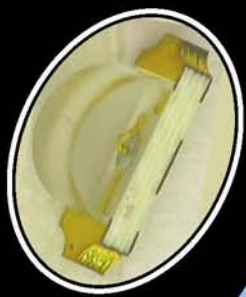


# UNI

Unity Microelectronics, Inc.

## Optoelectronic Product Catalog





Unity Microelectronics, Inc.

# Company Profile

## Company

### Company Introduction

Unity Microelectronics is the USA-based sales and marketing division of Unity Opto Technology founded in Taipei, Taiwan. Unity has designed and manufactured optoelectronic devices since 1993. Today, Unity is a world leader in manufacturing high bright visible LEDs and various IR devices. Our visible LED portfolio includes popular SMT and through-hole packages utilizing high bright AlInGaP and InGaN chip technology. The broad IR portfolio includes IR emitters, photodiodes, phototransistors, receiver modules, and photo interrupters. Unity also offers a variety of LED displays, laser diodes, and photolink products to meet a wide range of optoelectronic applications.

Unity welcomes you to contact us to design a solution for your optoelectronic needs.



## Product Line

Phototransistors

Photodiodes

Infrared LED's

LED Assemblies

Power LEDs



Receivers



Lamps

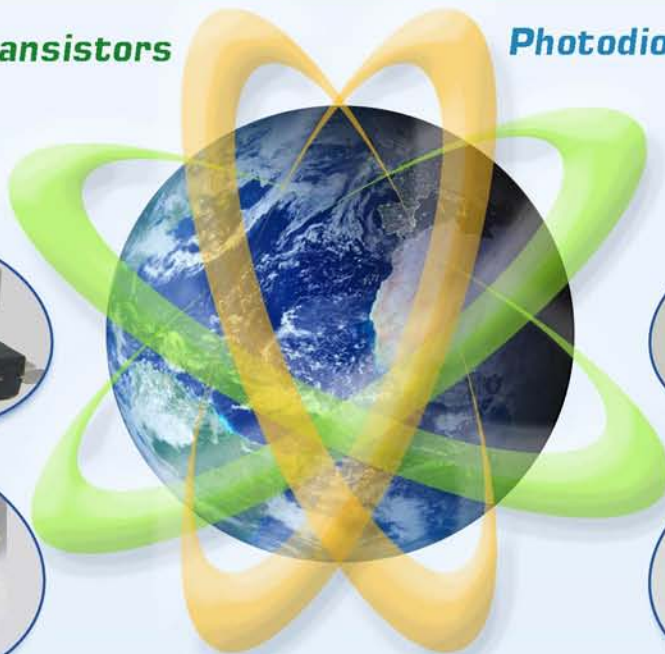


Photo Link

Displays



Laser







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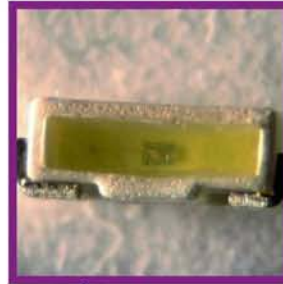
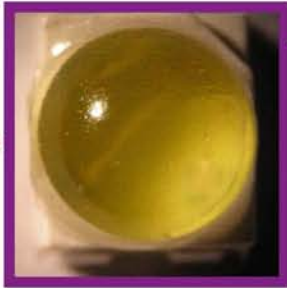
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## Optoelectronic Components

### Visible LEDs

Surface Mount Devices (SMD)

### PLCC

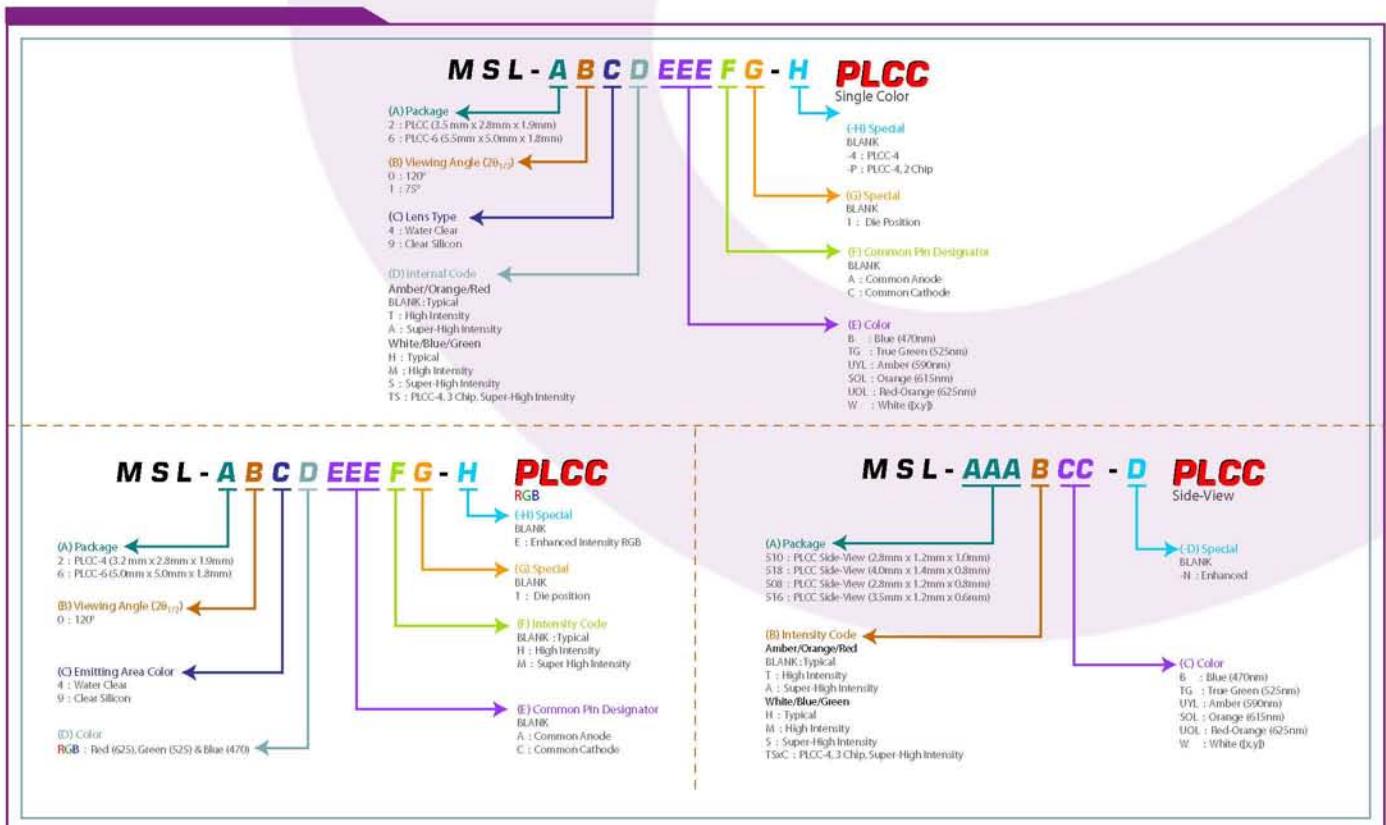


## Applications

- Backlighting
- Coupling in Light Guides
- Automotive Lighting
- General Lighting
- Indoor and Outdoor Signs
- Camera Flash
- Accent Lighting
- LCD Backlighting
- Emergency Lighting

## PLCC

- PLCC-2
- PLCC-4
- PLCC-4 RGB
- FLASHERS
- PLCC-6
- PLCC-2 (Side-View)



Profile & Product Sheet



# Optoelectronic Components

## Visible LEDs

Surface Mount Devices (SMD) **PLCC**

# Profile & Product Sheet

### PLCC-2

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F =$ (mA)	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSL-204AUOL	Red	625	AllnGaP	Water Clear	20	2.0	400	120	1-1
MSL-204AUYL	Amber	590	AllnGaP	Water Clear	20	2.0	340	120	
MSL-204MTG	Green	525	InGaN	Water Clear	20	3.6	500	120	
MSL-204MB	Blue	470	InGaN	Water Clear	20	3.6	120	120	
MSL-204MW	White	(0.30,0.31)	InGaN	Yellow	20	3.6	800	120	
MSL-204SW	Super White	(0.30,0.31)	InGaN	Yellow	20	3.3	1000	120	
MSL-299MW	White	(0.30,0.31)	InGaN	Yellow	20	3.6	750	110	1-2
MSL-299SW	Super White	(0.30,0.31)	InGaN	Yellow	20	3.3	1000	110	

### PLCC-4

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F =$ (mA)	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSL-209AUOL-4	Red	625	AllnGaP	Clear Silicone	50	2.0	720	120	1-3
MSL-209ASOL-4	Red	615	AllnGaP	Clear Silicone	50	2.0	432	120	
MSL-209SO-4	Orange	605	AllnGaP	Clear Silicone	50	2.0	450	120	
MSL-209AUYL-4	Amber	590	AllnGaP	Clear Silicone	50	2.0	675	120	
MSL-209MTG-4	Green	525	InGaN	Clear Silicone	30	3.6	585	120	
MSL-209MB-4	Blue	470	InGaN	Clear Silicone	30	3.6	198	120	
MSL-209MW-4	White	(0.31,0.32)	InGaN	Yellow Silicone	30	3.6	990	120	

### PLCC-4 RGB

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F =$ (mA)	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSL-204RGBAH	Red ●	625	AllnGaP	Water Clear	20	2.0	132	120	1-6
	Green ●	525	InGaN	Water Clear	20	3.3	280	120	
	Blue ●	470	InGaN	Water Clear	20	3.3	80	120	
MSL-204RGBAH-E	Red ●	625	AllnGaP	Water Clear	20	2.0	198	120	1-6
	Green ●	525	InGaN	Water Clear	20	3.3	438	120	
	Blue ●	470	InGaN	Water Clear	20	3.3	124	120	



## Optoelectronic Components

### Visible LEDs

Surface Mount Devices (SMD) **PLCC**

# Profile & Product Sheet

### FLASHERS

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F = (mA)$	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSL-204SW-P	White (2-chip)	(0.31,0.32)	InGaN	Yellow	20	3.3	2000	120	1-4
MSL-214TSWC	White (3-chip)	(0.31,0.32)	InGaN	Yellow	20	3.3	3000	75	1-5

### PLCC-6

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F = (mA)$	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSL-604SWA1	White (5-chip)	(0.31,0.32)	InGaN	Yellow	20	3.2	4200	120	1-7
MSL-609RGBM1	Red ●	625	AllnGaP	Water Clear	20	1.9	350	120	1-8
	Green ●	525	InGaN	Water Clear	20	3.5	400	120	
	Blue ●	470	InGaN	Water Clear	20	3.5	120	120	

### PLCC-2 Side-View

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F = (mA)$	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSL-508AUOL	Red	625	AllnGaP	Water Clear	20	2.4	300	120	1-9
MSL-508AUYL	Amber	590	AllnGaP	Water Clear	20	2.4	300	120	
MSL-508STG	Green	525	InGaN	Water Clear	20	3.3	450	120	
MSL-508SB	Blue	470	InGaN	Water Clear	20	3.3	120	120	
MSL-508SW-N	Super White	(0.30,0.31)	InGaN	Yellow	20	3.3	1100	120	
MSL-510AUOL	Red	625	AllnGaP	Water Clear	20	2.4	350	120	1-10
MSL-510AUYL	Amber	590	AllnGaP	Water Clear	20	2.4	350	120	
MSL-510STG	Green	525	InGaN	Water Clear	20	3.3	500	120	
MSL-510SB	Blue	470	InGaN	Water Clear	20	3.3	150	120	
MSL-510SW-N	Super White	(0.30,0.31)	InGaN	Yellow	20	3.3	1200	120	
MSL-516AUOL	Red	625	AllnGaP	Water Clear	20	2.4	300	120	1-11
MSL-516AUYL	Amber	590	AllnGaP	Water Clear	20	2.4	300	120	
MSL-516STG	Green	525	InGaN	Water Clear	20	3.3	450	120	
MSL-516SB	Blue	470	InGaN	Water Clear	20	3.3	120	120	
MSL-516SW-N	Super White	(0.30,0.31)	InGaN	Yellow	20	3.3	1100	120	
MSL-518AUOL	Red	625	AllnGaP	Water Clear	20	2.4	350	120	1-12
MSL-518AUYL	Amber	590	AllnGaP	Water Clear	20	2.4	350	120	
MSL-518STG	Green	525	InGaN	Water Clear	20	3.3	500	120	
MSL-518SB	Blue	470	InGaN	Water Clear	20	3.3	150	120	
MSL-518SW-N	Super White	(0.30,0.31)	InGaN	Yellow	20	3.3	1200	120	



# Optoelectronic Components

## Visible LEDs

Surface Mount Devices (SMD) **PLCC**

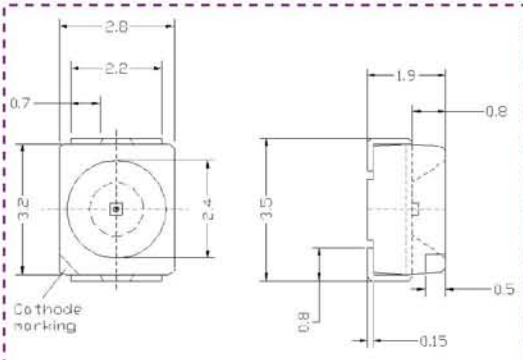
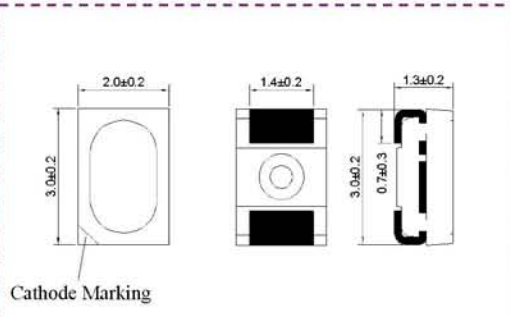
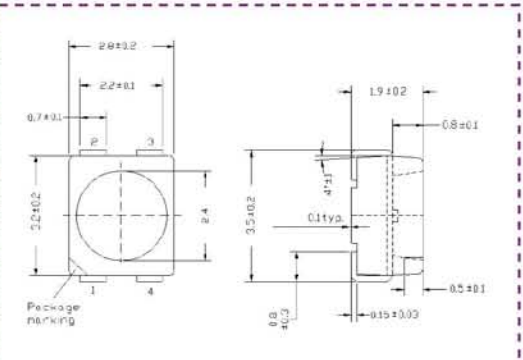


