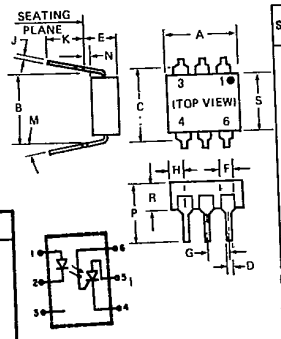
Photon Coupled Isolator MCS21, MCS2401

GaAs Infrared Emitting Diode & Light Activated SCR

The GE Solid State MCS21 and MCS2401 consist of a gallium arsenide, infrared-emitting diode coupled with a light activated silicon controlled rectifier in a dual-in-line package. These devices are also available in Surface-Mount packaging.

Covered under U.L. component recognition program, reference file E51868



SYMBOL	MILLIMETERS MIN.	MILLIMETERS MAX.	INCHES MIN.	INCHES MAX.	NOTES
A	8.38	8.89	330	350	
B	7.62 REF		.300 REF.		1
C	—	8.64	—	.340	2
D	.406	.508	016	.020	
E	—	5.08	—	.200	3
F	1.01	1.78	.040	.070	
G	2.28	2.80	090	.110	
H	—	2.16	—	.085	4
J	.203	.305	008	.012	
K	2.54	—	100	—	
M	—	15	—	15	
N	.381	—	015	—	
P	—	9.53	—	.375	
R	2.92	3.43	115	135	
S	6.10	6.86	.240	270	

NOTES
1. INSTALLED POSITION LEAD CENTERS.
2. OVERALL INSTALLED DIMENSION
3. THESE MEASUREMENTS ARE MADE FROM THE SEATING PLANE. 4. FOUR PLACES

absolute maximum ratings

INFRARED EMITTING DIODE		
Power Dissipation	*100	milliwatts
Forward Current (Continous)	60	milliamps
Forward Current (Peak) (100μsec 1% duty cycle)	1	ampere
Reverse Voltage	3	volts

*Derate 1.33mW/°C above 25°C ambient.

PHOTO-SCR			
Off-State and Reverse Voltage	MCS21	200	volts
	MCS2401	400	volts
Peak Reverse Gate Voltage		6	volts
Direct On-State Current		300	milliamps
Surge (non-rep) On-State Current		10	amps
Peak Gate Current		10	milliamps
Output Power Dissipation		**400	milliwatts

**Derate 5.3mW/°C above 25°C ambient.

TOTAL DEVICE
Storage Temperature Range — 55°C to 150°C
Operating Temperature Range — 55°C to 100°C
Soldering Temperature (1/16" from case, 10 seconds) 260°C
Total Device Dissipation 450 milliwatts
Linear Derating Factor (above 25°C) 6.0mW/°C
Surge Isolation Voltage (Input to Output).
4000 $V_{(peak)}$ 3000 $V_{(RMS)}$
Steady-State Isolation Voltage (Input to Output).
3500 $V_{(peak)}$ 2500 $V_{(RMS)}$

individual electrical characteristics (25°C) (unless otherwise specified)

INFRARED EMITTING DIODE	TYP.	MAX.	UNITS
Forward Voltage V_F (I_F = 20mA)	1.1	1.5	V
Reverse Current I_R (V_R = 3V)	—	10	μA
Capacitance (V = 0, f = 1MHz)	50	—	pF

PHOTO-SCR		MIN.	MAX.	UNITS
Peak Off-State Voltage — V_{DM} (R_{GK} = 10KΩ, T_A = 100°C, I_D = 150μA)	MCS21	200	—	V
	MCS2401	400	—	V
Peak Reverse Voltage — V_{RM} (T_A = 100°C, I_R = 150μA)	MCS21	200	—	V
	MCS2401	400	—	V
On-State Voltage — V_T (I_T = 100mA)		—	1.3	V
Off-State Current — I_D (V_D = 200V, I_F = 0, R_{GK} = 27K)	MCS21	—	2	μA
Off-State Current — I_D (V_D = 400V, I_F = 0, R_{GK} = 27K)	MCS2401	—	2	μA
Reverse Current — I_R (V_R = 200V, I_F = 0)	MCS21	—	2	μA
Reverse Current — I_R (V_R = 400V, I_F = 0)	MCS2401	—	2	μA
Holding Current — I_H (V_{FX} = 50V, R_{GK} = 27KΩ)		10	500	μA

coupled electrical characteristics (25°C)

