



# MOTOROLA SEMICONDUCTORS

P.O. BOX 20912 • PHOENIX, ARIZONA 85036

## Advance Information

### PHOTO SCR DETECTOR

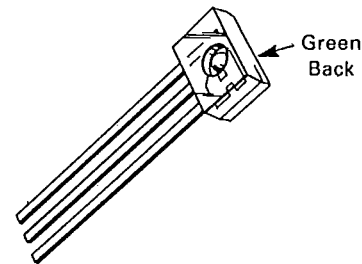
... designed for optical triggering of power SCRs for control of loads on 120 Vac lines and for photographic strobe slave units. Supplied in the miniature, lensed plastic Case 349C which is compatible with existing automatic insertion equipment.

- 200 Volt Peak Forward Voltage
- 125 mA Forward RMS Current
- Miniature, Lensed Plastic Package
- Low Cost, Machine Insertable
- Use with MLED71 Infrared Emitter or External Source

## MRD740

### PHOTO SCR DETECTOR

200 VOLTS

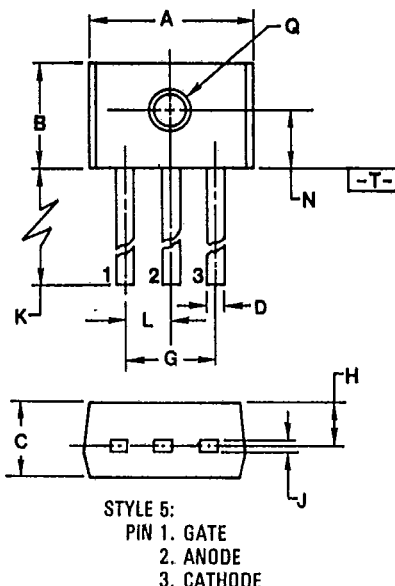
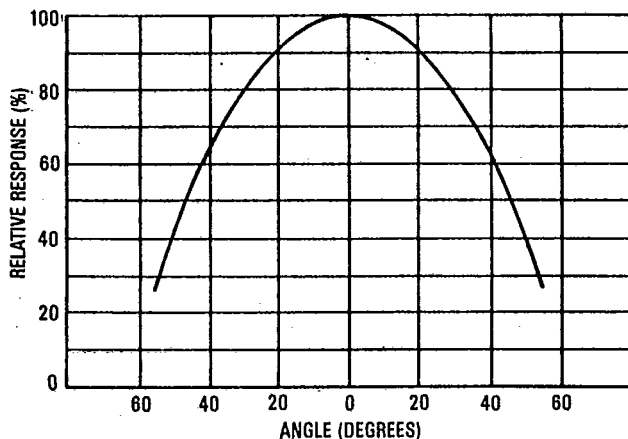


### MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Peak Forward Voltage	V <sub>DM</sub>	200	Volts
Forward RMS Current (Full Cycle, 50 to 60 Hz) T <sub>A</sub> = 25° C	I <sub>T(RMS)</sub>	125	mA
Peak Pulse Current	I <sub>peak</sub>	1.2	A
Total Device Dissipation @ T <sub>A</sub> = 25°C Derate above 25°C*	P <sub>D</sub>	150 2.0	mW mW/°C
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-40 to +100	°C

\*Measured with device soldered into a typical PC board.

FIGURE 1 — ANGULAR RESPONSE



- NOTES:
- DIMENSIONS A, B AND C ARE DATUMS.
  - POSITIONAL TOLERANCE FOR D DIMENSION:  
 $\phi \pm 0.25 (0.010) (M) T A (M) C (M)$
  - POSITIONAL TOLERANCE FOR Q DIAMETER:  
 $\phi \pm 0.25 (0.010) (M) A (M) C (M)$
  - T- IS A SEATING PLANE.
  - DIMENSIONING AND TOLERANCING PER ANSI 14.5, 1973.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.43	4.60	0.135	0.185
B	2.79	3.30	0.110	0.130
C	2.03	3.18	0.080	0.125
D	0.43	0.56	0.017	0.022
G	2.54 BSC		0.100 BSC	
H	1.52 BSC		0.060 BSC	
J	0.23	0.56	0.009	0.022
K	12.70	-	0.500	-
L	1.27 BSC		0.050 BSC	
N	1.78 BSC		0.070 BSC	
Q	0.76	1.52	0.030	0.060