Fig 1-1



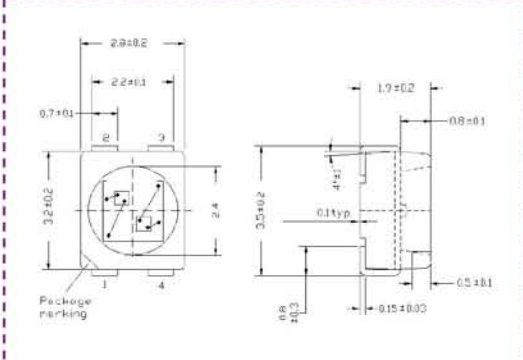
Cathode Marking

Fig 1-2



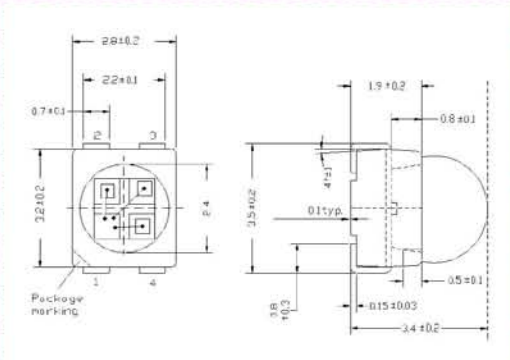
Package marking

Fig 1-3



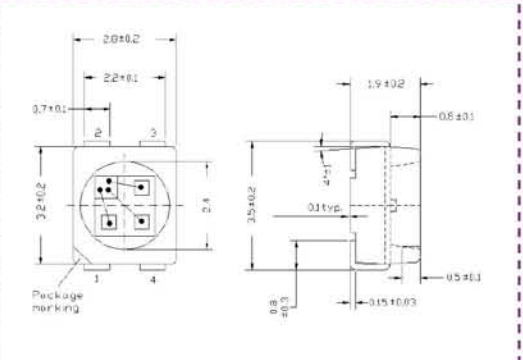
Package marking

Fig 1-4



Package marking

Fig 1-5



Package marking

Fig 1-6

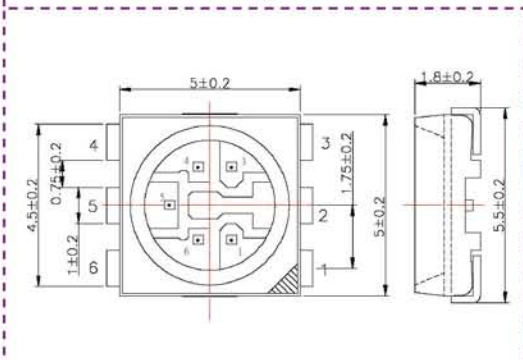
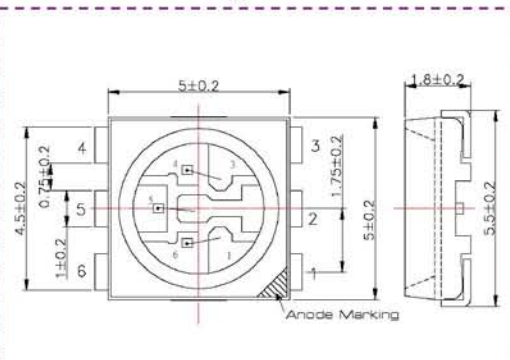


Fig 1-7



Anode Marking

Fig 1-8

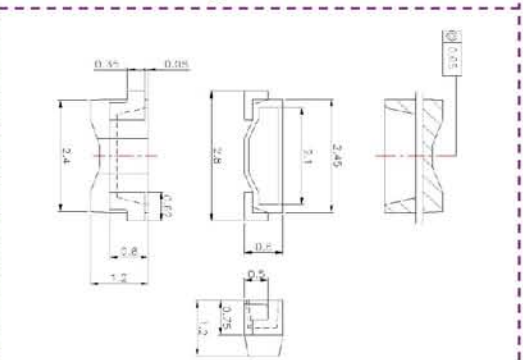


Fig 1-9

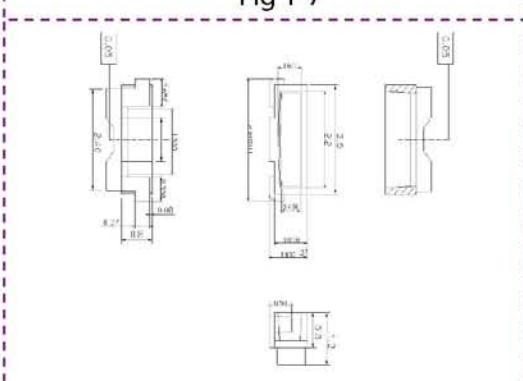


Fig 1-10

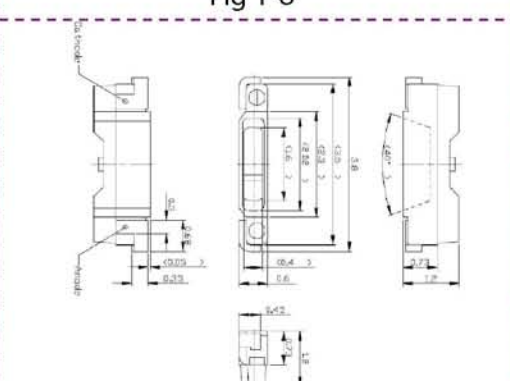


Fig 1-11

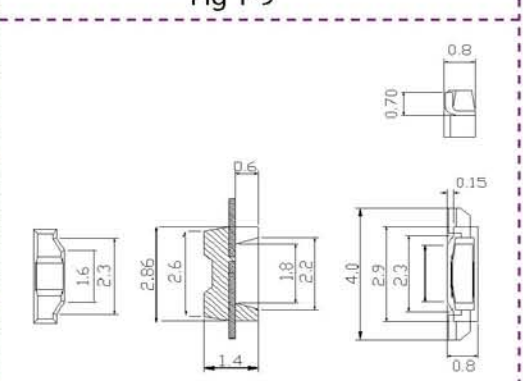


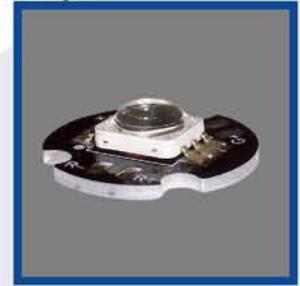
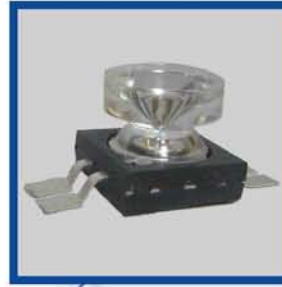
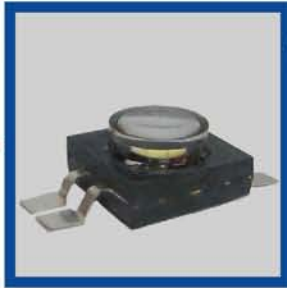
Fig 1-12

## Optoelectronic Components

### Visible LEDs

Surface Mount Devices (SMD)

### PowerLED



## Applications

- ▶ General Lighting
- ▶ Automotive Lighting
- ▶ Emergency Lighting
- ▶ Accent Lighting
- ▶ Channel Lighting
- ▶ Beacon

## PowerLED - Gull Wing

- ▶ 4-Lead
- ▶ 6-Lead
- ▶ 6-Lead RGB

### M P L - A B C D E F - G G PowerLED

(A) Package  
7 : Gullwing 4-Lead  
9 : Gullwing 6-Lead

(B) Viewing Angle ( $2\theta_{1/2}$ )  
0 : 110° - BATWING  
1 : 110° - LAMBERTIAN  
2 : 30° - APEX  
3 : SIDEVIEW  
4 : 140° - LAMBERTIAN°

(C) Intensity Code  
W : Typical  
M : High Intensity  
T : Super-High Intensity - RGB (3 Chip)

(-GG) CCT (White Only)  
-25 : 2500K - Warm White  
-55 : 5500K - Pure White

(F) Heatsink  
BLANK : No Heatsink  
1 : Heatsink

(E) Color  
B : Blue (470nm)  
G : True Green (525nm)  
Y : Amber (590nm)  
R : Red-Orange (625nm)  
W : White (CCT)  
RGB : Red (625), Green (525) & Blue (470)

(D) Power Type  
2 : 0.5 Watt  
4 : 1 Watt

Profile & Product Sheet



# Optoelectronic Components

## Visible LEDs

Surface Mount Devices (SMD) **PowerLED**

# Profile & Product Sheet

### PowerLED

Part No	Color	Dominant / CCT Wavelength (nm) or (K)	Material	Lens Type	Test Condition @ I <sub>F</sub> = (mA)	Typ V <sub>F</sub> (V)	Typ Luminous Flux, Φ(lm)	Viewing Angle (2θ <sub>1/2</sub> )	
MPL-71M4B	Blue	465	InGaN	Water Clear	350	3.42	12	110	2-1
MPL-71M4G	Green	530	InGaN	Water Clear	350	3.42	40	110	
MPL-71M4A	Amber	590	AllInGaP	Water Clear	350	2.60	40	110	
MPL-71M4R	Red	620	AllInGaP	Water Clear	350	2.95	45	110	
MPL-71M4W-25	Warm White	2500	InGaN	Water Clear	350	3.42	25	110	
MPL-71M4W-55	White	5500	InGaN	Water Clear	350	3.42	35	110	
MPL-72M4B	Blue	465	InGaN	Water Clear	350	3.42	12	30	2-2
MPL-72M4G	Green	530	InGaN	Water Clear	350	3.42	40	30	
MPL-72M4A	Amber	590	AllInGaP	Water Clear	350	2.60	40	30	
MPL-72M4R	Red	620	AllInGaP	Water Clear	350	2.95	45	30	
MPL-72M4W-25	Warm White	2500	InGaN	Water Clear	350	3.42	25	30	
MPL-72M4W-55	White	5500	InGaN	Water Clear	350	3.42	35	30	
MPL-73M4B	Blue	465	InGaN	Water Clear	350	3.42	12	75-85	2-3
MPL-73M4G	Green	530	InGaN	Water Clear	350	3.42	40	75-85	
MPL-73M4A	Amber	590	AllInGaP	Water Clear	350	2.60	40	75-85	
MPL-73M4R	Red	620	AllInGaP	Water Clear	350	2.95	45	75-85	
MPL-73M4W-25	Warm White	2500	InGaN	Water Clear	350	3.42	25	75-85	
MPL-73M4W-55	White	5500	InGaN	Water Clear	350	3.42	35	75-85	
MPL-74M4B	Blue	465	InGaN	Water Clear	350	3.42	12	140	2-4
MPL-74M4G	Green	530	InGaN	Water Clear	350	3.42	40	140	
MPL-74M4A	Amber	590	AllInGaP	Water Clear	350	2.60	40	140	
MPL-74M4R	Red	620	AllInGaP	Water Clear	350	2.95	45	140	
MPL-74M4W-25	Warm White	2500	InGaN	Water Clear	350	3.42	25	140	
MPL-74M4W-55	White	5500	InGaN	Water Clear	350	3.42	35	140	

### PowerLED RGB

Part No	Color	Dominant / CCT Wavelength (nm) or (K)	Material	Lens Type	Test Condition @ I <sub>F</sub> = (mA)	Typ V <sub>F</sub> (V)	Typ Luminous Flux, Φ(lm)	Viewing Angle (2θ <sub>1/2</sub> )	
MPL-91T4RGB	Red ●	620	AllInGaP	Water Clear	350	2.95	45	110	2-5
	Green ●	590	InGaN	Water Clear	350	3.42	40	110	
	Blue ●	465	InGaN	Water Clear	350	3.42	12	110	
MPL-92T4RGB	Red ●	620	AllInGaP	Water Clear	350	2.95	45	30	2-6
	Green ●	590	InGaN	Water Clear	350	3.42	40	30	
	Blue ●	465	InGaN	Water Clear	350	3.42	12	30	

## Optoelectronic Components

### Visible LEDs

Surface Mount Devices (SMD) **PowerLED**

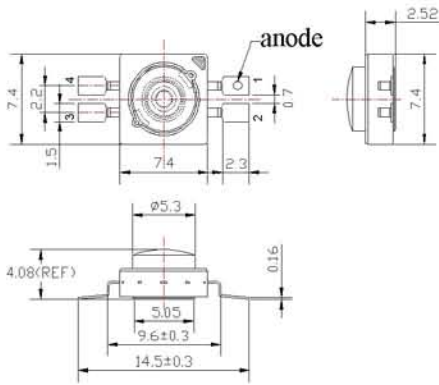


Fig 2-1

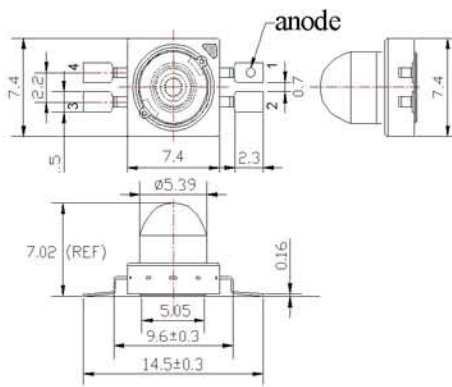


Fig 2-2

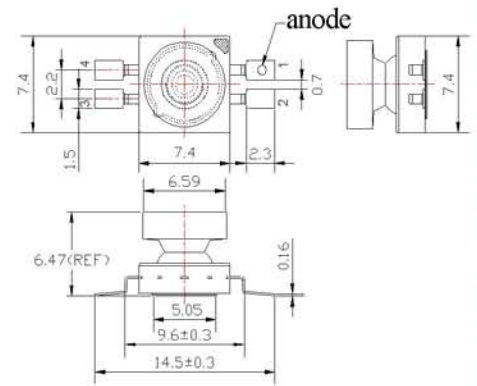


Fig 2-3

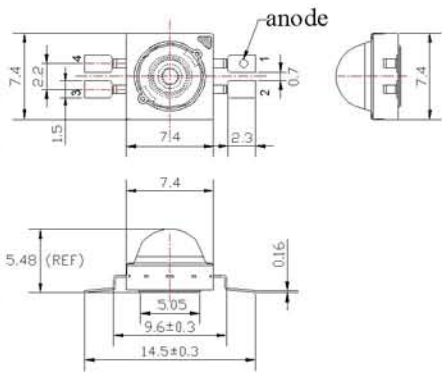


Fig 2-4

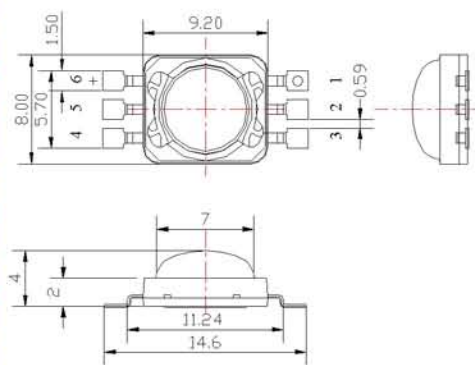


Fig 2-5

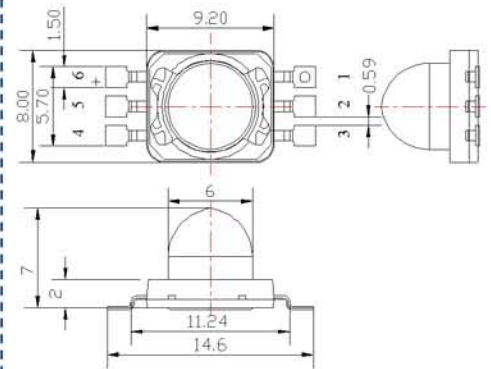


Fig 2-5

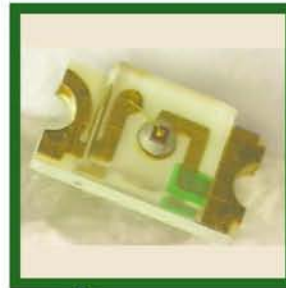


# Optoelectronic Components

## Visible LEDs

Surface Mount Devices (SMD)

