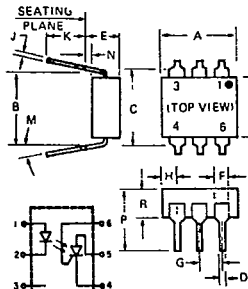


Photon Coupled Isolator MCS2, MCS2400

GaAs Infrared Emitting Diode & Light Activated SCR

The GE Solid State MCS2 and MCS2400 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		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	8.38	8.89	.330	.350	
B	7.62 REF		.300 REF		1
C		8.64		.340	2
D	4.06	5.08	.016	.020	3
E		5.08		.200	
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		.953		.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 (Continuous)	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	MCS2	200 volts
	MCS2400	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)	3535V _(peak) 2500V _(RMS)
Steady-State Isolation Voltage (Input to Output)	3180V _(peak) 2250V _(RMS)

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

INFRARED EMITTING DIODE	TYP.	MAX.	UNITS	PHOTO-SCR	MIN.	MAX.	UNITS
Forward Voltage V _F (I _F = 20mA)	1.1	1.5	V	Peak Off-State Voltage - V _{DM} R _{GK} = 10KΩ, T _A = 100°C, I _D = 150µA	MCS2	200	V
					MCS2400	400	V
				Peak Reverse Voltage - V _{RM} (T _A = 100°C, I _R = 150µA)	MCS2	200	V
					MCS2400	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)	MCS2	2	µA
				Off-State Current - I _D (V _D = 400V, I _F = 0, R _{GK} = 27K)	MCS2400	2	µA
				Reverse Current - I _R (V _R = 200V, I _F = 0)	MCS2	2	µA
				Reverse Current - I _R (V _R = 400V, I _F = 0)	MCS2400	2	µA
Capacitance (V = 0, f = 1MHz)	50		pF	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} = 100V, R _{GK} = 27KΩ	.5	14	milliamps
Isolation Resistance (Input to Output) V _{io} = 500V _{DC}	100	-	gigaohms
Turn-On Time - V _{AK} = 50V, I _F = 30mA, R _{GK} = 10KΩ, R _L = 200Ω	-	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 01 10b Certificate # 35025

