

**MOTOROLA****SEMICONDUCTORS**

P.O. BOX 20912 • PHOENIX, ARIZONA 85036

Advance Information**PHOTO DETECTOR TRIAC DRIVER**

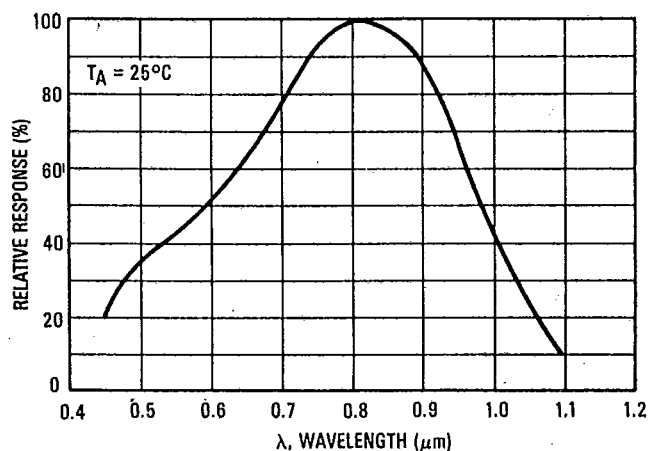
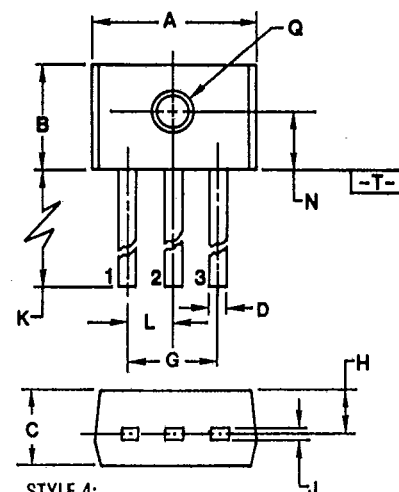
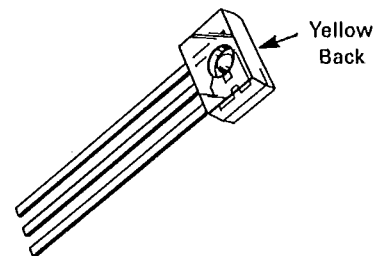
... consists of a monolithic chip containing the infrared detector and bidirectional triac driver in a miniature plastic package. They are designed for optical triggering of power triacs for control of loads on 120 Vac and 240 Vac lines.

- 400 Volt Peak Blocking Voltage (V_{DRM})
- Miniature Lensed Plastic Package
- Low Cost, Machine Insertable
- Use with MLED71 Infrared Emitter or External Source

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Off-State Output Terminal Voltage	V_{DRM}	400	Volts
Peak Pulse Current	I_{peak}	1.2	A
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C^*	P_D	150 2.0	mW mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-40 to +100	$^\circ\text{C}$

*Measured with device soldered into a typical PC board.

FIGURE 1 — CONSTANT ENERGY SPECTRAL RESPONSE**MRD730****PHOTO DETECTOR
TRIAC DRIVER
400 VOLTS**

STYLE 4:

- PIN 1. MAIN TERM #1
2. SUBSTRATE
(DO NOT CONNECT)
3. MAIN TERM #2

NOTES:

- DIMENSIONS A, B AND C ARE DATUMS.
- POSITIONAL TOLERANCE FOR D DIMENSION:
 $\phi 0.25 (0.010) (M) T A (M) C (M)$
- POSITIONAL TOLERANCE FOR Q DIAMETER:
 $\phi 0.25 (0.010) (M) A (M) C (M)$
- 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

