Discrete LED Lamps

Monsanto offers a broad line of discrete light emitting diode products to provide the customer with a wide selection of off-the-shelf products that will meet his particular requirements. A broad selection of packages, lens effects, color power, and brightness is available from standard distribution channels in virtually all quantities. These lines are being updated continually to provide modern, functional devices for customer use.

QUICK REFERENCE CHART

MODEL NO.	VIEWED COLOR	SOURCE WAVE-LENGTH	FORWARD VOLTAGE	BRIGHTNESS NO. AND UNITS	TEST @ CURR. (I_F)	REVERSE CURRENT	MAX. FORWARD* CURRENT @ 25°C	MAX. POWER	PACKAGE KEY
MV10B	Red	(660) nm	1.65 V	0.8 mcd	10 mA	50 nA	70 mA	175 mW	C
MV50	Red	(660) nm	1.65 V	1.4 mcd	20 mA	5.0 nA	40 mA	80 mW	A
MV52	Green	(565) nm	2.2 V	1.5 mcd	50 mA	100 μA max.	35 mA	105 mW	A
MV53	Yellow	(589) nm	2.1 V	1.5 mcd	50 mA	100 μA max.	35 mA	105 mW	A
MV54	Red	(660) nm	1.65 V	1.0 mcd	20 mA	5.0 nA	40 mA	80 mW	A
MV55	Red	(660) nm	1.6 V	0.5 mcd	3 mA	150 nA	4 mA	6 mW	B
MV5020	Red	(660) nm	1.65 V	2.0 mcd	20 mA	15 nA	100 mA	180 mW	G
MV5021	Red	(660) nm	1.65 V	1.6 mcd	20 mA	15 nA	100 mA	180 mW	G
MV5022	Red	(660) nm	1.65 V	1.6 mcd	20 mA	15 nA	100 mA	180 mW	G
MV5023	Red	(660) nm	1.65 V	1.6 mcd	20 mA	15 nA	100 mA	180 mW	G
MV5024	Red	(660) nm	1.65 V	3.0 mcd	20 mA	15 nA	100 mA	180 mW	G
MV5025	Red	(660) nm	1.65 V	0.4 mcd	20 mA	15 nA	100 mA	180 mW	G
MV5026	Red	(660) nm	1.65 V	0.6 mcd	20 mA	15 nA	100 mA	180 mW	G
MV5050	Red	(660) nm	1.7 V	2.0 mcd	20 mA	20 nA	100 mA	180 mW	I
MV5051	Red	(660) nm	1.7 V	1.6 mcd	20 mA	15 nA	100 mA	180 mW	I
MV5052	Red	(660) nm	1.7 V	2.0 mcd	20 mA	5 nA	100 mA	180 mW	I
MV5053	Red	(660) nm	1.7 V	1.6 mcd	20 mA	5 nA	100 mA	180 mW	I
MV5054-1	Red	(660) nm	1.8 V	2.0 mcd	10 mA	100 nA	100 mA	180 mW	H
MV5054-2	Red	(660) nm	1.8 V	3.0 mcd	10 mA	100 nA	100 mA	180 mW	H
MV5054-3	Red	(660) nm	1.8 V	4.0 mcd	10 mA	100 nA	100 mA	180 mW	H
MV5055	Red	(660) nm	1.7 V	0.6 mcd	20 mA	5 nA	100 mA	180 mW	I
MV5056	Red	(660) nm	1.7 V	0.8 mcd	20 mA	5 nA	100 mA	180 mW	I
MV5074B/C	Red	(660) nm	1.68 V	2.4 mcd	20 mA	15 nA	50 mA	100 mW	E
MV5075B/C	Red	(660) nm	1.68 V	1.5 mcd	20 mA	15 nA	50 mA	100 mW	E
MV5077B/C	Red	(660) nm	1.6 V	1.7 mcd	20 mA	15 nA	50 mA	100 mW	D
MV5152	Orange	(635) nm	2.0 V	40 mcd	20 mA	20 nA	35 mA	105 mW	I
MV5153	Orange	(635) nm	2.0 V	9.0 mcd	20 mA	20 nA	35 mA	105 mW	I
MV5154	Orange	(635) nm	2.0 V	10.0 mcd	20 mA	20 nA	35 mA	105 mW	I
MV5252	Green	(565) nm	2.2 V	11 mcd	20 mA	20 nA	35 mA	105 mW	I
MV5253	Green	(565) nm	2.2 V	3.5 mcd	20 mA	20 nA	35 mA	105 mW	I
MV5254	Green	(565) nm	2.2 V	3.0 mcd	20 mA	20 nA	35 mA	105 mW	I
MV5352	Yellow	(585) nm	2.1 V	40 mcd	20 mA	20 nA	35 mA	105 mW	I
MV5353	Yellow	(585) nm	2.1 V	8.0 mcd	20 mA	20 nA	35 mA	105 mW	I
MV5354	Yellow	(585) nm	2.1 V	10.0 mcd	20 mA	20 nA	35 mA	105 mW	I
MV5752	Orange	(635) nm	2.0 V	40 mcd	20 mA	20 nA	35 mA	105 mW	I
MV5753	Orange	(635) nm	2.0 V	9.0 mcd	20 mA	20 nA	35 mA	105 mW	I
MV5754	Orange	(635) nm	2.0 V	10.0 mcd	20 mA	20 nA	35 mA	105 mW	I
MV5174B/C	Orange	(635) nm	2.0 V	3.5 mcd	20 mA	20 nA	35 mA	105 mW	E
MV5177B/C	Orange	(635) nm	2.0 V	2.4 mcd	20 mA	20 nA	35 mA	105 mW	D
MV5274B/C	Green	(565) nm	2.2 V	1.8 mcd	20 mA	20 nA	35 mA	105 mW	E
MV5277B/C	Green	(565) nm	2.2 V	0.9 mcd	20 mA	20 nA	35 mA	105 mW	D
MV5374B/C	Yellow	(585) nm	2.1 V	2.5 mcd	20 mA	20 nA	35 mA	105 mW	E
MV5377B/C	Yellow	(585) nm	2.1 V	2.0 mcd	20 mA	20 nA	35 mA	105 mW	D
MV5774B/C	Orange	(635) nm	2.0 V	3.5 mcd	20 mA	20 nA	35 mA	105 mW	E
MV5777B/C	Orange	(635) nm	2.0 V	2.4 mcd	20 mA	20 nA	35 mA	105 mW	D
MV5094	Red/Red (Note a)		1.6 V	0.8 mcd	20 mA	15 nA	70 mA	140 mW	F
MV5491	Red/Green (Note b)								
	Red Diode		1.65 V	1.5 mcd	20 mA	15 nA	70 mA	200 mW	F
	Green Diode		3.0 V	0.5 mcd	20 mA	100 μA max.	35 mA	200 mW	F