TYPICAL CHARACTERISTICS

T 41.87

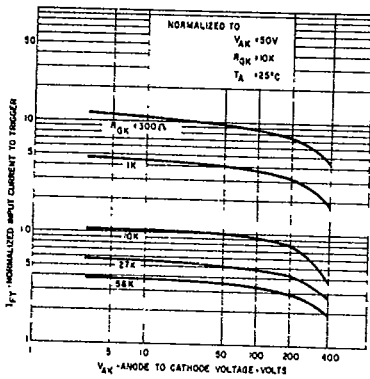


FIGURE 1. INPUT CURRENT TO TRIGGER VS. ANODE-CATHODE VOLTAGE

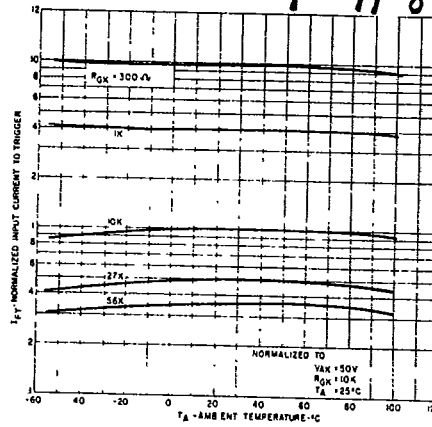


FIGURE 2. INPUT CURRENT TO TRIGGER VS. TEMPERATURE

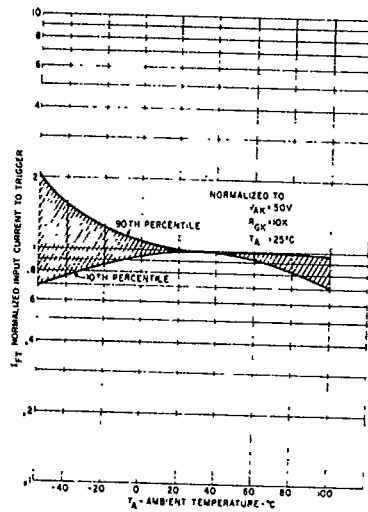


FIGURE 3. INPUT CURRENT TO TRIGGER DISTRIBUTION VS. TEMPERATURE

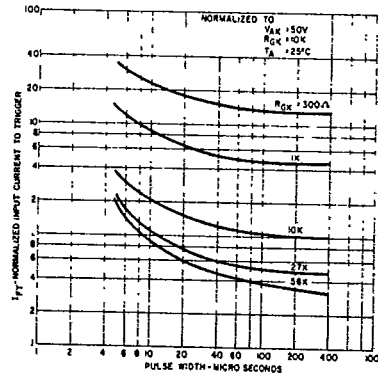


FIGURE 4. INPUT CURRENT TO TRIGGER VS. PULSE WIDTH

10

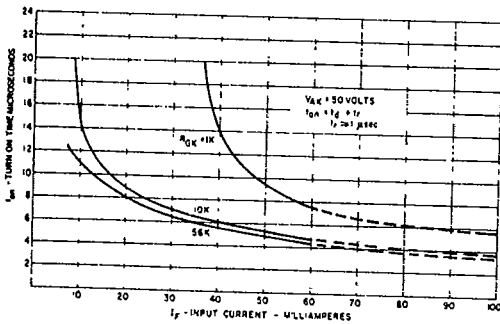


FIGURE 5. TURN-ON TIME VS. INPUT CURRENT

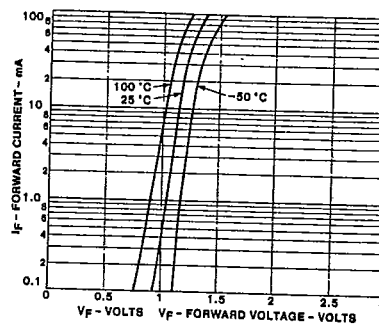
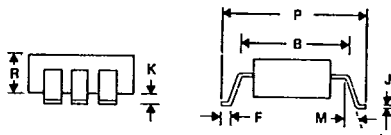
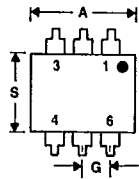


FIGURE 6. INPUT CHARACTERISTICS I_F VS. V_F

T-91-20

Surface-Mount Optoisolators



Surface-mount packaging for the entire 6-pin DIP optoisolator line!

Add the "SMA" or "SMB" suffix to any 6-pin optoisolator part number when ordering.

DIMENSIONAL OUTLINE NO. 298
All Surface-Mount Types

SMB (Standard)
Surface-Mount Package

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	0.330	0.350	8.38	8.89	
B	0.330 REF		8.38 REF		
F	0.020	0.040	0.508	1.02	
J	0.008	0.012	0.203	0.305	
K	0.0040	0.0098	0.102	0.249	
M	—	15°	—	15°	
P	0.375	0.395	9.53	10.03	
R	0.115	0.135	2.92	3.43	
S	0.240	0.270	6.10	6.86	
Coplanarity	0	0.002	0	0.051	1

92CS-42862

1. Coplanarity is the distance from a plane, defined by the end of the three longest legs to the end of the shortest leg.

SMA (Low Profile)
Surface-Mount Package

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	0.330	0.350	8.38	8.89	
B	0.330 REF		8.38 REF		
F	0.020	0.040	0.508	1.02	
J	0.008	0.012	0.203	0.305	
K	0.0005	0.0040	0.013	0.102	
M	—	15°	—	15°	
P	0.373	0.393	9.47	9.98	
R	0.115	0.135	2.92	3.43	
S	0.240	0.270	6.10	6.86	
Coplanarity	0	0.002	0	0.051	1

92CS-42861

1. Coplanarity is the distance from a plane, defined by the end of the three longest legs to the end of the shortest leg.

