Unity Opto Technology Co., Ltd.

MVL-501G
MVL-501Y
MVL-501HR
MVL-501DR
MVL-501UR

04/30/2002

Description

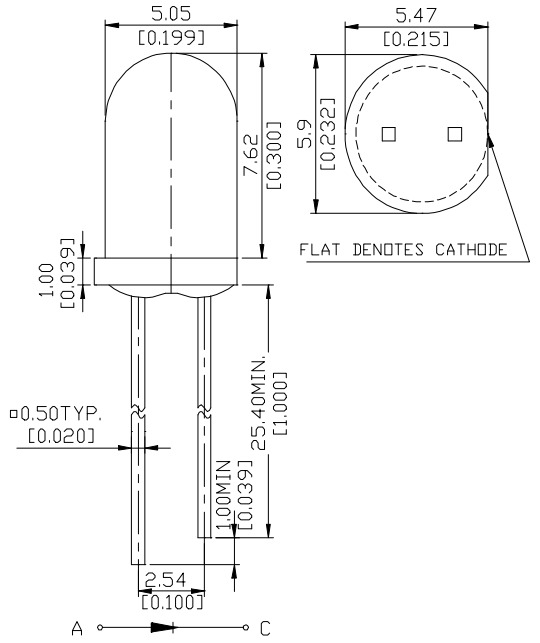
The MVL-501xx series package are T-1 3/4 (ϕ5mm) standard color diffused plastic lens package. The Hi-EFF red (HR) and yellow LED chips are made with Gallium Arsenide Phosphide on Gallium Phosphide diode. The green LED chip is made with Gallium Phosphide on Gallium Phosphide diode. The red (DR) chip is made with Aluminum Gallium Arsenide on Gallium Arsenide diode. The red (UR) chip is made with Aluminum Gallium Arsenide on Aluminum Gallium Arsenide diode.

Applications

- Popular T-1 3/4 (ϕ5mm) diameter package
- I.C. compatible / Low current requirement
- Low power consumption
- General purpose leads
- Reliable and rugged

Package Dimensions

Unite: mm (inches)



NOTES :
1. Tolerance is ± 0.25 mm (.010") unless otherwise noted.
2. Protruded resin under flange is 1.5 mm (.059") max.
3. Lead spacing is measured where the leads emerge from the package.

Absolute Maximum Tatings

Parameter	Symbol	Maximum Rating				Unit
		GREEN	YELLOW	HR	DR/UR	
Power Dissipation	Pad	100	60	100	100	mW
Peak Forward Current (1/10 Duty Cycle 0.1ms pulse width)	Ipf	120	80	120	120	A
Continuous Forward Current	Iaf	30	20	30	40	mA/^{o}C
Derating Linear From 25^{o}C		0.4	0.25	0.4	0.5	mA
Reverse Voltage	V_R	5	5	5	5	V
Operating Temperature Range	Topr	-55^{o}C to + 100^{o}C				
Storage Temperature Range	Tstg	-55^{o}C to + 100^{o}C				
Lead Soldering Temperature (1.6mm from body) for 3 seconds at 260^{o}C						

Optical -Electrical Characteristics

Part No. : MVL-501G @T_A=25°C

Parameter	Test Conditions	Symbol	Min .	Typ .	Max .	Unit .
Luminous Intensity	I_F=10mA	I_V	7.0	23	-	mcd
Forward Voltage	I_F=20mA	V_F	-	2.1	2.8	V
Reverse Current	V_R=5V	I_R	-	-	100	μA
Wavelength	I_F=20mA	λp	-	565	-	nm
Spectral Line Half Width	I_F=20mA	Δλ	-	30	-	nm
Viewing Angle	I_F=20mA	$2\theta_{1/2}$	-	36	-	deg

Part No. : MVL-501Y @T_A=25°C

Parameter	Test Conditions	Symbol	Min .	Typ .	Max .	Unit .
Luminous Intensity	I_F=10mA	I_V	7.0	22	-	mcd
Forward Voltage	I_F=20mA	V_F	-	2.1	2.8	V
Reverse Current	V_R=5V	I_R	-	-	100	μA
Wavelength	I_F=20mA	λp	-	585	-	nm
Spectral Line Half Width	I_F=20mA	Δλ	-	35	-	nm
Viewing Angle	I_F=20mA	$2\theta_{1/2}$	-	36	-	deg

Part No. : MVL-501HR @T_A=25°C

Parameter	Test Conditions	Symbol	Min .	Typ .	Max .	Unit .
Luminous Intensity	I_F=10mA	I_V	8.0	25	-	mcd
Forward Voltage	I_F=20mA	V_F	-	2.0	2.8	V
Reverse Current	V_R=5V	I_R	-	-	100	μA
Wavelength	I_F=20mA	λp	-	640	-	nm
Spectral Line Half Width	I_F=20mA	Δλ	-	40	-	nm
Viewing Angle	I_F=20mA	$2\theta_{1/2}$	-	36	-	deg