### ChipLED



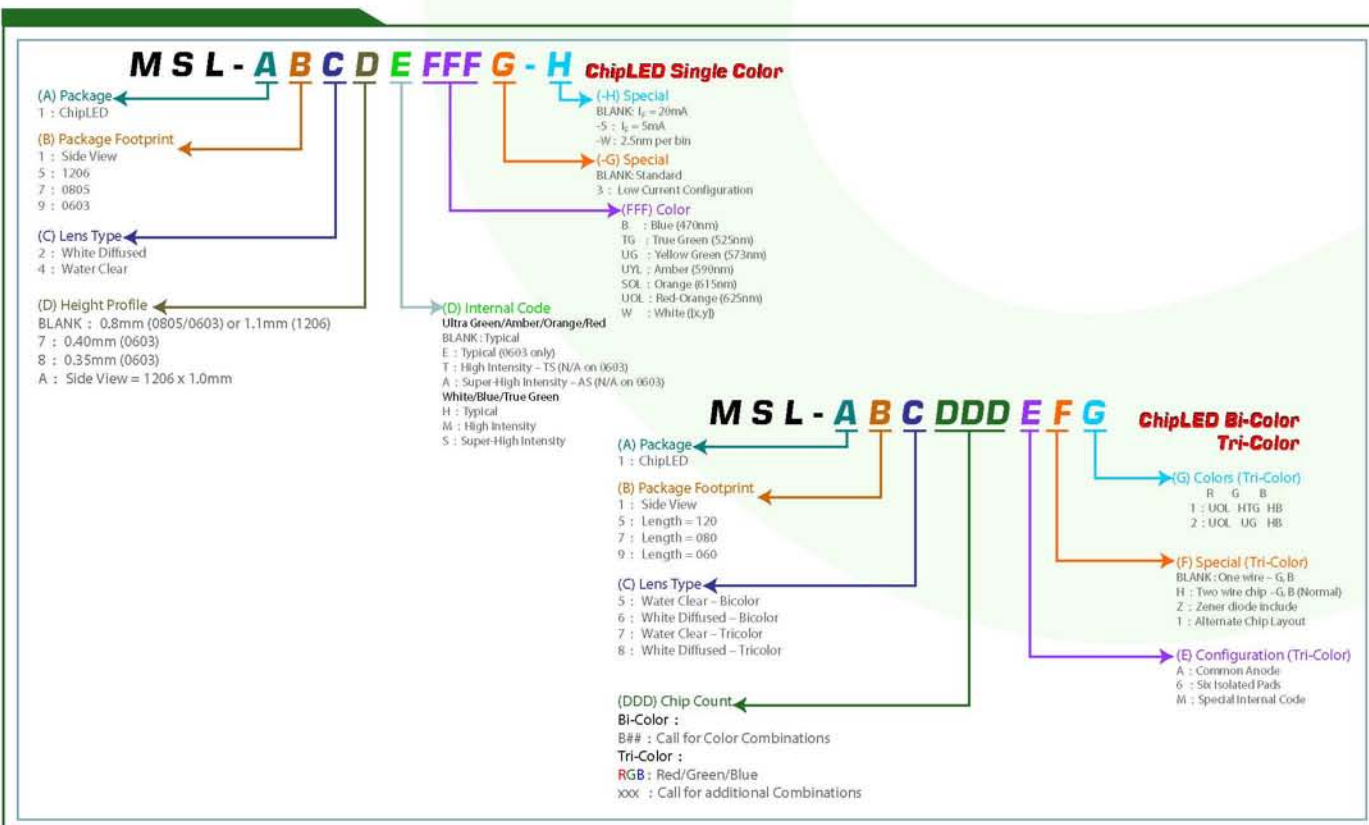
## Applications

- ▶ Backlighting
- ▶ Small LCD Backlighting
- ▶ Symbol Indicator
- ▶ Keypad
- ▶ Accent Lighting
- ▶ Indicator Lighting

## ChipLED

- ▶ 1206
- ▶ 0805
- ▶ 0603
- ▶ Side-View

Profile & Product Sheet



## Optoelectronic Components

### Visible LEDs

Surface Mount Devices (SMD) **ChipLED**

# Profile & Product Sheet

### 1206

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F =$ (mA)	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSL-154UOL	Red	625	AllnGaP	Water Clear	20	2.0	90	130	3-1
MSL-154UYL	Amber	590	AllnGaP	Water Clear	20	2.0	60	130	
MSL-154HTG	Green	525	InGaN	Water Clear	20	3.3	180	130	
MSL-154HB	Blue	470	InGaN	Water Clear	20	3.3	60	130	
MSL-154HW	White	(0.31,0.32)	InGaN	Yellow	20	3.3	200	130	

### 0805

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F =$ (mA)	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSL-174UOL	Red	625	AllnGaP	Water Clear	20	2.0	90	130	3-2
MSL-174UYL	Amber	590	AllnGaP	Water Clear	20	2.0	60	130	
MSL-174HTG	Green	525	InGaN	Water Clear	20	3.3	180	130	
MSL-174HB	Blue	470	InGaN	Water Clear	20	3.3	60	130	
MSL-174HW	White	(0.31,0.32)	InGaN	Yellow	20	3.3	200	130	

### 0603 (Low Profile)

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F =$ (mA)	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSL-1947EUOL	Red	625	AllnGaP	Water Clear	20	2.0	90	130	3-3
MSL-1947EUYL	Amber	590	AllnGaP	Water Clear	20	2.0	60	130	
MSL-1947HTG	Green	525	InGaN	Water Clear	20	3.3	180	130	
MSL-1947HB3-5	Blue	470	InGaN	Water Clear	5	3.0	20	130	
MSL-1947HW-5	White	(0.31,0.32)	InGaN	Yellow	5	3.0	45	130	
MSL-1947TSW	Super White	(0.31,0.32)	InGaN	Yellow	20	3.3	760	130	3-4
MSL-1948EUOL	Red	625	AllnGaP	Water Clear	20	2.0	90	130	
MSL-1948EUYL	Amber	590	AllnGaP	Water Clear	20	2.0	60	130	
MSL-1948HTG	Green	525	InGaN	Water Clear	20	3.3	180	130	
MSL-1948HB3-5	Blue	470	InGaN	Water Clear	5	3.0	20	130	
MSL-1948HW-5	White	(0.31,0.32)	InGaN	Yellow	5	3.0	45	130	3-4
MSL-1948TSW	Super White	(0.31,0.32)	InGaN	Yellow	20	3.3	760	130	



# Optoelectronic Components

## Visible LEDs

Surface Mount Devices (SMD) **ChipLED**

# Profile & Product Sheet

### 1206 Side-View

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F = (mA)$	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSL-114AUOL	Red	625	AllnGaP	Water Clear	20	2.0	100	130	3-5
MSL-114AUYL	Amber	590	AllnGaP	Water Clear	20	2.0	70	130	
MSL-114AHTG	Green	525	InGaN	Water Clear	20	3.3	200	130	
MSL-114AHB	Blue	470	InGaN	Water Clear	20	3.3	100	130	
MSL-114AHW	White	(0.31,0.32)	InGaN	Yellow	20	3.3	180	130	

### 1004 Side-View RGB

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F = (mA)$	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSL-118RGBA1	Red ●	625	AllnGaP	Diffused	20	1.9	70	135	3-6
	Green ●	525	InGaN	Diffused	20	3.5	100	135	
	Blue ●	470	InGaN	Diffused	20	3.5	45	135	
MSL-118RGBM1	Red ●	625	AllnGaP	Diffused	20	2.0	90	135	3-6
	Green ●	525	InGaN	Diffused	20	3.5	180	135	
	Blue ●	470	InGaN	Diffused	20	3.5	64	135	

## Optoelectronic Components

### Visible LEDs

Surface Mount Devices (SMD) **ChipLED**

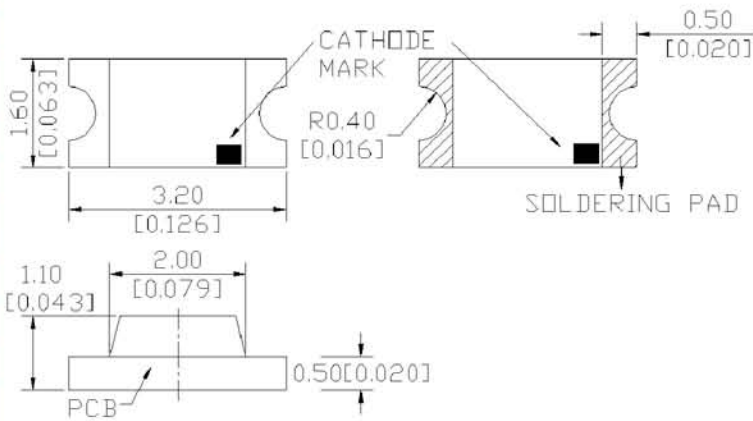


Fig 3-1

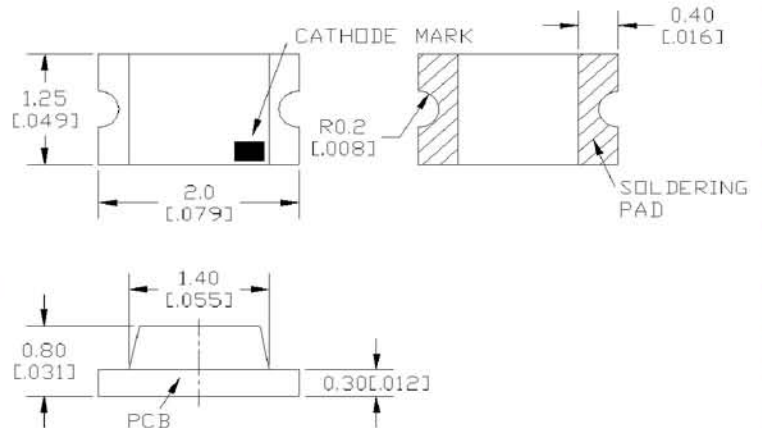


Fig 3-2

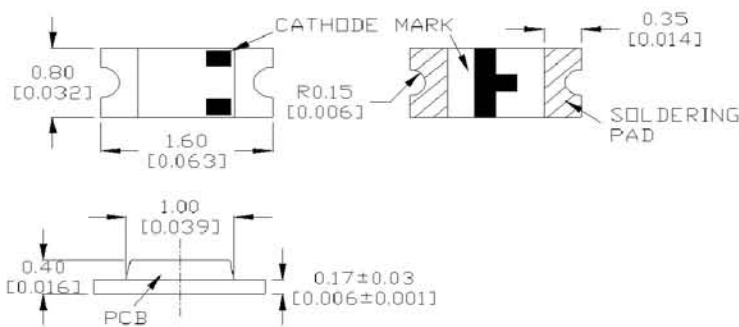


Fig 3-3

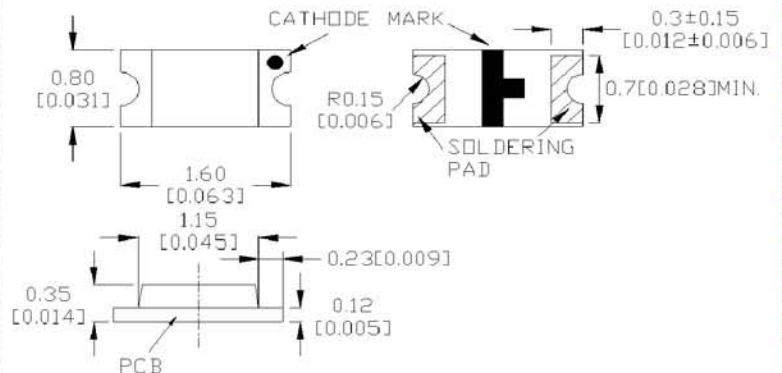


Fig 3-4

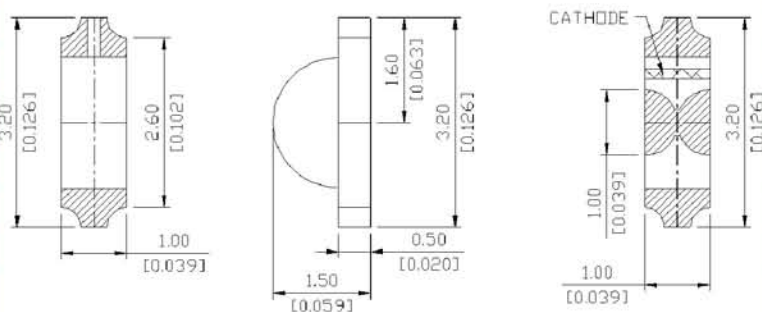


Fig 3-5

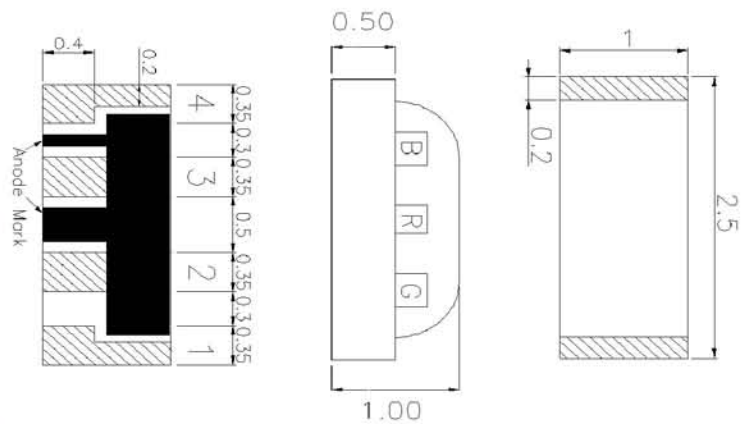


Fig 3-6



# Optoelectronic Components

## Visible LEDs Through Hole



## JackLED

## Applications

- Automotive Lighting
- Indoor and Outdoor Signs
- Channel Lighting
- General Lighting
- Emergency Lighting