NOTES:

(a) The MV5094 contains two red diodes connected inversely parallel. Therefore the unit operates on either polarity DC current or AC current. Wavelength is 660 nm. For this unit, I^2T (0.1% duty cycle . . . 2.5×10^{-4} amps^2 sec).

(b) The MV5491 contains one red and one green diode connected inversely parallel. Therefore the unit emits green light (570 nm) with one DC polarity and red light (660 nm) with the opposite DC polarity.

All specifications are typical unless otherwise specified.

Monsanto

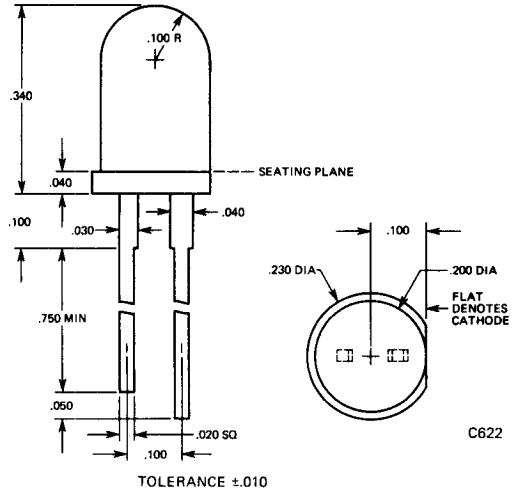
RED SOLID STATE LAMP

MV5054-1
MV5054-2
MV5054-3

PRODUCT DESCRIPTION

The MV5054 series lamps are made with gallium arsenide phosphide diodes mounted in a red epoxy package.

PACKAGE DIMENSIONS



FEATURES

- GaP performance
- Illuminates a ¼" dia circle
- Low cost
- High intensity red light source for back lighting a panel
- Versatile mounting on PC board
- Transparent mounting clip available
- Three intensity categories

ABSOLUTE MAXIMUM RATINGS

Power dissipation @ 25°C ambient	180 mW
Derate linearly from 25°C	2.0 mW/°C
Storage and operating temperatures	–55°C to 100°C
Lead solder time @ 230°C (See Note 3) e Note 3)	5 sec
Continuous forward current @ 25°C	100 mA
Continuous forward current @ 100°C	15 mA
Peak forward current (1 μsec pulse, 0.3% duty cycle)	1.0 A
Reverse Voltage	5.0 V
Reverse current	10 μA

ELECTRO-OPTICAL CHARACTERISTICS

(25°C Ambient Temperature Unless Otherwise Specified)

CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Luminous intensity (note 1)					
MV5054-1	1.0	2.0		mcd	I_F = 10 mA
MV5054-2	2.0	3.0		mcd	
MV5054-3	3.0	4.0		mcd	
Forward voltage		1.8	2.2	V	I_F = 10 mA
Capacitance		35		pF	V = 0
Reverse current			100	μA	V_R = 5.0 V
Rise and fall time		50		nS	50 Ω System
Viewing angle (total)		40		degrees	Between 50% intensity points
Apparent area		.203		cm^2	

TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES

(25°C Free Air Temperature Unless Otherwise Specified)

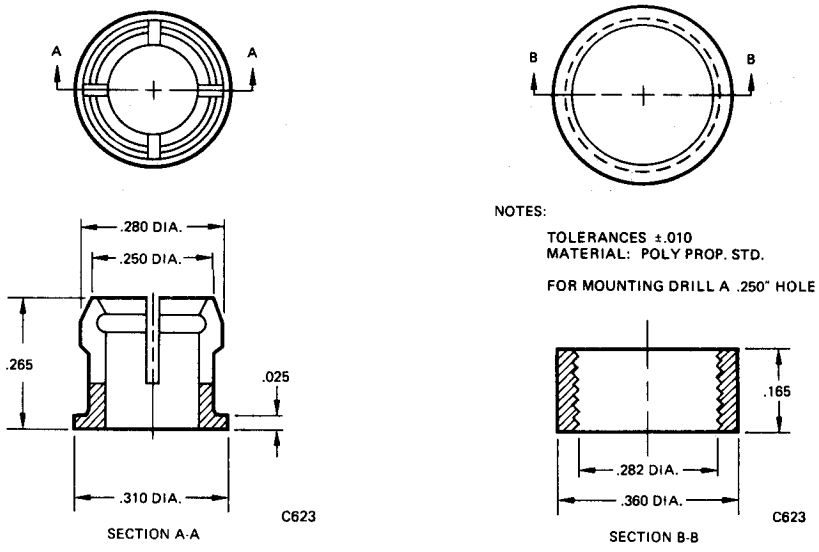


Fig. 1. Mounting Grommet (supplied only on request)

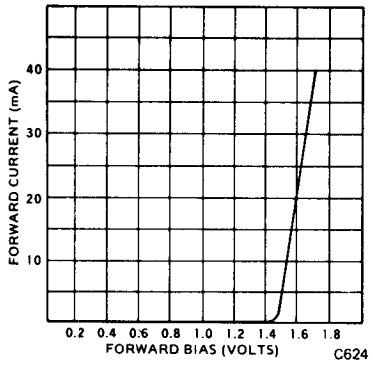


Fig. 2. Forward Current vs. Forward Voltage

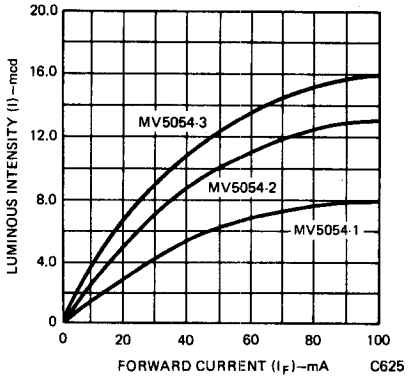


Fig. 3. Luminous Intensity vs. Forward Current

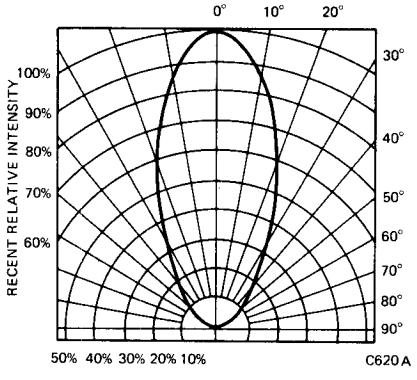


Fig. 4. Spatial Distribution (Note 2)

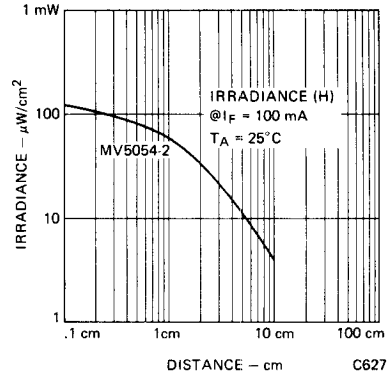


Fig. 5. Irradiance vs. Distance

NOTES

1. *As measured with a Photo Research Corp. "SPECTRA" Microcandela Meter (Model IV D).*
2. *The axis of spatial distribution are typically within a 10° cone with reference to the central axis of the device..*
3. *The leads of the device were immersed in molton solder, at 260°C, to a point 1/16 inch from the body of the device per MIL-S-750.*