Infrared LED

MLED81

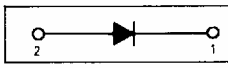
Motorola Preferred Device

INFRARED LED 940 nm

Features:
- Low Cost
- Popular T-1¾ Package
- Ideal Beam Angle for Most Remote Control Applications in Conjunction with MRD821
- Uses Stable Long-Life LED Technology
- Clear Epoxy Package

Applications:
Remote Controls and Long Distance Interruptive Sensing

CASE 279B-01
STYLE 1



7

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	5	Volts
Forward Current — Continuous	I_F	100	mA
Forward Current — Peak Pulse	I_F	1	A
Total Power Dissipation @ T_A = 25°C Derate above 25°C	P_D	100 2.2	mW mW/°C
Ambient Operating Temperature Range	T_A	−30 to +70	°C
Storage Temperature	T_{stg}	−30 to +80	°C
Lead Soldering Temperature, 5 seconds max, 1/16 inch from case	—	260	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Leakage Current (V_R = 3 V)	I_R	—	10	—	nA
Reverse Leakage Current (V_R = 5 V)	I_R	—	1	10	μA
Forward Voltage (I_F = 100 mA)	V_F	—	1.35	1.7	V
Temperature Coefficient of Forward Voltage	ΔV_F	—	1.6	—	mV/K
Capacitance (f = 1 MHz)	C	—	25	—	pF

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

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Wavelength (I_F = 100 mA)	λp	—	940	—	nm
Spectral Half-Power Bandwidth	Δλ	—	50	—	nm
Total Power Output (I_F = 100 mA)	Øe	—	16	—	mW
Temperature Coefficient of Total Power Output	ΔØe	—	−0.25	—	%/K
Axial Radiant Intensity (I_F = 100 mA)	I_e	10	15	—	mW/sr
Temperature Coefficient of Axial Radiant Intensity	ΔI_e	—	−0.25	—	%/K
Power Half-Angle	φ	—	±30	—	°

TYPICAL CHARACTERISTICS

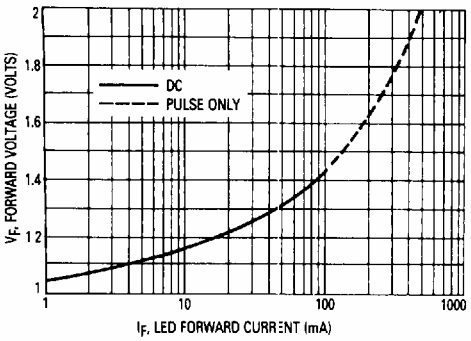


Figure 1. LED Forward Voltage versus Forward Current

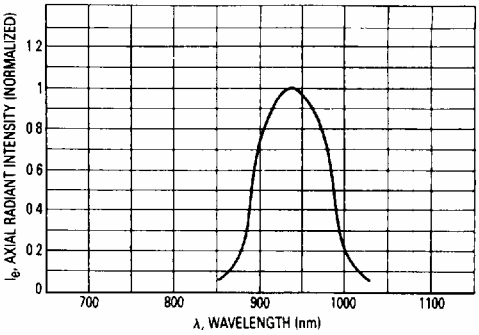


Figure 2. Relative Spectral Emission

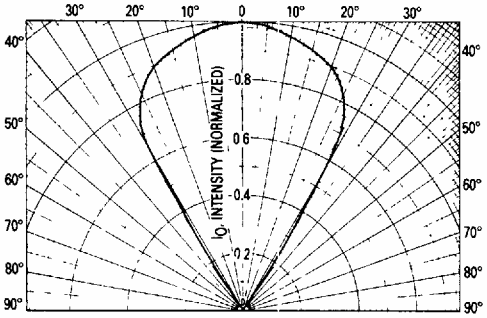


Figure 3. Spatial Radiation Pattern

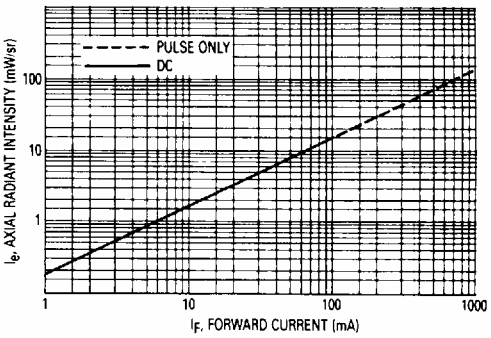


Figure 4. Intensity versus Forward Current