CASE 349C-01

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**MRD740**

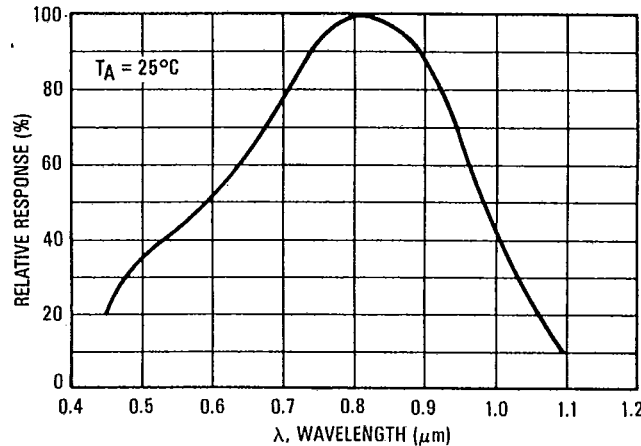
**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Off-State Voltage ( $R_{GK} = 10\text{ k}\Omega$ , $T_A = 100^\circ\text{C}$ , $H = 0$ )	$V_{DM}$	200	—	—	Volts
Peak Reverse Voltage ( $R_{GK} = 10\text{ k}\Omega$ , $T_A = 100^\circ\text{C}$ , $H = 0$ )	$V_{RM}$	200	—	—	Volts
On-State Voltage ( $I_{TM} = 125\text{ mA}$ )	$V_{TM}$	—	0.95	1.2	Volts
Off-State Current ( $V_{DM} = 200\text{ V}$ , $R_{GK} = 10\text{ k}\Omega$ , $T_A = 100^\circ\text{C}$ , $H = 0$ )	$I_{DM}$	—	—	150	$\mu\text{A}$
Reverse Current ( $V_{RM} = 200\text{ V}$ , $R_{GK} = 10\text{ k}\Omega$ , $T_A = 100^\circ\text{C}$ , $H = 0$ )	$I_{RM}$	—	—	150	$\mu\text{A}$
Capacitance ( $V = 0$ , $f = 1.0\text{ MHz}$ ) Anode-Gate Gate-Cathode	$C_J$	—	20 350	—	pF
Light Required to Trigger (Color Temp = 2870 K, $V_{AK} = 50\text{ V}$ , $T_A = 25^\circ\text{C}$ ) (Note 1)	$H_{TH}$	—	5.0	15	$\text{mW}/\text{cm}^2$
Wavelength of Maximum Sensitivity	$\lambda_s$	—	0.8	—	$\mu\text{m}$

NOTE:

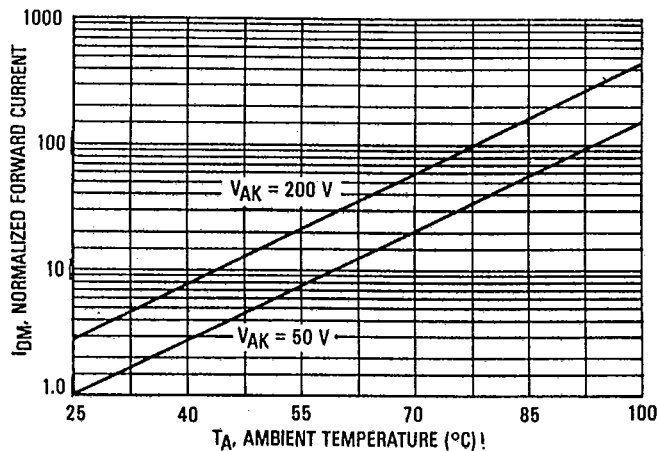
1. Measurement made with no electrical connection to the gate lead.

**FIGURE 2 — CONSTANT ENERGY SPECTRAL RESPONSE**

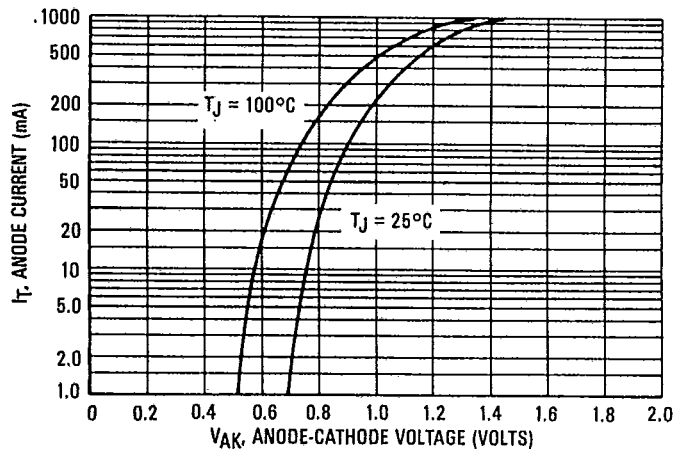


**TYPICAL ELECTRICAL CHARACTERISTICS**

**FIGURE 3 — FORWARD LEAKAGE CURRENT versus TEMPERATURE**



**FIGURE 4 — ANODE CURRENT versus ANODE-CATHODE VOLTAGE**



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