Part No. : MVL-501DR @T_A=25°C

Parameter	Test Conditions	Symbol	Min .	Typ .	Max .	Unit .
Luminous Intensity	I_F=20mA	I_V	120	500	-	mcd
Forward Voltage	I_F=20mA	V_F	-	1.8	2.4	V
Reverse Current	V_R=5V	I_R	-	-	100	μA
Wavelength	I_F=20mA	λp	-	660	-	nm
Spectral Line Half Width	I_F=20mA	Δλ	-	20	-	nm
Viewing Angle	I_F=20mA	$2\theta_{1/2}$	-	24	-	deg

Part No. : MVL-501UR @T_A=25°C

Parameter	Test Conditions	Symbol	Min .	Typ .	Max .	Unit .
Luminous Intensity	I_F=20mA	I_V	240	1000	-	mcd
Forward Voltage	I_F=20mA	V_F	-	1.8	2.4	V
Reverse Current	V_R=5V	I_R	-	-	100	μA
Wavelength	I_F=20mA	λp	-	660	-	nm
Spectral Line Half Width	I_F=20mA	Δλ	-	20	-	nm
Viewing Angle	I_F=20mA	$2\theta_{1/2}$	-	24	-	deg

Typical Optical-Electrical Characteristic Curves

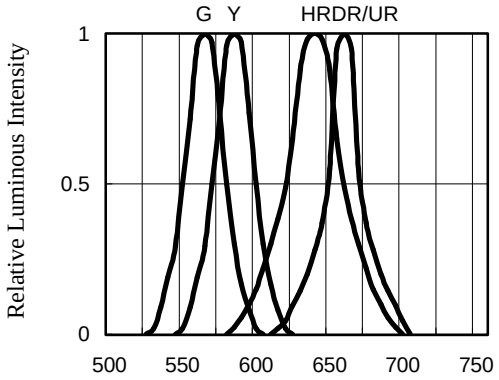


Fig 1. RELATIVE LUMINOUS INTENSITY VS. WAVELENGTH

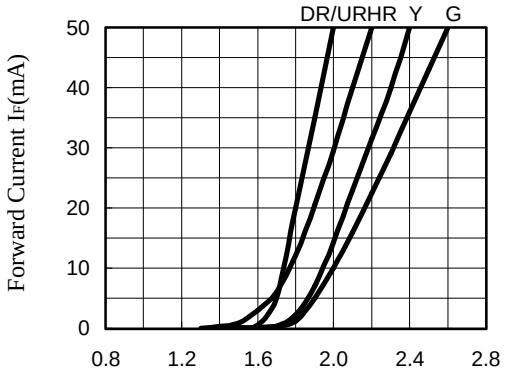


Fig 2. FORWARD CURRENT VS. FORWARD VOLTAGE

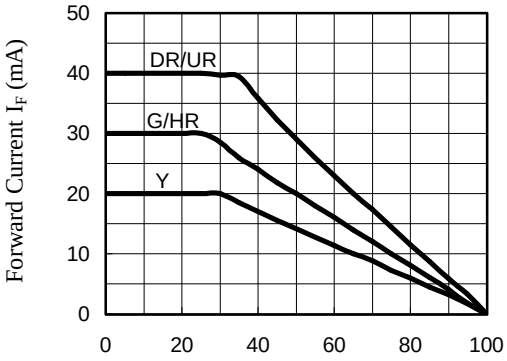


Fig 3. FORWARD CURRENT VS. AMBIENT TEMPERATURE

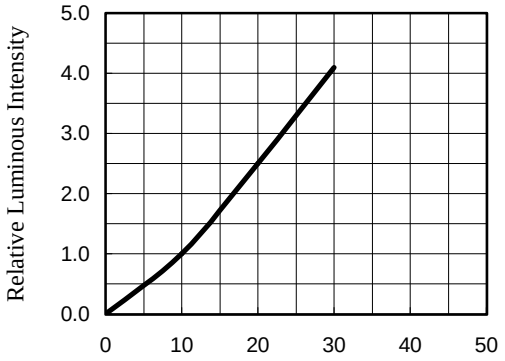


Fig 4. RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

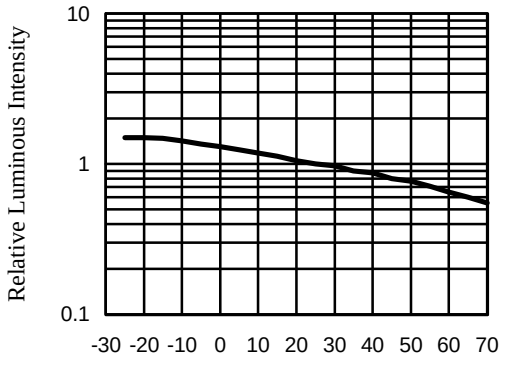


Fig 5. RELATIVE LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

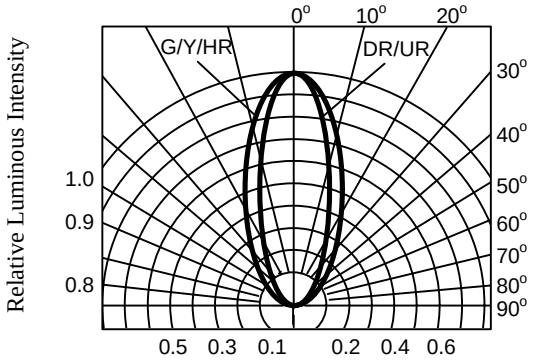


Fig 6. RADIATION DIAGRAM