## JackLED

- JackLED

## M V L - A B C D E E E F JackLED

### (A) Package

9 : JackLED

### (B) Viewing Angle ( $2\theta_{1/2}$ )

0 : Amber ~ Red = 70°, White/Blue/Green = 30°  
 1 : Amber ~ Red = 90°, White/Blue/Green = 50°  
 2 : Amber ~ Red = 140°, White/Blue/Green = 120°  
 7 : Amber ~ Red = 40°, White/Blue/Green = 20°

### (C) Lens Type

4 : Water Clear

### (F) Special

BLANK : Standard Process  
 C : Alternate Process

### (E) Color

B : Blue (470nm)  
 TG : True Green (525nm)  
 UYL : Amber (590nm)  
 SOL : Orange (615nm)  
 UOL : Red-Orange (625nm)  
 W : White (x,y)

### (D) Internal Code

Amber/Orange/Red  
 BLANK : Typical  
 T : High Intensity  
 A : Super-High Intensity  
**White/Blue/Green**  
 H : Typical  
 M : High Intensity  
 S : Super-High Intensity

## Optoelectronic Components

Visible LEDs

Through Hole **JackLED**

# Profile & Product Sheet

### JackLED

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F = (mA)$	Typ $V_F$ (V)	Typ $I_V$ (mlm)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MVL-904AUOL	Red	625	AllnGaP	Water Clear	70	2.5	4000	70	4-1
MVL-904ASOL	Red	615	AllnGaP	Water Clear	70	2.5	4500	70	
MVL-904AUYL	Amber	590	AllnGaP	Water Clear	70	2.5	4500	70	
MVL-904MTG	Green	525	InGaN	Water Clear	40	3.7	2000	50	
MVL-904MB	Blue	470	InGaN	Water Clear	40	3.7	2000	65	
MVL-904MW	White	(0.33,0.31)	InGaN	Water Clear	40	3.7	2500	50	
MVL-914AUOL	Red	625	AllnGaP	Water Clear	70	2.5	4000	90	4-2
MVL-914ASOL	Red	615	AllnGaP	Water Clear	70	2.5	4500	90	
MVL-914AUYL	Amber	590	AllnGaP	Water Clear	70	2.5	4500	90	
MVL-914MTG	Green	525	InGaN	Water Clear	40	3.7	2000	70	
MVL-914MB	Blue	470	InGaN	Water Clear	40	3.7	2000	85	
MVL-914MW	White	(0.33,0.31)	InGaN	Water Clear	40	3.7	2500	60	
MVL-974AUOL	Red	625	AllnGaP	Water Clear	70	2.5	4000	30	4-3
MVL-974ASOL	Red	615	AllnGaP	Water Clear	70	2.5	4500	30	
MVL-974AUYL	Amber	590	AllnGaP	Water Clear	70	2.5	4500	30	
MVL-974MTG	Green	525	InGaN	Water Clear	40	3.7	2000	35	
MVL-974MB	Blue	470	InGaN	Water Clear	40	3.7	2000	35	
MVL-974MW	White	(0.33,0.31)	InGaN	Water Clear	40	3.7	2500	35	



# Optoelectronic Components

## Visible LEDs

### Through Hole JackLED

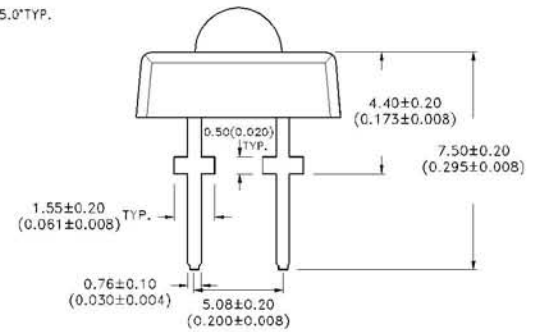
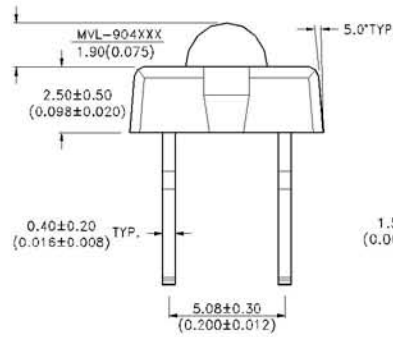
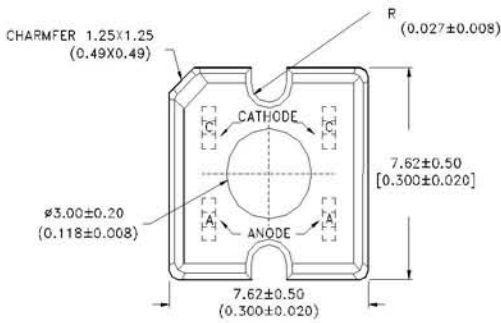


Fig 4-1

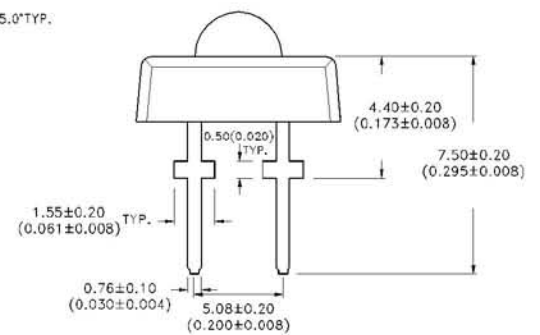
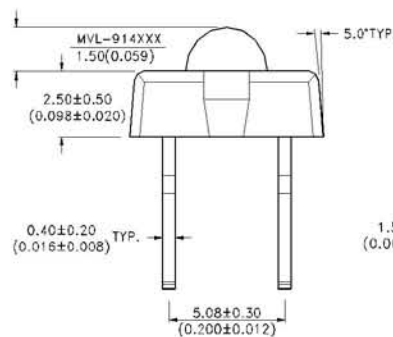
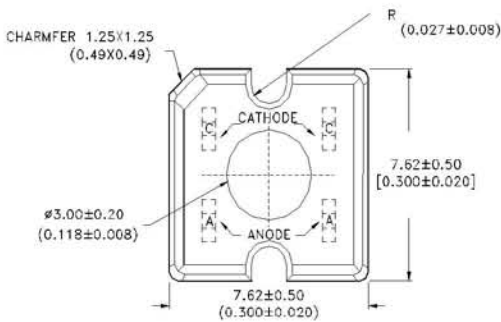


Fig 4-2

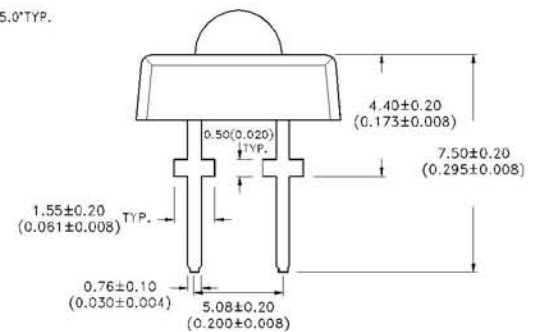
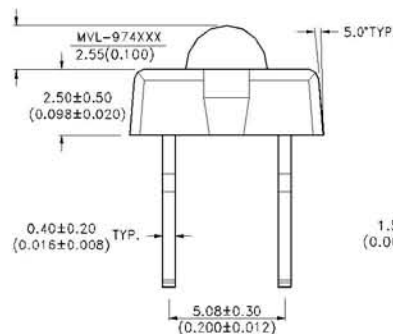
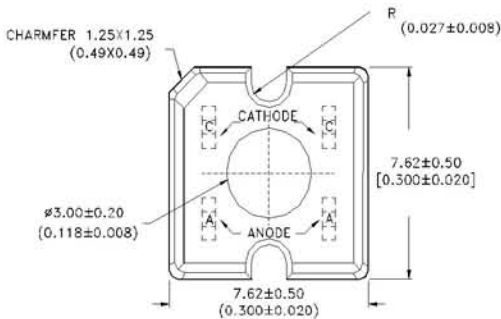


Fig 4-3

## Optoelectronic Components

### Visible LEDs Through Hole

### 5mm & Oval



## Applications

- ✔ Automotive Lighting
- ✔ General Lighting
- ✔ Indicator
- ✔ Indoor and Outdoor Signs
- ✔ Gaming
- ✔ Toys
- ✔ Appliance

## 5mm & Oval

- ✔ 5mm (T1-3/4)
- ✔ Oval (80° / 40°)

Profile & Product Sheet

## M V L - A B C D E E E - F 5mm & Oval

### (A) Package

- 5 : 5mm (T1-3/4 Dome)
- 6 : Oval

### (B) Viewing Angle ( $2\theta_{1/2}$ )

- |   |   |
|---|---|
| <b>5mm (excluding White)</b><br>0 : 15°<br>1 : 30°<br>8 : 90° or 100° | <b>5mm (White)</b><br>1 : 15°<br>2 : 20°<br>3 : 30°<br>4 : 40°<br>5 : 50°<br>8 : 100° |
|---|---|

### (C) Lens Type

- 1 : Colored Diffused
- 2 : Diffused
- 3 : Color Transparent
- 4 : Water Clear

### (F) Lead Type

- Blank : Standard Leads
- S : Leads Stand-Offs

### (E) Color

- B : Blue (470nm)
- TG : True Green (525nm)
- UYL : Amber (590nm)
- SOL : Orange (615nm)
- UOL : Red-Orange (625nm)
- W : White ((x,y))

### (D) Internal Code

- Amber/Orange/Red
- BLANK : Typical
- T : High Intensity
- A : Super-High Intensity
- White/Blue/Green
- H : Typical
- M : High Intensity
- S : Super-High Intensity



# Optoelectronic Components

## Visible LEDs

Through Hole **5mm & Oval**

# Profile & Product Sheet



### 5mm

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F = (mA)$	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MVL-504AUOL	Red	625	AllnGaP	Water Clear	20	2.0	3500	15	5-1
MVL-504ASOL	Red	615	AllnGaP	Water Clear	20	2.0	4000	15	
MVL-504AUYL	Amber	590	AllnGaP	Water Clear	20	2.2	5000	15	
MVL-504MTG	Green	525	InGaN	Water Clear	20	3.7	5800	15	
MVL-504MB	Blue	470	InGaN	Water Clear	20	3.3	1200	15	
MVL-514AUOL	Red	625	AllnGaP	Water Clear	20	2.0	2300	30	
MVL-514ASOL	Red	615	AllnGaP	Water Clear	20	1.9	2500	30	
MVL-514AUYL	Amber	590	AllnGaP	Water Clear	20	2.3	2800	30	
MVL-514MTG	Green	525	InGaN	Water Clear	20	3.7	3200	30	
MVL-514MB	Blue	470	InGaN	Water Clear	20	3.3	700	30	
MVL-584AUOL	Red	625	AllnGaP	Water Clear	20	2.0	300	90	5-2
MVL-584ASOL	Red	615	AllnGaP	Water Clear	20	2.0	350	90	
MVL-584AUYL	Amber	590	AllnGaP	Water Clear	20	2.2	350	90	

### 5mm White

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F = (mA)$	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MVL-514SW	Super White	(0.31,0.32)	InGaN	Water Clear	20	3.2	11000	15	5-1
MVL-514MW	White	(0.31,0.32)	InGaN	Water Clear	20	3.3	3500	15	
MVL-524MW	White	(0.31,0.32)	InGaN	Water Clear	20	3.3	2500	20	
MVL-534MW	White	(0.31,0.32)	InGaN	Water Clear	20	3.3	1700	30	
MVL-544MW	White	(0.31,0.32)	InGaN	Water Clear	20	3.3	1300	40	
MVL-554MW	White	(0.31,0.32)	InGaN	Water Clear	20	3.3	800	50	
MVL-584MW	White	(0.31,0.32)	InGaN	Water Clear	20	3.3	190	100	5-2

### Oval

Part No	Color	Dominant Wavelength (nm) or (x,y)	Material	Lens Type	Test Condition @ $I_F = (mA)$	Typ $V_F$ (V)	Typ $I_V$ (mcd)	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MVL-663TUOL	Red	625	AllnGaP	Red	20	2.1	800	80/40	5-3
MVL-663SO	Orange	605	AllnGaP	Orange	20	2.0	500	80/40	
MVL-663TUYL	Amber	590	AllnGaP	Amber	20	2.2	800	80/40	
MVL-663MTG	Green	525	InGaN	Green	20	3.7	1300	80/40	
MVL-663MB	Blue	470	InGaN	Blue	20	3.3	400	80/40	