MRD730

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

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Blocking Current, Either Direction (Main Terminal Voltage = 400 V, $H = 0$, Note 1)	I_{DRM}	—	5.0	100	nA
Peak On-State Voltage, Either Direction ($I_{\text{TM}} = 100$ mA Peak)	V_{TM}	—	2.0	3.0	Volts
Critical Rate of Rise of Off-State Voltage, $T_A = 85^\circ\text{C}$	dv/dt	—	10.0	—	V/ μs
Holding Current, Either Direction	I_{H}	—	100	—	μA
Light Required to Trigger (Color Temp = 2870 K, Main Terminal Voltage = 50 V, Note 2)	H_{TH}	—	15	50	mW/cm ²
Wavelength of Maximum Sensitivity	λ_s	—	0.8	—	μm

NOTES:

1. Test voltage must be applied within dv/dt rating.
2. Die faces lensed side of package.

TYPICAL ELECTRICAL CHARACTERISTICS

 $T_A = 25^\circ\text{C}$

FIGURE 2 — ON-STATE CHARACTERISTICS

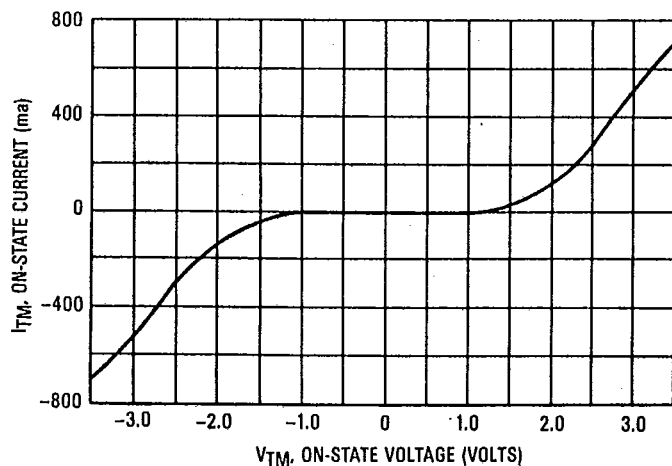


FIGURE 3 — ANGULAR RESPONSE

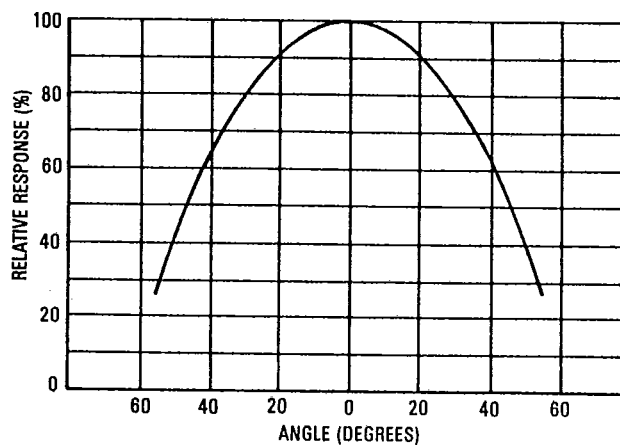
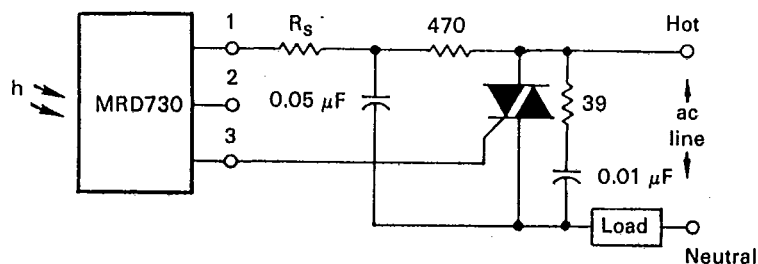


FIGURE 4 — TYPICAL APPLICATION CIRCUIT



In this circuit the "hot" side of the line is switched and the load connected to the neutral side.

The 39 ohm resistor and 0.01 μF capacitor are for snubbing of the triac, and the 470 ohm resistor and 0.05 μF capacitor are for snubbing the device. These components may or may not be necessary depending upon the particular triac and load used.

Recommended value for R_S is 180 ohms for 120 Vac operation, and 360 ohms for 240 Vac operation.

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