MRD3010
MRD3011

250 V NPN SILICON PHOTO TRIAC DRIVER

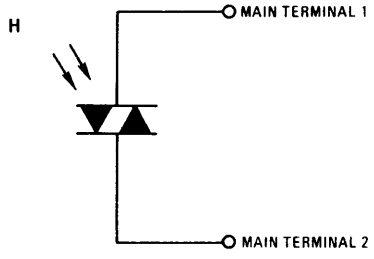
. . . designed for applications requiring light and infrared LED TRIAC triggering, small size, and low cost.

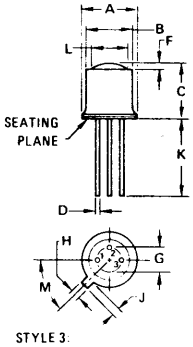
- Hermetic Package at Economy Prices
- Popular TO-18 Type Package for Easy Handling and Mounting
- High Trigger Sensitivity
  H_{FT} = 0.5 mW/cm^2 (Typ-MRD3011)

OPTICALLY TRIGGERED TRIAC DRIVER

MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Rating		Symbol	Value	Unit
Off-State Output Terminal Voltage		V_{DRM}	250	Volts
On-State RMS Current (Full Cycle, 50 to 60 Hz)	T_A = 25°C T_A = 70°C	$I_{T(RMS)}$	100 50	mA mA
Peak Nonrepetitive Surge Current (PW = 10 ms, DC = 10%)		I_{TSM}	1.2	A
Total Power Dissipation @ T_A = 25°C Derate above 25°C		P_D	400 2.28	mW mW/°C
Operating Ambient Temperature Range		T_A	−40 to +70	°C
Junction Temperature Range		T_J	−40 to +100	°C
Storage Temperature Range		T_{stg}	−40 to +150	°C
Soldering Temperature (10 s)		–	260	°C





STYLE 3:
PIN 1. MAIN TERMINAL
2. MAIN TERMINAL
3. SUBSTRATE
(do not connect)

NOTES:
1. LEADS WITHIN .13 mm (.005) RADIUS OF TRUE POSITION AT SEATING PLANE, AT MAXIMUM MATERIAL CONDITION.
2. PIN 3 INTERNALLY CONNECTED TO CASE.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.31	5.84	0.209	0.230
B	4.52	4.95	0.178	0.195
C	4.57	6.48	0.180	0.255
D	0.41	0.48	0.016	0.019
F	–	1.14	–	0.045
G	2.54 BSC		0.100 BSC	
H	0.99	1.17	0.039	0.046
J	0.84	1.22	0.033	0.048
K	12.70	–	0.500	–
L	3.35	4.01	0.132	0.158
M	45° BSC		45° BSC	

CASE 82-05

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
DETECTOR CHARACTERISTICS (I_F = 0 unless otherwise noted)					
Peak Blocking Current, Either Direction (Rated V_{DRM}, Note 1)	I_{DRM}	–	10	100	nA
Peak On-State Voltage, Either Direction (I_{TM} = 100 mA Peak)	V_{TM}	–	2.5	3.0	Volts
Critical Rate of Rise of Off-State Voltage, Figure 3	dv/dt	–	2.0	–	V/μs
Critical Rate of Rise of Commutation Voltage, Figure 3 (I_{load} = 15 mA)	dv/dt	–	0.15	–	V/μs
OPTICAL CHARACTERISTICS					
Maximum Irradiance Level Required to Latch Output (Main Terminal Voltage 3.0 V, R_L = 150 Ω) MRD3010 / Color Temperature = 2870°K MRD3011	H_{FT}	–	1.0 / 0.5	5.0 / 2.0	mW/cm²
Holding Current, Either Direction Initiating Flux Density = 5.0 mW/cm²	I_H	–	100	–	μA

NOTE 1. Test voltage must be applied within dv/dt rating.

FIGURE 1 – ON-STATE CHARACTERISTICS

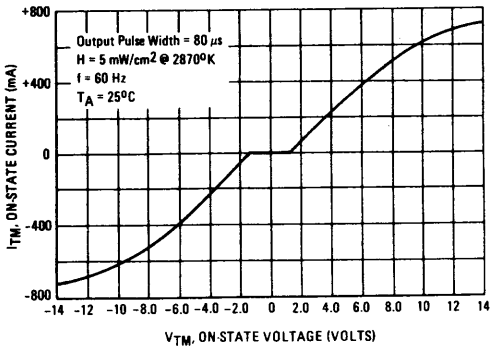


FIGURE 2 – dv/dt TEST CIRCUIT

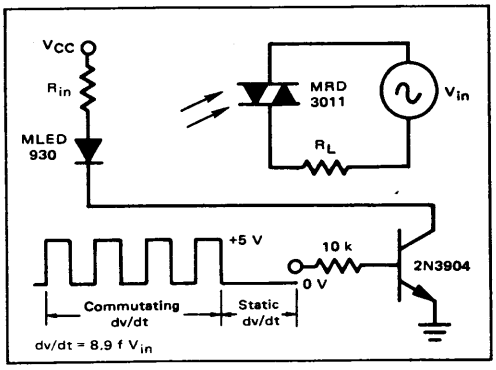


FIGURE 3 – dv/dt versus LOAD RESISTANCE

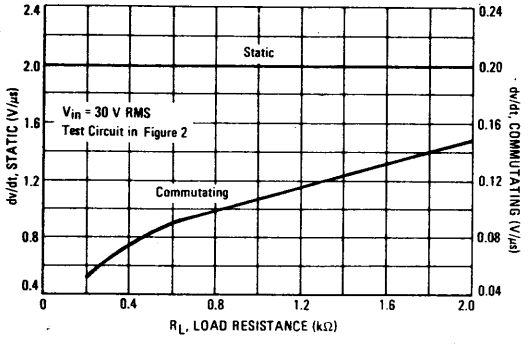


FIGURE 4 – dv/dt versus TEMPERATURE

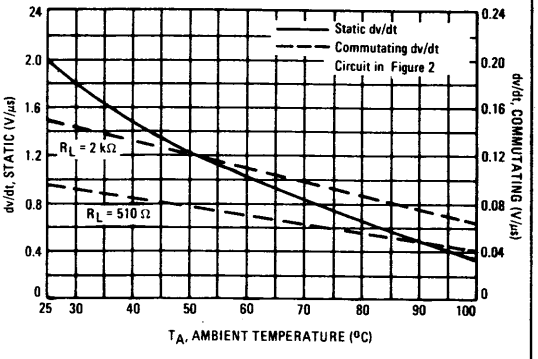


FIGURE 5 – COMMUTATING dv/dt versus FREQUENCY

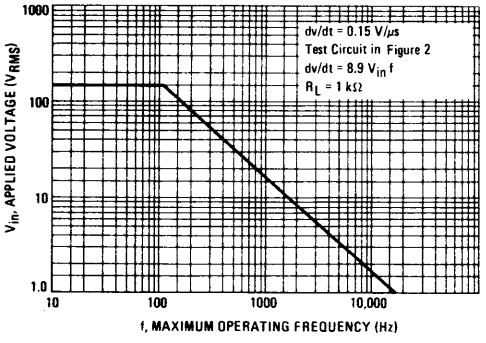


FIGURE 6 – MAXIMUM NONREPETITIVE SURGE CURRENT