## Optoelectronic Components

### Visible LEDs

Through Hole

5mm & Oval

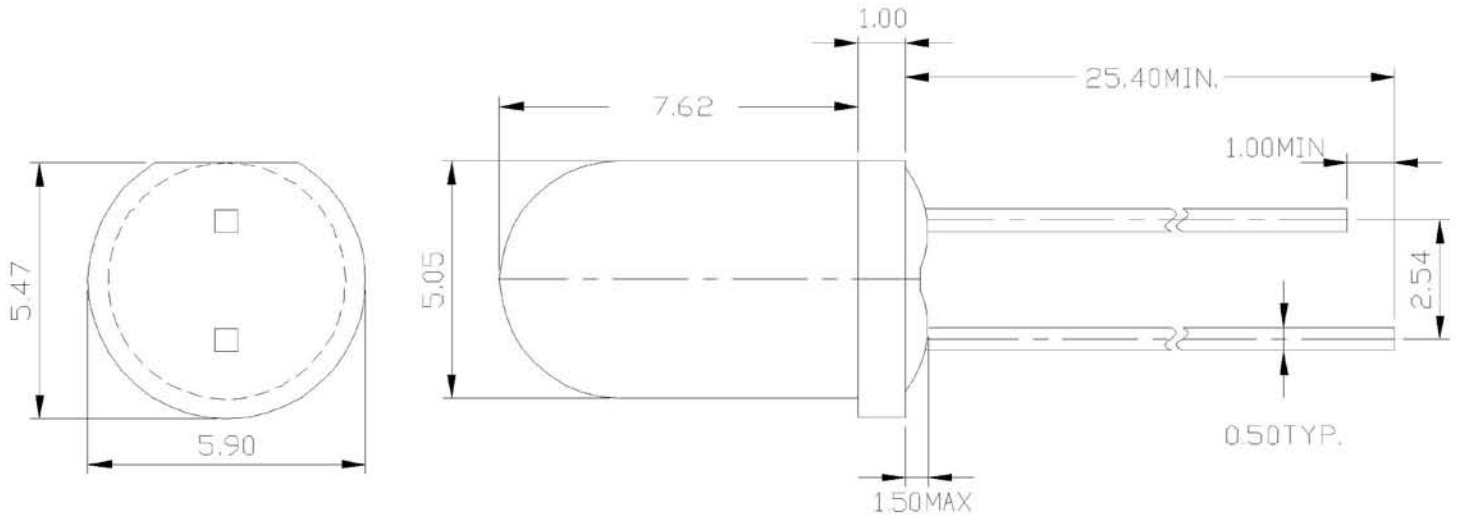


Fig 5-1

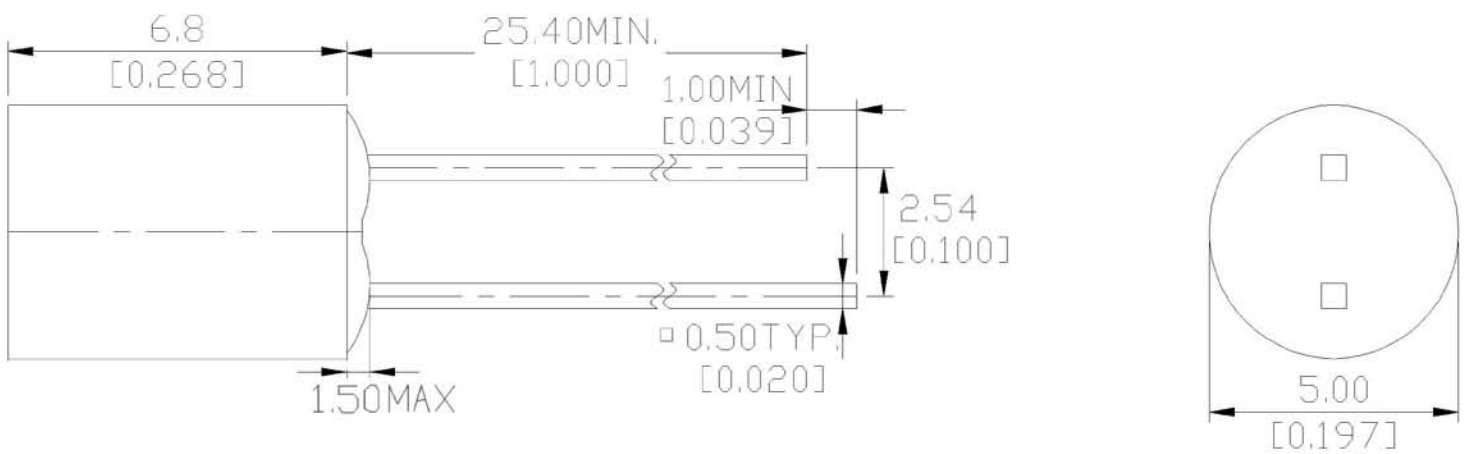


Fig 5-2

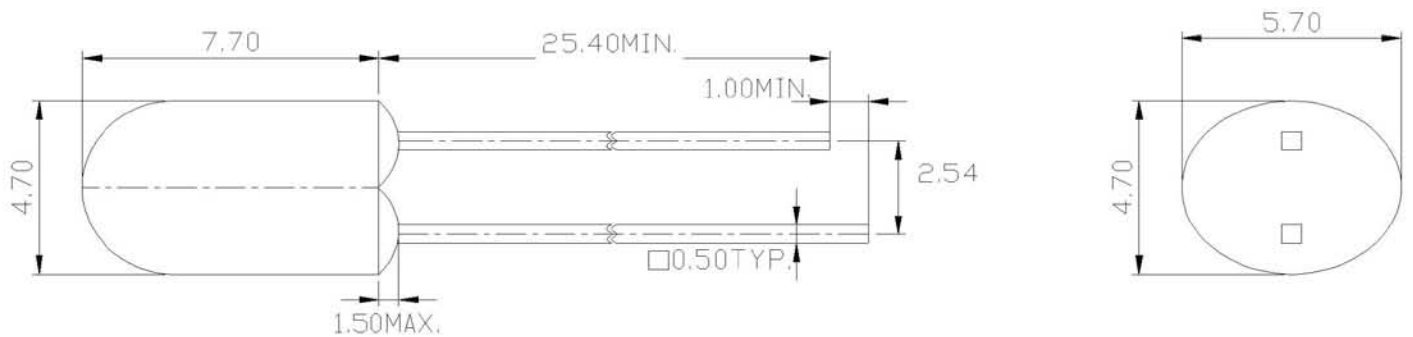


Fig 5-3



# Optoelectronic Components

## Infrared Emitters



### Applications

- ▶ Remote Control
- ▶ Smoke Detector
- ▶ Night Vision Illumination
- ▶ Coin Recognition
- ▶ Security Beam
- ▶ Encoders
- ▶ Wireless Audio
- ▶ Scanner

### Infrared Emitters

- ▶ 3mm
- ▶ 5mm
- ▶ 1.8mm
- ▶ Radial Side View
- ▶ ChipLED
- ▶ PLCC

Profile & Product Sheet

#### M I E - A B C D E IR Emitter Through Hole

(A) Package  
 1 : 1.8mm  
 3 : 3mm (T1)  
 5 : 5mm (T1-3/4)  
 8 : 5mm Cylinder Wide View Angle

(B) Package & Viewing Angle ( $2\theta_{1/2}$ )

1.8mm	3mm	5mm
8 : 30°	0 : 25°	1 : 15°
	2 : 40°	2 : 20° (Cylinder 8x = 120°)
	3 : 20° ~ 30°	3 : 30°
	6 : 35° ~ 40°	4 : 40°
	8 : 28°	5 : 50°
		7 : 30°

(C) Lens Type  
 4 : Water Clear

(E) Die  
 1 ~ 4

(D) Wavelength  
 A : 940nm  
 H : 850nm  
 L : 880nm

#### M S E - A B C D E IR Emitter SMD

(A) Package  
 1 : ChipLED  
 2 : PLCC-2

(B) Package & Viewing Angle ( $2\theta_{1/2}$ )  
 0 : 120°

(B) Package Footprint  
 1 : Side-View  
 5 : 1206  
 7 : 0805  
 9 : 0603 (0.8mm height)

(C) Lens Type  
 4 : Water Clear

(E) Die  
 3 ~ 4

(D) Wavelength  
 A : 940nm  
 H : 850nm  
 K : 1870nm  
 L : 880nm

## Optoelectronic Components

### Infrared Emitters

Through Hole

# Profile & Product Sheet

3mm

Part No	Peak Wavelength (nm)	Material	Lens Type	Typ V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	Max V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	I <sub>e</sub> @ I <sub>F</sub> = (mA)	Typ I <sub>e</sub> (mW/sr)	Viewing Angle (2θ <sub>1/2</sub> )	Fig
MIE-304H4	850	GaAlAs	Water Clear	1.5	1.8	20	3.5	25	6-1
MIE-304L3	880	GaAlAs	Water Clear	1.4	1.7	20	2.2	25	
MIE-304A2	940	GaAlAs/GaAs	Water Clear	1.3	1.5	20	2.5	25	
MIE-304A4	940	GaAlAs/GaAs	Water Clear	1.3	1.5	20	2.5	25	
MIE-324H4	850	GaAlAs	Water Clear	1.5	1.8	20	2.1	40	6-2
MIE-324L3	880	GaAlAs	Water Clear	1.4	1.7	20	1.5	40	
MIE-324A2	940	GaAlAs/GaAs	Water Clear	1.3	1.5	20	1.6	40	
MIE-324A4	940	GaAlAs/GaAs	Water Clear	1.3	1.5	20	1.6	40	
MIE-334H4	850	GaAlAs	Water Clear	1.5	1.8	20	3.2	30	6-1
MIE-334L3	880	GaAlAs	Water Clear	1.4	1.7	20	2	20	
MIE-334A4	940	GaAlAs/GaAs	Water Clear	1.3	1.5	20	2.2	30	
MIE-364H4	850	GaAlAs	Water Clear	1.5	1.8	20	2.3	35	6-3
MIE-364L3	880	GaAlAs	Water Clear	1.4	1.7	20	1.6	35	
MIE-364A4	940	GaAlAs/GaAs	Water Clear	1.3	1.5	20	1	40	
MIE-384H4	850	GaAlAs	Water Clear	1.5	1.7	20	3.2	28	6-4
MIE-384L3	880	GaAlAs	Water Clear	1.3	1.5	20	2	28	
MIE-384A4	940	GaAlAs/GaAs	Water Clear	1.4	1.6	20	2	28	

5mm

Part No	Peak Wavelength (nm)	Material	Lens Type	Typ V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	Max V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	I <sub>e</sub> @ I <sub>F</sub> = (mA)	Typ I <sub>e</sub> (mW/sr)	Viewing Angle (2θ <sub>1/2</sub> )	Fig
MIE-514H4	850	GaAlAs	Water Clear	1.5	1.8	50	8	15	6-5
MIE-514L3	880	GaAlAs	Water Clear	1.4	1.55	20	4.5	15	
MIE-514A4	940	GaAlAs/GaAs	Water Clear	1.3	1.5	20	5	15	
MIE-524H4	850	GaAlAs	Water Clear	1.5	1.8	50	6.5	20	
MIE-524L3	880	GaAlAs	Water Clear	1.4	1.55	20	4	20	
MIE-524A4	940	GaAlAs/GaAs	Water Clear	1.32	1.45	20	1.3	20	
MIE-534H4	850	GaAlAs	Water Clear	1.5	1.8	20	4.2	30	
MIE-534L3	880	GaAlAs	Water Clear	1.4	1.55	20	4	30	
MIE-534A2	940	GaAlAs/GaAs	Water Clear	1.3	1.5	20	3.5	30	
MIE-534A4	940	GaAlAs/GaAs	Water Clear	1.3	1.45	20	3.5	30	
MIE-544H4	850	GaAlAs	Water Clear	1.5	1.8	50	3	40	
MIE-544L3	880	GaAlAs	Water Clear	1.4	1.55	20	4	40	
MIE-544A4	940	GaAlAs/GaAs	Water Clear	1.3	1.5	20	2	40	
MIE-554H4	850	GaAlAs	Water Clear	1.5	1.8	20	3.6	50	
MIE-554L3	880	GaAlAs	Water Clear	1.4	1.55	20	1.3	50	
MIE-554A4	940	GaAlAs/GaAs	Water Clear	1.3	1.5	20	1.5	50	



# Optoelectronic Components

## Infrared Emitters

# Profile & Product Sheet



### 5mm (Continued)

Part No	Peak Wavelength (nm)	Material	Lens Type	Typ V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	Max V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	I <sub>e</sub> @ I <sub>F</sub> = (mA)	Typ I <sub>e</sub> (mW/sr)	Viewing Angle (2θ <sub>1/2</sub> )	Fig
MIE-824H4	850	GaAlAs	Water Clear	1.5	1.7	20	0.9	120	6-6
MIE-824L3	880	GaAlAs	Water Clear	1.4	1.6	20	0.8	120	
MIE-824A4	940	GaAlAs/GaAs	Water Clear	1.3	1.5	20	0.8	120	

### 1.8mm

Part No	Peak Wavelength (nm)	Material	Lens Type	Typ V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	Max V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	I <sub>e</sub> @ I <sub>F</sub> = (mA)	Typ I <sub>e</sub> (mW/sr)	Viewing Angle (2θ <sub>1/2</sub> )	Fig
MIE-184H4	850	GaAlAs	Water Clear	1.5	1.7	20	2	30	6-7
MIE-184L3	880	GaAlAs	Water Clear	1.4	1.6	20	1.5	30	
MIE-184A4	940	GaAlAs/GaAs	Water Clear	1.3	1.5	20	1.5	30	

### Radial Side View

Part No	Peak Wavelength (nm)	Material	Lens Type	Typ V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	Max V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	I <sub>e</sub> @ I <sub>F</sub> = (mA)	Typ I <sub>e</sub> (mW/sr)	Viewing Angle (2θ <sub>1/2</sub> )	Fig
MIE-114H4	850	GaAlAs	Water Clear	1.5	1.6	20	1	80	6-8
MIE-114L3	880	GaAlAs	Water Clear	1.4	1.6	20	0.6	80	
MIE-114A2	940	GaAlAs/GaAs	Water Clear	1.2	1.35	20	0.8	80	
MIE-144H4	850	GaAlAs	Water Clear	1.5	1.7	20	0.8	80	6-9
MIE-144A4	940	GaAlAs/GaAs	Water Clear	1.2	1.35	20	1	80	

### ChipLED

Part No	Peak Wavelength (nm)	Material	Lens Type	Typ V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	Max V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	I <sub>e</sub> @ I <sub>F</sub> = (mA)	Typ I <sub>e</sub> (mW/sr)	Viewing Angle (2θ <sub>1/2</sub> )	Fig
MSE-154A4	940	AlGaAs/GaAs	water clear	1.2	1.35	20	1	130	6-10
MSE-154L3	880	AlGaAs/AlGaAs	water clear	1.4	1.6	20	1.6	130	
MSE-154H4	850	AlGaAs/AlGaAs	water clear	1.5	1.6	20	1.6	130	

### PLCC

Part No	Peak Wavelength (nm)	Material	Lens Color	Typ V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	Max V <sub>F</sub> (V) @ I <sub>F</sub> = 50mA	I <sub>e</sub> @ I <sub>F</sub> = (mA)	Typ I <sub>e</sub> (mW/sr)	Viewing Angle (2θ <sub>1/2</sub> )	Fig
MSE-204A4	940	GaAlAs/GaAs	Water Clear	1.3	1.7	20	1	130	6-11





