

Photo Detector

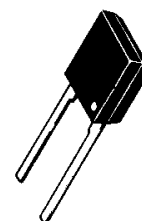
Diode Output

This device is designed for infrared remote control and other sensing applications, and can be used in conjunction with the MLED81 infrared emitting diode.

- Low Cost
- Designed for Automated Handling and Accurate Positioning
- Sensitive Throughout the Near Infrared Spectral Range
- Infrared Filter for Rejection of Visible Light
- High Speed

MRD821

**PHOTO DETECTOR
DIODE OUTPUT**



CASE 381-01

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	35	Volts
Forward Current — Continuous	I_F	100	mA
Total Power Dissipation ($T_A = 25^\circ\text{C}$ Derate above 25°C)	P_D	150 3.3	mW mW/ $^\circ\text{C}$
Ambient Operating Temperature Range	T_A	-30 to $+70$	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 to $+80$	$^\circ\text{C}$
Lead Soldering Temperature, 5 seconds max, 1/16 inch from case	—	260	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
Dark Current ($V_R = 10\text{ V}$)	I_D	—	3	30	nA
Capacitance ($f = 1\text{ MHz}$, $V = 0$)	C_J	—	175	—	pF

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

Characteristic	Symbol	Min	Typ	Max	Unit
Wavelength of Maximum Sensitivity	λ_{max}	—	940	—	nm
Spectral Range	$\Delta\lambda$	—	170	—	nm
Sensitivity ($\lambda = 940\text{ nm}$, $V_R = 20\text{ V}$)	S	—	50	—	$\mu\text{A/mW/cm}^2$
Temperature Coefficient of Sensitivity	ΔS	—	0.18	—	%/K
Acceptance Half-Angle	φ	—	± 70	—	$^\circ$
Short Circuit Current ($E_v = 1000\text{ lux}^1$)	I_S	—	50	—	μA
Open Circuit Voltage ($E_v = 1000\text{ lux}^1$)	V_L	—	0.3	—	V

NOTE 1. E_v is the illumination from an unfiltered tungsten filament source, having a color temperature of 2856K (standard light A, in accordance with DIN5030 and IEC publication 306-1).

