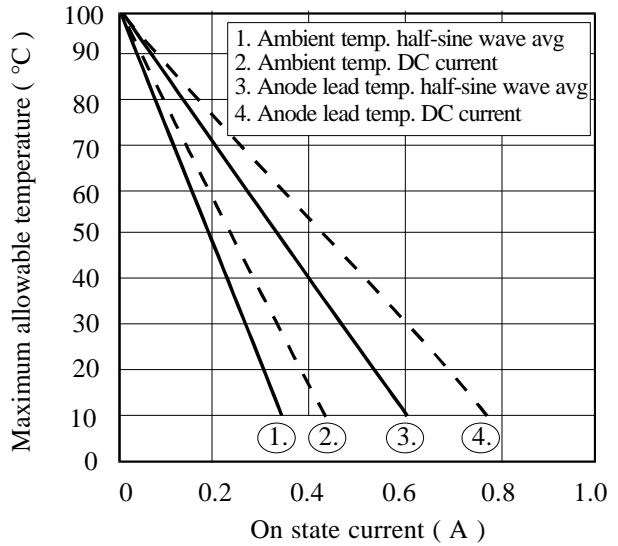
**Maximum Transient Thermal Impedance**



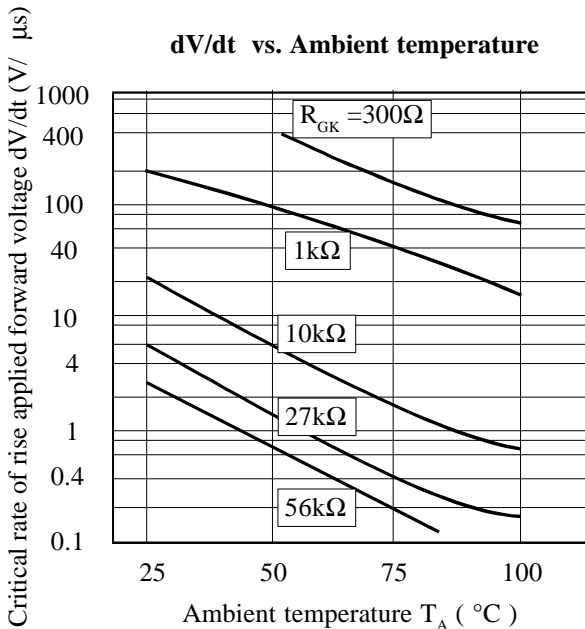
**Off State Forward Current vs. Ambient Temperature**



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



**dV/dt vs. Ambient temperature**



**On State Characteristics**