# Optoelectronic Components

## Infrared Detectors

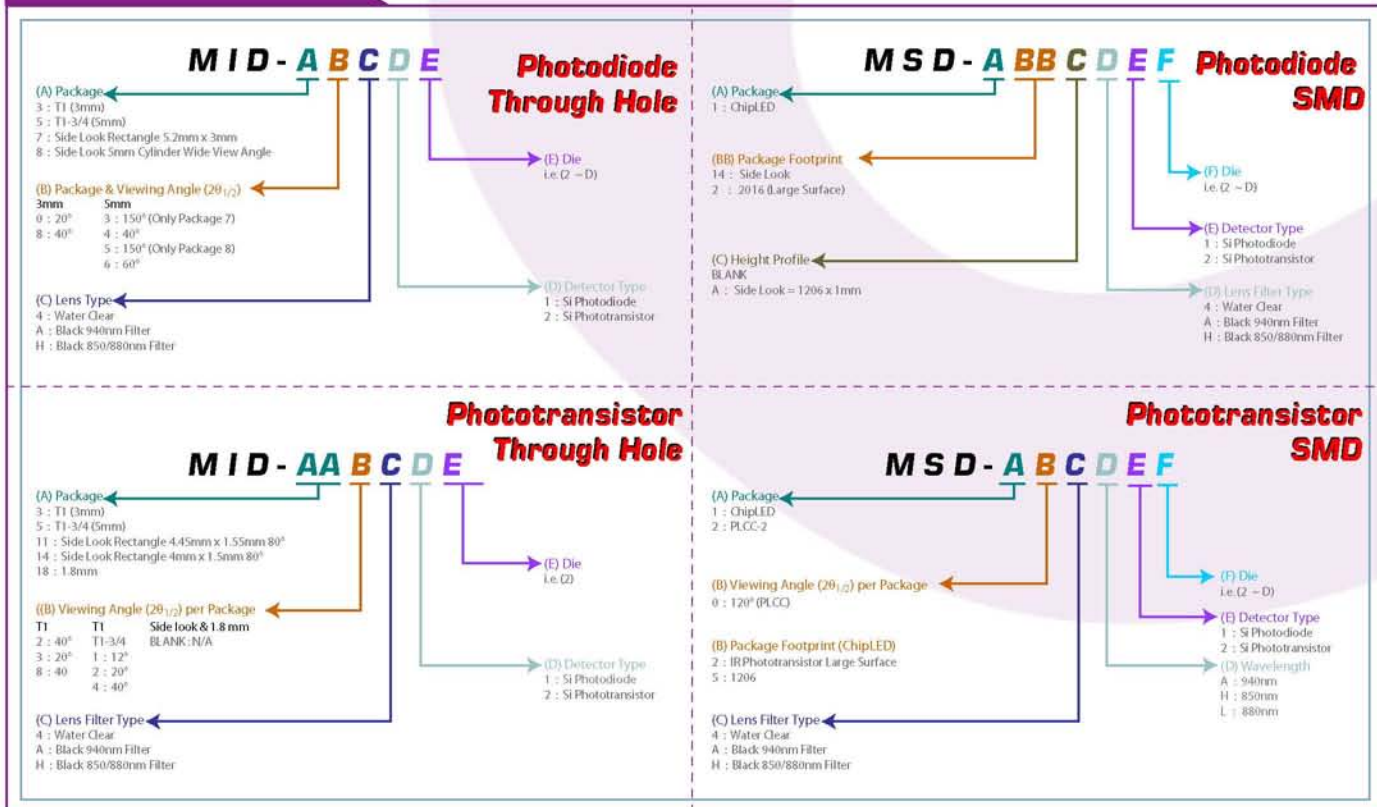


### Applications

- General Sensing
- Coin Recognition
- Smoke Detector
- Ambient Light Detection

### Infrared Detectors

- Photodiodes
- Phototransistors



## Optoelectronic Components

## Infrared Detectors Photodiodes

# Profile & Product Sheet

### 3mm

Part No	Sensitivity Wavelength (nm)	Material	Lens Type	Light Current $I_L(\mu A)$ @ $V_R = 5V$ $E_e = 0.1$ mW/Sr <sup>2</sup> Typ.	Open Circuit Voltage $V_{OC}(mV)$ @ $E_e = 0.1$ mW/Sr <sup>2</sup> Max	Reverse Breakdown Voltage $V_{BR(R)}(V)$ @ $I_R = 0.1mA$ $E_e = 0.1mW/Sr_2$	Reverse Dark Current $I_D(nA)$ @ $V_R = 10V$ $E_e = 0mW/Sr_2$	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MID-30412	940/850/880	Si Photodiode	Water Clear	4	350	30	30	20	7-1
MID-30A12	940	Si Photodiode	Black	4	350	30	30	20	
MID-38412	940/850/880	Si Photodiode	Water Clear	4	350	30	30	40	7-2
MID-38A12	940	Si Photodiode	Black	4	350	30	30	40	
MID-38H12	850	Si Photodiode	Black	4	350	30	30	40	

### 5mm

Part No	Sensitivity Wavelength (nm)	Material	Lens Type	Light Current $I_L(\mu A)$ @ $V_R = 5V$ $E_e = 0.1$ mW/Sr <sup>2</sup> Typ.	Open Circuit Voltage $V_{OC}(mV)$ @ $E_e = 0.1$ mW/Sr <sup>2</sup> Max	Reverse Breakdown Voltage $V_{BR(R)}(V)$ @ $I_R = 0.1mA$ $E_e = 0.1mW/Sr_2$	Reverse Dark Current $I_D(nA)$ @ $V_R = 10V$ $E_e = 0mW/Sr_2$	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MID-54419	940/850/880	Si Photodiode	Water Clear	12	350	30	30	40	7-3
MID-54A19	940	Si Photodiode	Black	12	350	30	30	40	
MID-54H19	850	Si Photodiode	Black	12	350	30	30	40	
MID-56419	940/850/880	Si Photodiode	Water Clear	12	350	30	30	60	
MID-56A19	940	Si Photodiode	Black	12	350	30	30	60	
MID-56H19	850	Si Photodiode	Black	12	350	30	30	60	
MID-86414	940/850/880	Si Photodiode	Water Clear	1.5	350	30	30	130	7-4
MID-86A14	940	Si Photodiode	Black	1.5	350	30	30	130	
MID-86H14	850	Si Photodiode	Black	1.5	350	30	30	130	
MID-86416	940/850/880	Si Photodiode	Water Clear	3	350	30	30	130	
MID-86A16	940	Si Photodiode	Black	3	350	30	30	130	
MID-86H16	850	Si Photodiode	Black	3	350	30	30	130	



# Optoelectronic Components

## Infrared Detectors Photodiodes

# Profile & Product Sheet

### Radial Side View

Part No	Sensitivity Wavelength (nm)	Material	Lens Type	Light Current $I_L(\mu A)$ @ $V_R = 5V$ $E_e = 0.1$ $mW/Sr_2$ Typ.	Open Circuit Voltage $V_{OC}(mV)$ @ $E_e = 0.1$ $mW/Sr_2$ Max	Reverse Breakdown Voltage $V_{BR(R)}(V)$ @ $I_R=0.1mA$ $E_e = 0.1mW/Sr_2$	Reverse Dark Current $I_D(nA)$ @ $V_R=10V$ $E_e = 0mW/Sr_2$	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MID-7341C	940/850/880	Si Photodiode	Water Clear	9	350	30	30	150	7-5
MID-73A1C	940	Si Photodiode	Black	9	350	30	30	150	
MID-73H1C	850	Si Photodiode	Black	9	350	30	30	150	
MID-8541C	940/850/880	Si Photodiode	Water Clear	10	350	30	30	150	7-6
MID-85A1C	940	Si Photodiode	Black	10	350	30	30	150	
MID-85H1C	850	Si Photodiode	Black	10	350	30	30	150	

### ChipLED -1206 Side View

Part No	Sensitivity Wavelength (nm)	Material	Lens Type	Light Current $I_L(\mu A)$ @ $V_R = 5V$ $E_e = 0.1$ $mW/Sr_2$ Typ.	Open Circuit Voltage $V_{OC}(mV)$ @ $E_e = 0.1$ $mW/Sr_2$ Max	Reverse Dark Current $I_D(nA)$ @ $V_R=10V$ $E_e = 0mW/Sr_2$	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSD-114A412	940/850/880	Si Photodiode	Water Clear	9.8	30	100	130	7-7
MSD-114AA12	940	Si Photodiode	Black	7	30	100	130	

### ChipLED 2016 Top View

Part No	Sensitivity Wavelength (nm)	Material	Lens Type	Reverse Breakdown Voltage $V_{BR(R)}(V)$ @ $I_R=0.1mA$ $E_e = 0.1mW/Sr_2$	Reverse Dark Current $I_D(nA)$ @ $V_R=10V$ $E_e = 0mW/Sr_2$	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSD-12421D	600~1050	Si Photodiode	Water Clear	60	30	130	7-13
MSD-12H21D	850	Si Photodiode	Black	60	30	130	

## Optoelectronic Components

Infrared Detectors Phototransistors

# Profile & Product Sheet

3mm

Part No	Sensitivity Wavelength (nm)	Material	Lens Type	Light Current $I_L$ ( $\mu A$ ) @ $V_R = 5V$ $E_e = 0.1$ $mW/Sr_2$ Typ.	Reverse Breakdown Voltage $V_{BR(R)}$ (V) @ $I_R = 0.1mA$ $E_e = 0.1mW/Sr_2$	Reverse Dark Current $I_D$ (nA) @ $V_R = 10V$ $E_e = 0mW/Sr_2$	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MID-30422	940/850/880	Si Phototransistor	Water Clear	2800	30	100	20	7-1
MID-30A22	940	Si Phototransistor	Black	2000	30	100	20	
MID-30A225	940	Si Phototransistor	Black	700	30	100	50	
MID-30H22	850	Si Phototransistor	Black	2000	30	100	20	7-8
MID-32422	940/850/880	Si Phototransistor	Water Clear	400	30	100	40	
MID-32A22	940	Si Phototransistor	Black	400	30	100	40	
MID-32H22	850	Si Phototransistor	Black	4000	30	100	40	7-1
MID-33422	940/850/880	Si Phototransistor	Water Clear	2000	30	100	40	
MID-33A22	940	Si Phototransistor	Black	2000	30	100	40	
MID-33H22	850	Si Phototransistor	Black	2000	30	100	40	7-2
MID-38422	940/850/880	Si Phototransistor	Water Clear	2800	30	100	40	
MID-38A22	940	Si Phototransistor	Black	2000	30	100	40	
MID-38H22	850	Si Phototransistor	Black	2000	30	100	40	

5mm

Part No	Sensitivity Wavelength (nm)	Material	Lens Type	Light Current $I_L$ ( $\mu A$ ) @ $V_R = 5V$ $E_e = 0.1$ $mW/Sr_2$ Typ.	Reverse Breakdown Voltage $V_{BR(R)}$ (V) @ $I_R = 0.1mA$ $E_e = 0.1mW/Sr_2$	Reverse Dark Current $I_D$ (nA) @ $V_R = 10V$ $E_e = 0mW/Sr_2$	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MID-51422	940/850/880	Si Phototransistor	Water Clear	1000	30	100	12	7-8
MID-51A22	940	Si Phototransistor	Black	1500	30	100	12	
MID-51H22	850	Si Phototransistor	Black	1500	30	100	12	
MID-52422	940/850/880	Si Phototransistor	Water Clear	1000	30	100	20	
MID-52A22	940	Si Phototransistor	Black	800	30	100	20	
MID-52H22	850	Si Phototransistor	Black	800	30	100	20	
MID-54422	940/850/880	Si Phototransistor	Water Clear	1000	30	100	40	
MID-54A22	940	Si Phototransistor	Black	800	30	100	40	
MID-54H22	850	Si Phototransistor	Black	800	30	100	40	



# Optoelectronic Components

Infrared Detectors Phototransistors

## Profile & Product Sheet

1.8mm

Part No	Sensitivity Wavelength (nm)	Material	Lens Type	Light Current $I_L$ ( $\mu$ A) @ $V_R = 5V$ $E_e = 0.1$ mW/Sr <sub>2</sub> Typ.	Reverse Breakdown Voltage $V_{BR(R)}$ (V) @ $I_R = 0.1mA$ $E_e = 0.1mW/Sr_2$	Reverse Dark Current $I_D$ (nA) @ $V_R = 10V$ $E_e = 0mW/Sr_2$	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MID-18422	940/850/880	Si Phototransistor	Water Clear	2200	30	100	30	7-9
MID-18A22	940	Si Phototransistor	Black	1900	30	100	30	
MID-18H22	850	Si Phototransistor	Black	1900	30	100	30	

### Radial Side View

Part No	Sensitivity Wavelength (nm)	Material	Lens Type	Light Current $I_L$ ( $\mu$ A) @ $V_R = 5V$ $E_e = 0.1$ mW/Sr <sub>2</sub> Typ.	Reverse Breakdown Voltage $V_{BR(R)}$ (V) @ $I_R = 0.1mA$ $E_e = 0.1mW/Sr_2$	Reverse Dark Current $I_D$ (nA) @ $V_R = 10V$ $E_e = 0mW/Sr_2$	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MID-11422	940/850/880	Si Phototransistor	Water Clear	400	30	100	80	7-10
MID-11A422	940	Si Phototransistor	Black	380	30	100	80	
MID-11H22	850	Si Phototransistor	Black	380	30	100	80	
MID-14422	940/850/880	Si Phototransistor	Water Clear	400	30	100	80	7-11
MID-14A22	940	Si Phototransistor	Black	380	30	100	80	
MID-14H422	850	Si Phototransistor	Black	380	30	100	80	

### ChipLED 1206

Part No	Sensitivity Wavelength (nm)	Material	Lens Type	Light Current $I_L$ ( $\mu$ A) @ $V_R = 5V$ $E_e = 0.1$ mW/Sr <sub>2</sub> Typ.	Reverse Breakdown Voltage $V_{BR(R)}$ (V) @ $I_R = 0.1mA$ $E_e = 0.1mW/Sr_2$	Reverse Dark Current $I_D$ (nA) @ $V_R = 10V$ $E_e = 0mW/Sr_2$	Viewing Angle ( $2\theta_{1/2}$ )	Fig
MSD-15422	940/850/880	Si Phototransistor	Water Clear	9.8	30	100	130	7-12
MSD-15A22	940	Si Phototransistor	Black	7	30	100	130	

## Optoelectronic Components

## Infrared Detectors

# Profile & Product Sheet

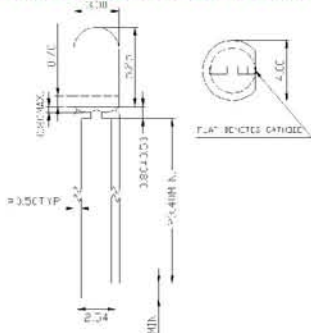


Fig 7-1

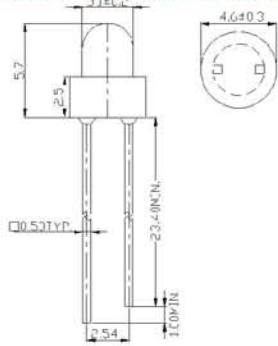


Fig 7-2

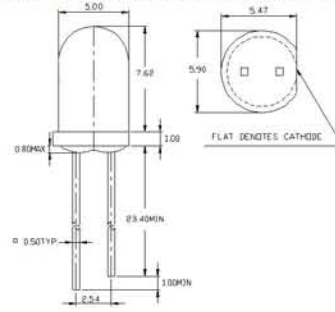


Fig 7-3

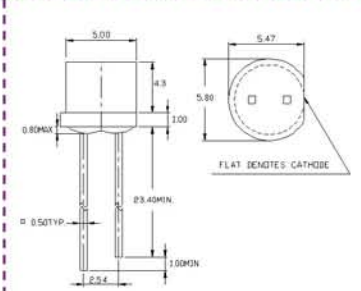


Fig 7-4

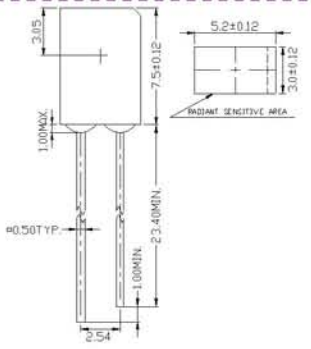


Fig 7-5

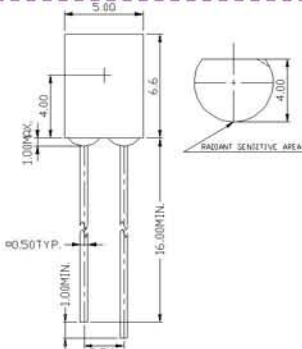


Fig 7-6

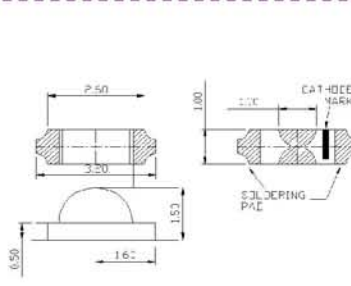


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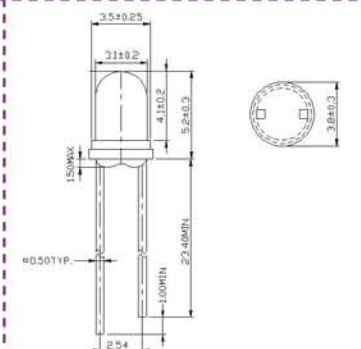