			MIN.	MAX.	UNITS
Input Current to Trigger	V_{AK}=50V, R_{GK}=10KΩ	I_{FT}		20	milliamps
	V_{AK} = 100V, R_{GK} = 27KΩ	I_{FT}	.5	11	milliamps
Isolation Resistance (Input to Output)	V_{io} = 500V_{DC}	r_{io}	100	—	gigaohms
Turn-On Time — V_{AK} = 50V, I_F = 30mA, R_{GK} = 10KΩ, R_L = 200Ω		t_{on}	—	50	microseconds
Coupled dv/dt, Input to Output			500	—	volts/microsec.
Input to Output Capacitance (Input to Output Voltage = 0, f = 1MHz)			—	2	picofarads

VDE Approved to 0883/6.80 0110b Certificate # 35025

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TYPICAL CHARACTERISTICS

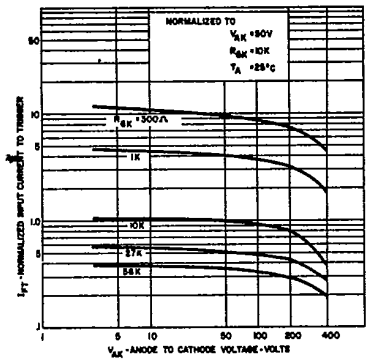


FIGURE 1. INPUT CURRENT TO TRIGGER VS. ANODE-CATHODE VOLTAGE

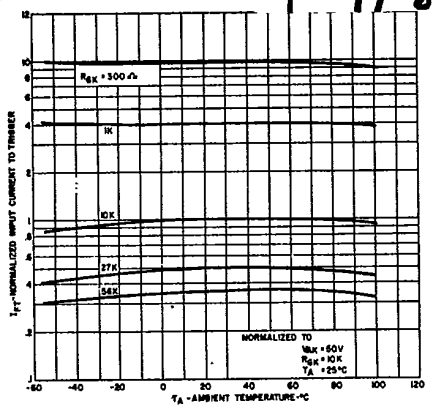


FIGURE 2. INPUT CURRENT TO TRIGGER VS. TEMPERATURE

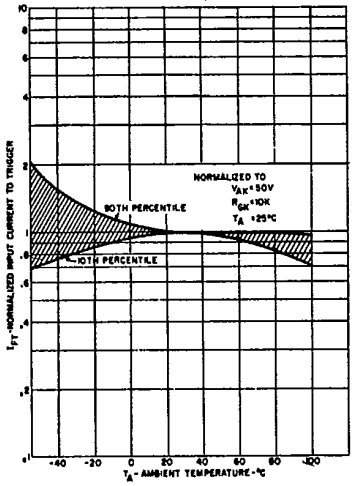


FIGURE 3. INPUT CURRENT TO TRIGGER DISTRIBUTION VS. TEMPERATURE

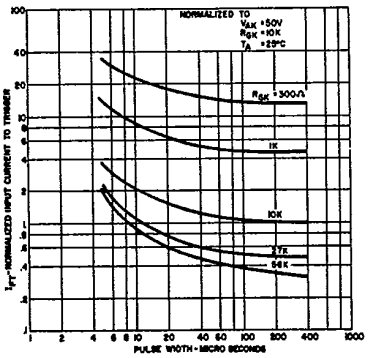


FIGURE 4. INPUT CURRENT TO TRIGGER VS. PULSE WIDTH

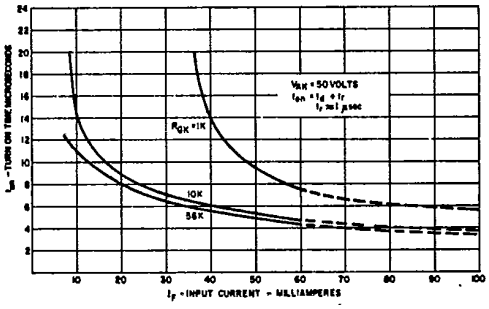


FIGURE 5. TURN-ON TIME VS. INPUT CURRENT

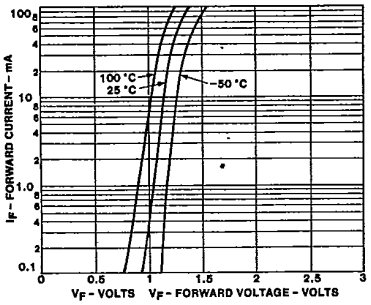


FIGURE 6. INPUT CHARACTERISTICS I_F VS. V_F

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