TYPICAL CHARACTERISTICS

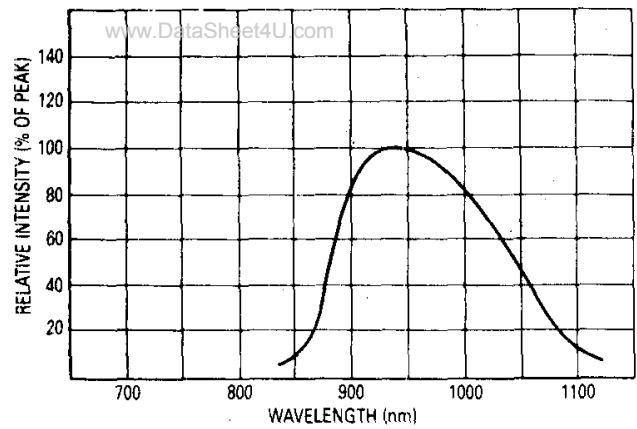


Figure 1. Relative Spectral Sensitivity

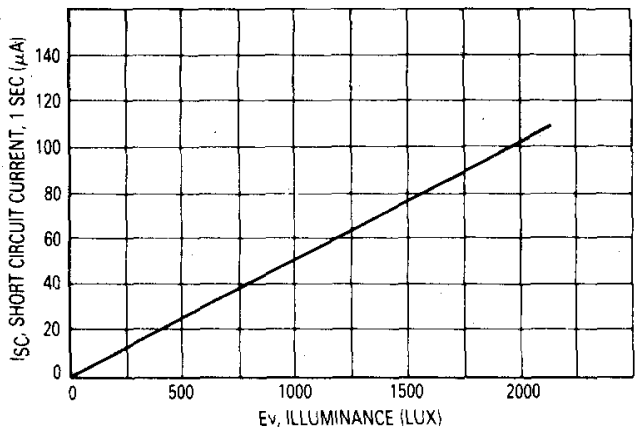


Figure 2. Short Circuit Current versus Illuminance

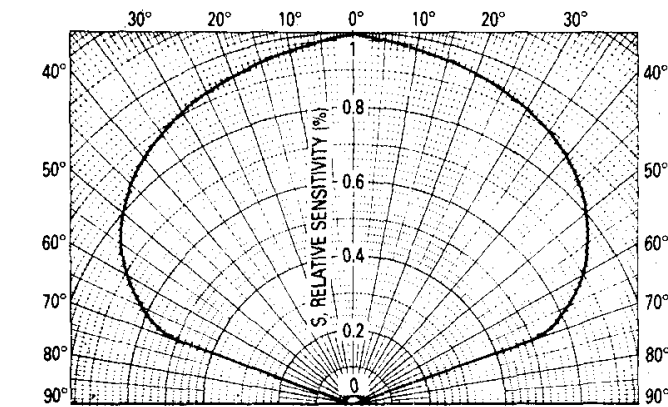


Figure 3. Angular Response

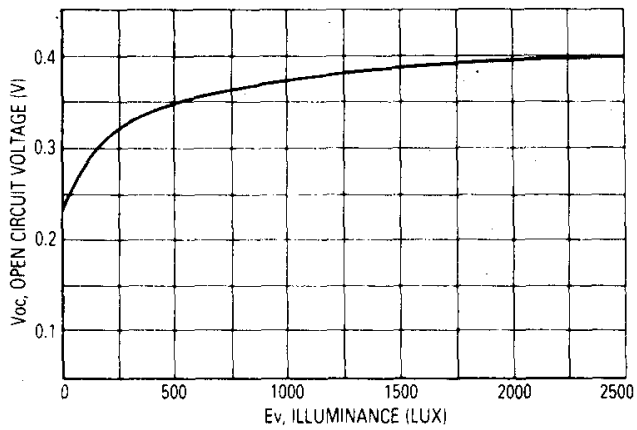


Figure 4. Open Circuit Voltage versus Illuminance

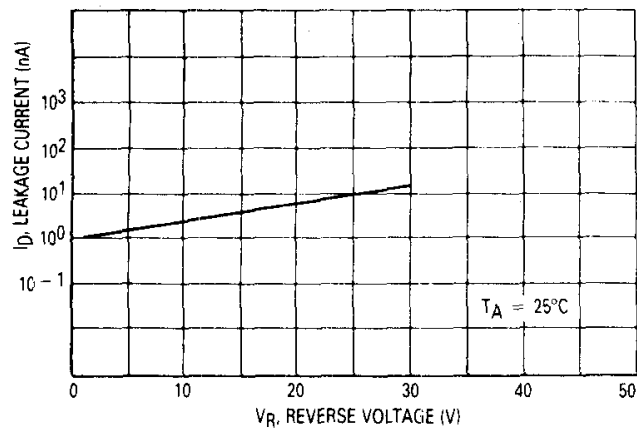


Figure 5. Dark Current versus Reverse Voltage

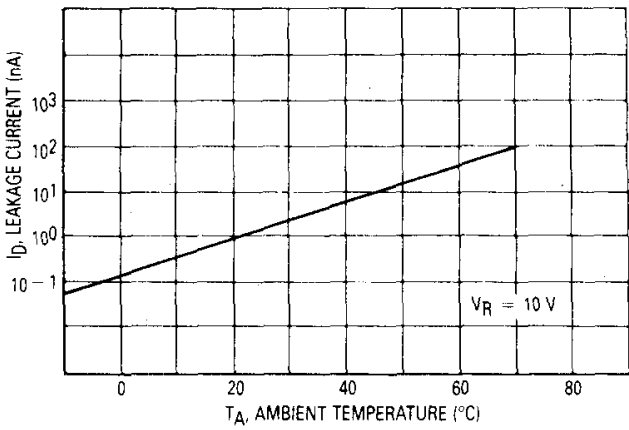


Figure 6. Dark Current versus Temperature

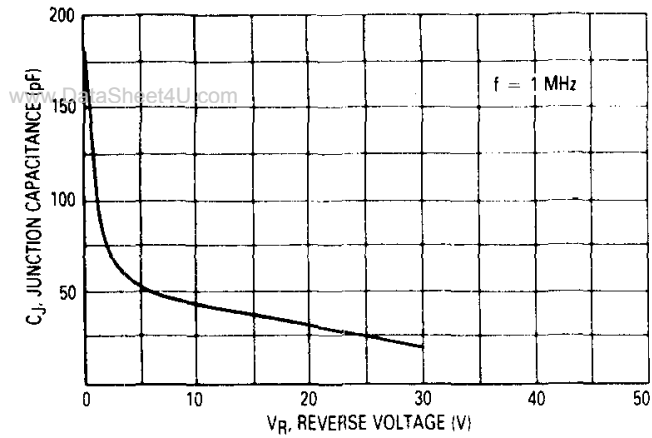


Figure 7. Capacitance versus Reverse Voltage

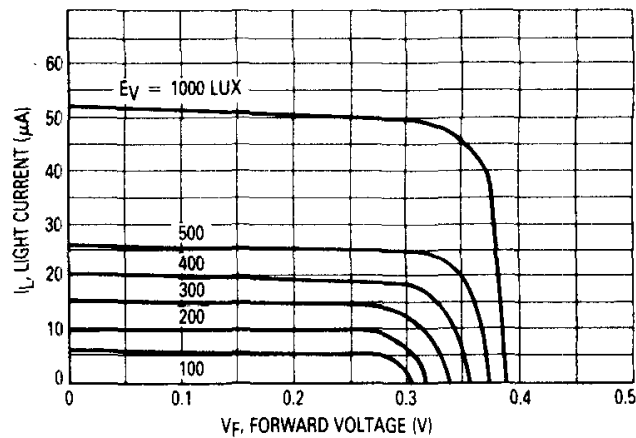


Figure 8. Light Current versus Forward Voltage

OUTLINE DIMENSIONS