Fig 7-8

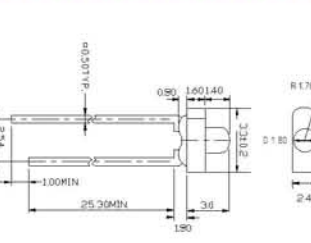


Fig 7-9

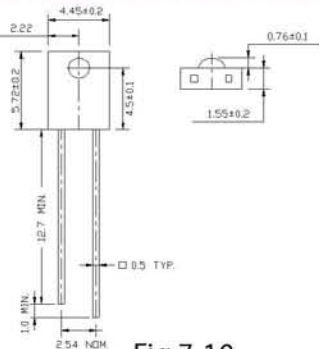


Fig 7-10

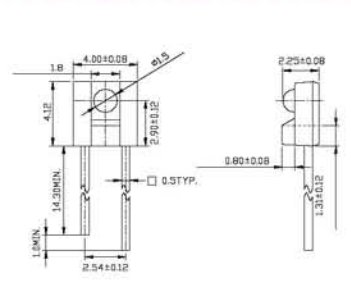


Fig 7-11

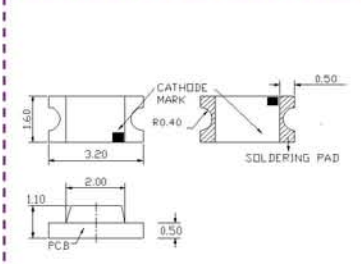


Fig 7-12

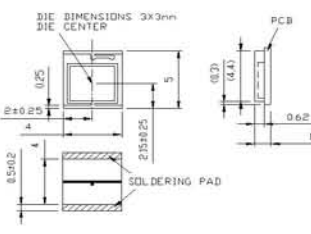


Fig 7-13



# Opto-Electronic Components

# Receiver Modules



## Applications

- ▶ Audio/Visual Equipment
- ▶ Toys
- ▶ Gaming Console
- ▶ Set-Top Box
- ▶ Appliances
- ▶ Security

## Receiver Module

- ▶ 3 lead Side-View
- ▶ Standard Lead Bends and Clips/Housing are Available

### M I M - A B B C D E F - G Receiver Modules

(A) Voltage  
 3 : 3.3V or 5.0V  
 5 : 5.0V

(B) Central Frequency (KHz)  
 30 : 30.0      38 : 38.0  
 32 : 33.0      40 : 40.0  
 36 : 36.0      44 : 44.0  
 37 : 36.7      56 : 56.0

(C) Internal Code  
 n : numeric internal process code

(-G) EMI Lens Housing  
 1 : Reverse of Standard

(F) Lead Form Bend  
 BLANK : Straight Leads  
 F : Formed Leads

(D) Internal Code  
 1 : Plastic no holder  
 2 ~ C : Metal Package w/ or w/o holder  
 (Call for holder configurations)

(D) Pin Out [1,2,3]  
 G : Gnd, Vcc, Vout – Standard Package 2.54mm Spacing  
 T : Gnd, Vcc, Vout – Mini Package Uneven Spaced  
 S : Vout, Vcc, Gnd – Standard Package 2.54mm Spacing  
 H : Vout, Vcc, Gnd – Mini Package 2.54mm Spacing  
 K : Vout, Gnd, Vcc – Standard Package 2.54mm Spacing  
 J : Vout, Gnd, Vcc – Mini Package 2.54mm Spacing

## Opto-Electronic Components

## Receiver Modules

# Profile & Product Sheet

### Receiver Modules

Part No	B.P.F. Central Frequency (KHz)	Supply Voltage (V) Typ.	Supply Current (mA) Max.	Transmission Distance (m) Min.	Angle $\theta_H$ (degree)	Fig
MIM-3388K2	38	2.7 ~ 5.5	2.5	10	+45/-45	8-1
MIM-3388K2-1	38	2.7 ~ 5.5	2.5	10	+45/-45	8-2
MIM-3388K4	38	2.7 ~ 5.5	2.5	10	+45/-45	8-3
MIM-3388-J2	38	2.7 ~ 5.5	2.5	10	+45/-45	8-4
MIM-538BK2	38	4.5 ~ 5.5	2	10	+45/-45	8-1
MIM-538BK4	38	4.5 ~ 5.5	2	10	+45/-45	8-3
MIM-538BK4F	38	4.5 ~ 5.5	2	10	+45/-45	8-5
MIM-538BS3F	38	4.5 ~ 5.5	2	10	+45/-45	8-6

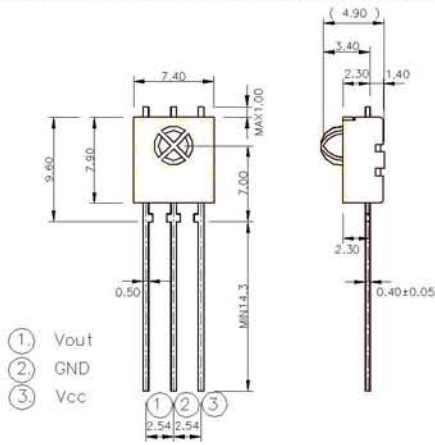


Fig 8-1

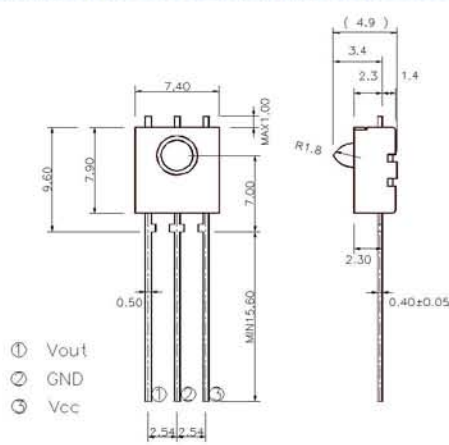


Fig 8-2

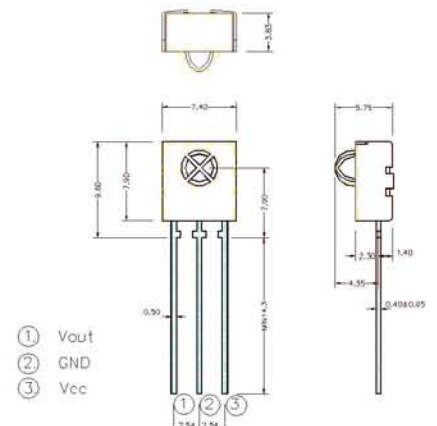


Fig 8-3

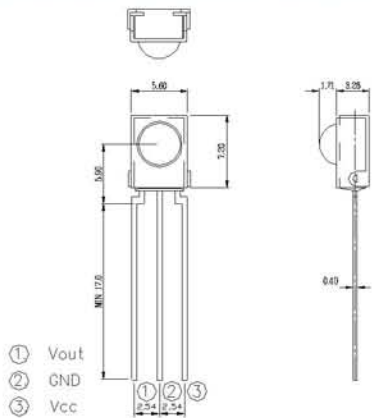


Fig 8-4

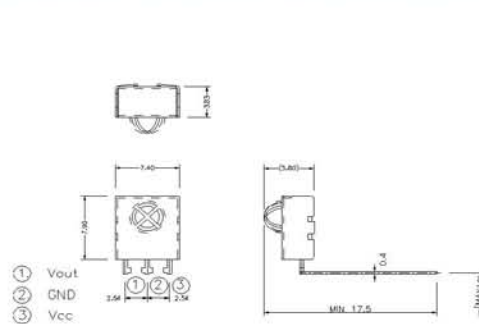


Fig 8-5

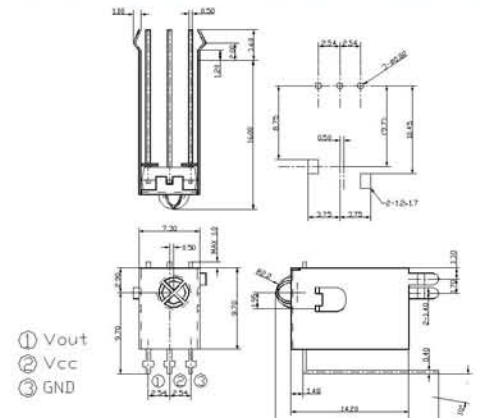
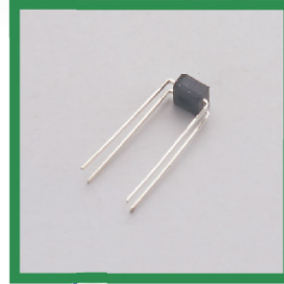
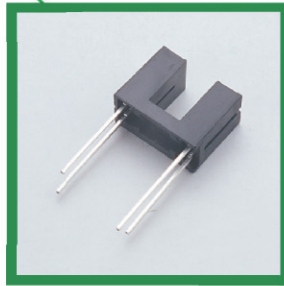
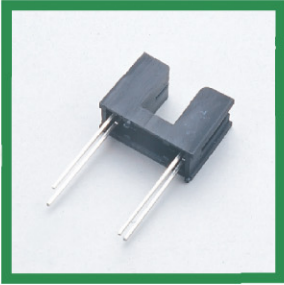


Fig 8-6



# Optoelectronic Components Photointerrupters



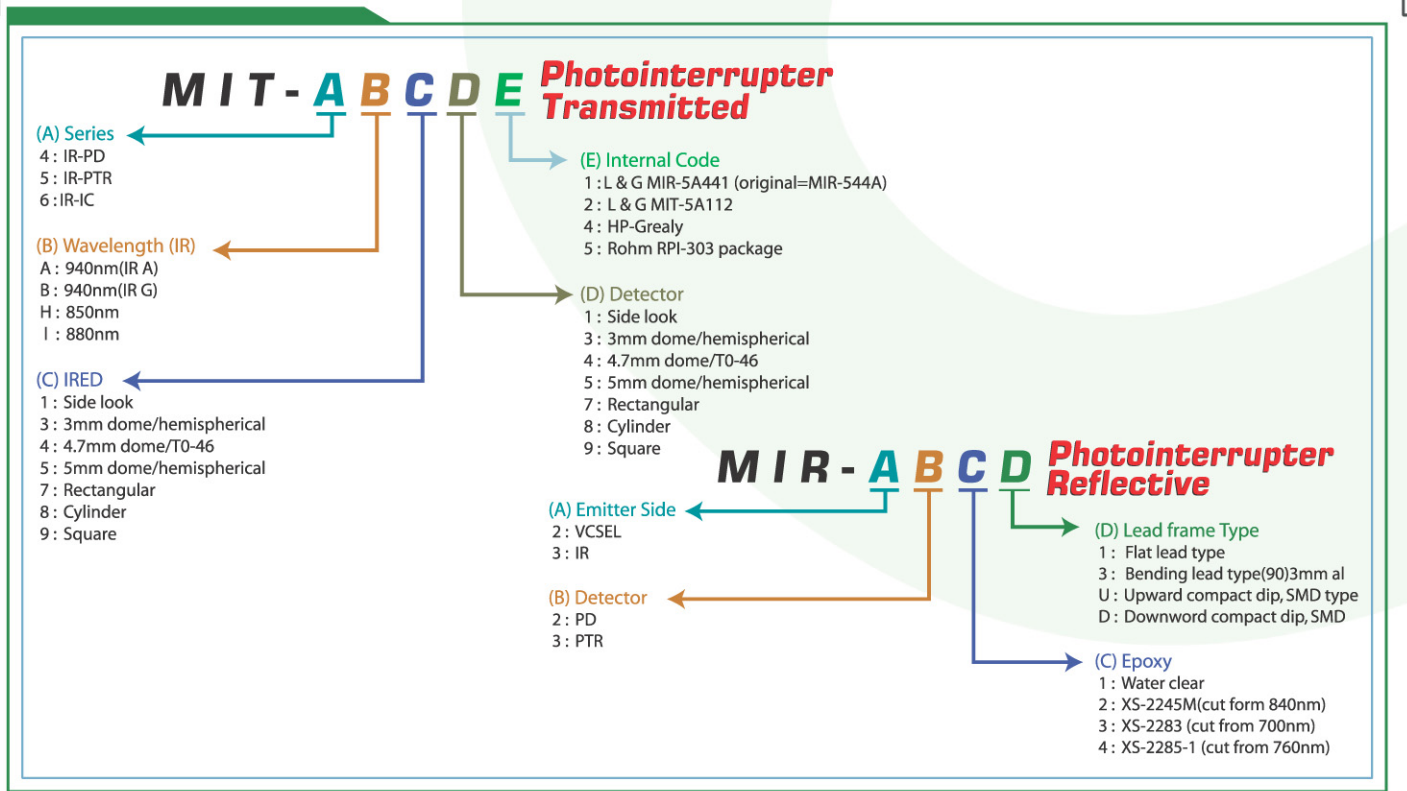
## Applications

- Printers
- Copiers
- Computer Accessories
- Automotive

## Photointerrupters

- Reflective Photointerrupters
- Transmitted Photointerrupters

Profile & Product Sheet

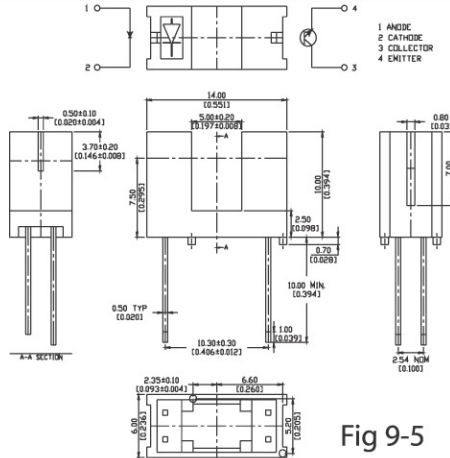
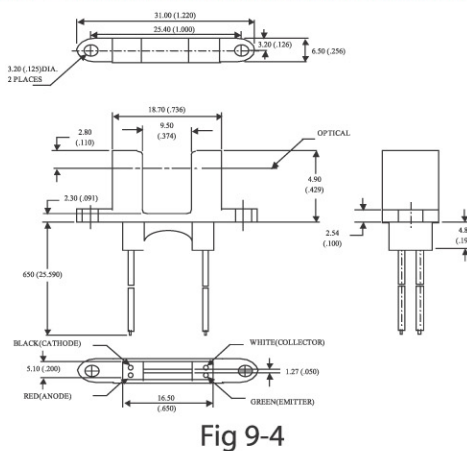
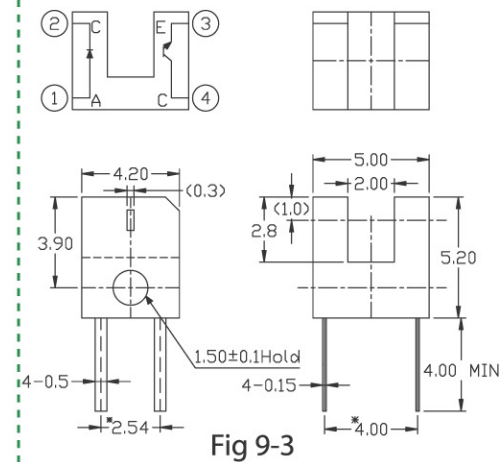
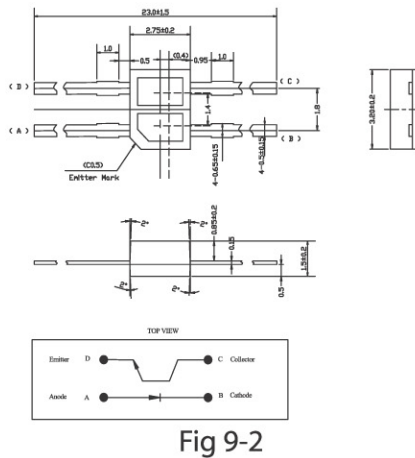
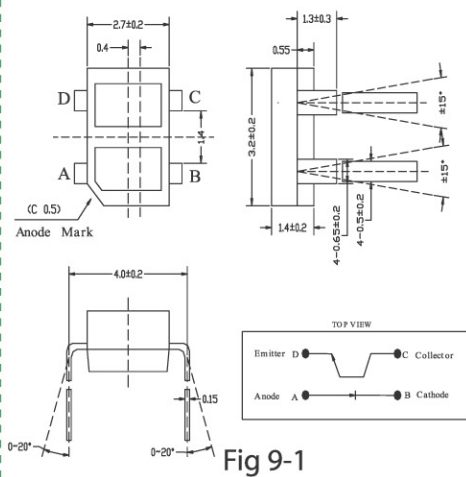


## Optoelectronic Components Photointerrupters

# Profile & Product Sheet

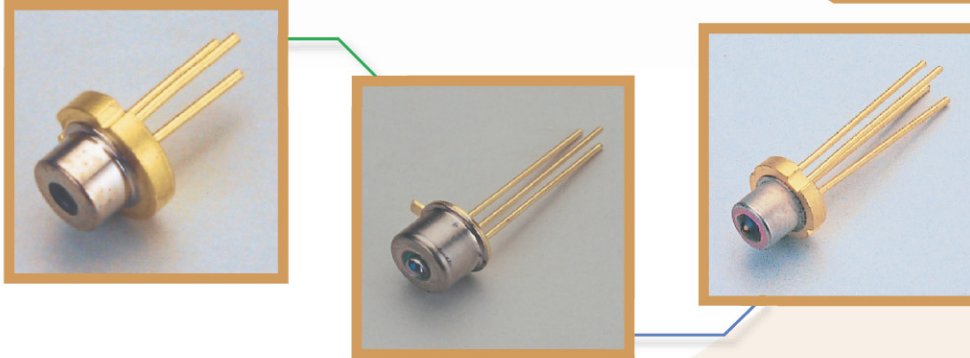
### Photointerrupters

Part No	Collector Emitter(V) Max.	Collector Current (mA)	Fig
MIR-3305	-	0.038~0.216	9-1
MIR-3305-P	-	0.038~0.216	9-2
MIT-4A11A	0.4	0.5~8.5	9-3
MIT-5A11D	0.4	0.5~10	9-4
MIT-5A116	0.4	0.5~10	9-5





# Optoelectronic Components Laser Diodes



## Applications

- ✔ Pointers
- ✔ Bar Code Readers
- ✔ Biometrics
- ✔ Optical Communications

## Laser Diodes

- ✔ PIN-TIA
- ✔ LED (1310nm)
- ✔ EEL (1310nm)

Profile & Product Sheet

### M C D - A B C D E F G Laser Diode

<p><b>(A) Dice(λ)</b> 3: 1310nm 6: 650nm 8: 850nm</p> <p><b>(B) Dice Type</b> P: PIN only T: PIN-TIA</p> <p><b>(C) Package</b> 4: TO46 5: TO56 8: TO18</p> <p><b>(D) Cap Type</b> B: Ball lens C: Cap lens F: Flat window N: No galss A: Air type</p>	<p><b>(G) Voltage</b> 1: 3.3V 2: 5V 3: 3.3 &amp; 5 V</p> <p><b>(F) PIN OUT</b></p> <p><b>(E) Data Rate</b> 0: 155M bps 1: 622M bps 3: 1.25G bps 5: 2.5G bps Z: No definition</p>
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### M C E - A B C D E F G Laser Diode

<p><b>(A) Dice(λ)</b> 3: 1310nm 6: 650nm 8: 850nm</p> <p><b>(B) Dice Type</b> L: LED E: EEL LASER V: VCSEL</p> <p><b>(C) Package</b> 4: TO46 5: TO56 8: TO18</p> <p><b>(D) Cap Type</b> B: Ball lens C: Cap lens F: Flat window N: No galss A: Air type</p>	<p><b>(G) Chip Type</b></p> <p><b>(F) PIN OUT</b></p> <p><b>(E) Data Rate</b> 0: 155M bps 1: 622M bps 3: 1.25G bps 5: 2.5G bps Z: No definition</p>
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## Optoelectronic Components Laser Diodes

# Profile & Product Sheet

### PIN-TIA

Part No	Wavelength (nm)Typ.	Operating Voltage (V)Typ.	Operating Current (mA)Max.	Operation Speed (Mbps)Typ.	Sensitivity (dBm)Typ.	Fig
MCD-3T4C-003	1310	3.3	24	155	-35	10-1
MCD-3T4C-323	1310	3.3 / 5	45	1250	-24	10-2
MCD-8T4C-323	850	3.3 / 5	45	1250	-21	10-2

### LED (1310nm)

Part No	Coupled Power (uW)Min.	Wavelength (nm)Typ.	Operating Voltage (V)Typ.	Operation Speed (Mbps)Typ.	Package Type.	Fig
MCE-3L4C-012	25	1310	1.2	155	4 Leads	10-3

### EEL (1310nm)

Part No	Optical Outputpower (mW)Min.	Threshold Current (mA)Typ.	Operating Voltage(V)	Lasing Wavelength (nm)Typ.	PD Monitor Current(uA)Min.	Fig
MCE-3E5B-002	5	10	1.2	1310	100	10-4

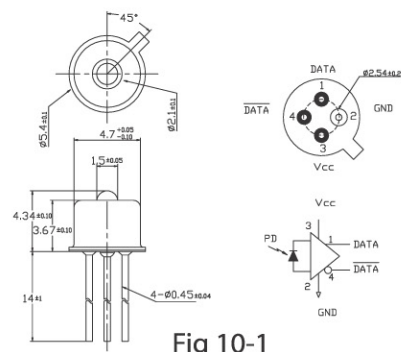


Fig 10-1

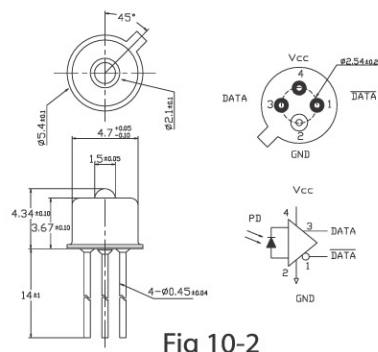


Fig 10-2

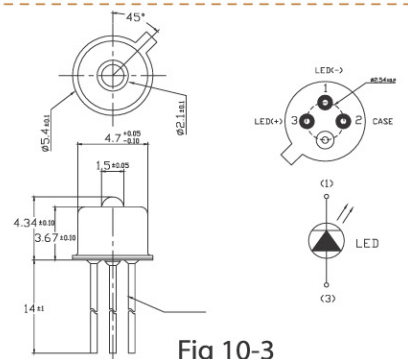


Fig 10-3

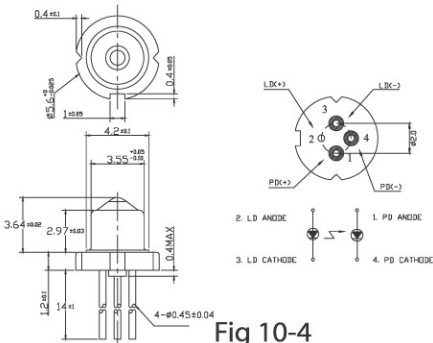
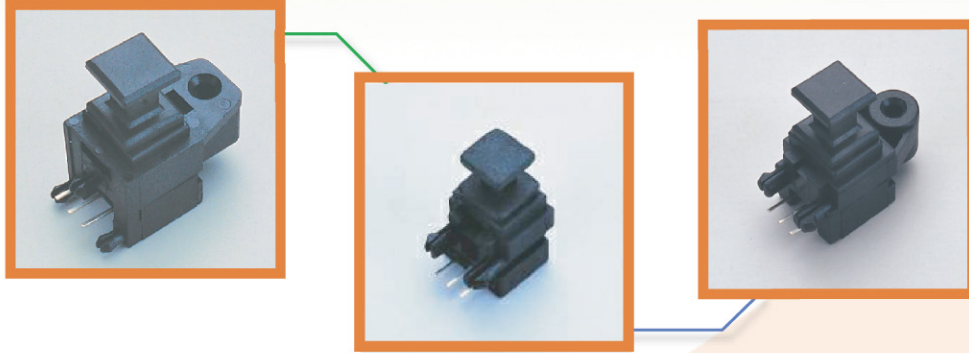


Fig 10-4



# Optoelectronic Components PhotoLinks



## Applications

- ✔ Audio Applications
- ✔ CD ROM
- ✔ Digital Amplifier
- ✔ Compact Disc Players
- ✔ Computer Sound Cards
- ✔ Automotive

## PhotoLinks

- ✔ PhotoLink Transmitters
- ✔ PhotoLink Receivers

Profile & Product Sheet

### M O F - A B C D PhotoLink

(A) Transmitter / Receiver  
T : Transmitter  
R : Receiver

(B) Opto Package  
3 : Package A

(D) Jack Type  
2 : Sharp  
3 : Toshiba

(C) Bandwidth  
Transmitter  
C. 13.2M bps / 3~5V  
Receiver  
C. 13.2M bps / 5V

# Profile & Product Sheet

### PhotoLink Transmitters

Part No	$\lambda p$ (nm) Typ.	Operating Transfer Rate (Mbps)Typ.	Operating Voltage (Vcc)Typ.	Dissipation Current (mA)Typ.	Fiber Coupling Light Output (dBm)Typ.	Fig
MOF-T3C2	660	13.2	2.75~5.25	8	-18	11-1
MOF-T3C3	660	13.2	2.75~5.25	8	-18	11-2

### PhotoLink Receivers

Part No	$\lambda p$ (nm) Typ.	Operating Transfer Rate (Mbps)Typ.	Operating Voltage (Vcc)Typ.	Dissipation Current (mA)Typ.	Receiver Input Optical Power Level (dBm)Min.	Fig
MOF-R3C2	650	13.2	4.75~5.25	5	-24	11-3
MOF-R3C3	650	13.2	4.75~5.25	5	-24	11-4

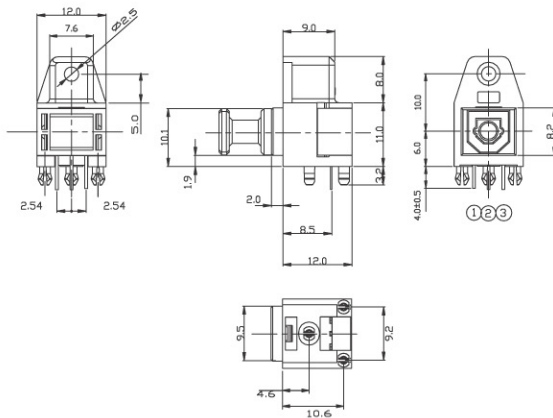


Fig 11-1

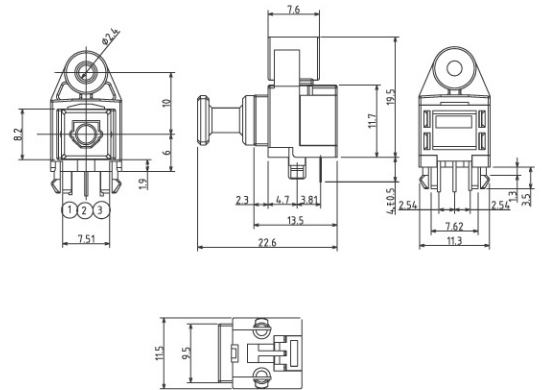


Fig 11-2

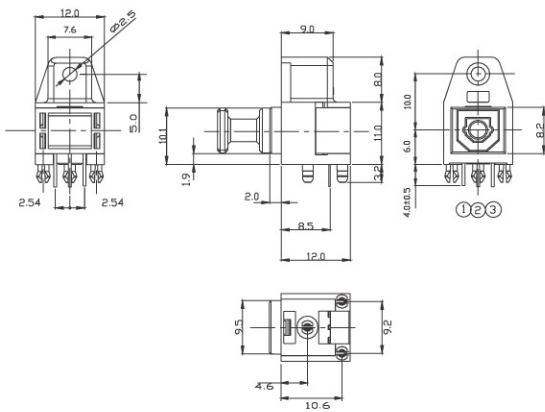


Fig 11-3

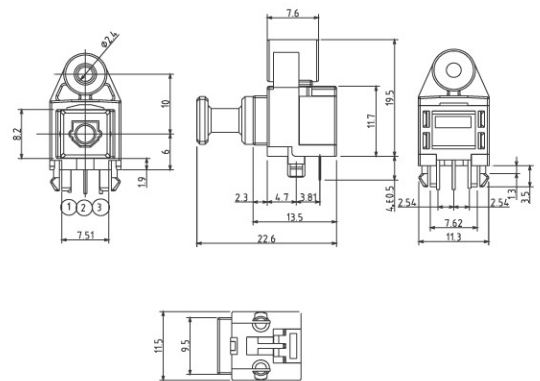
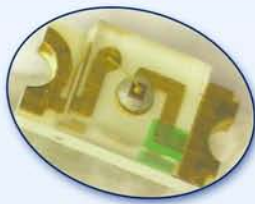
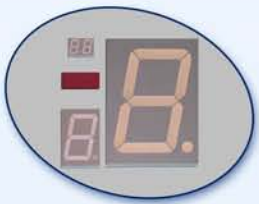
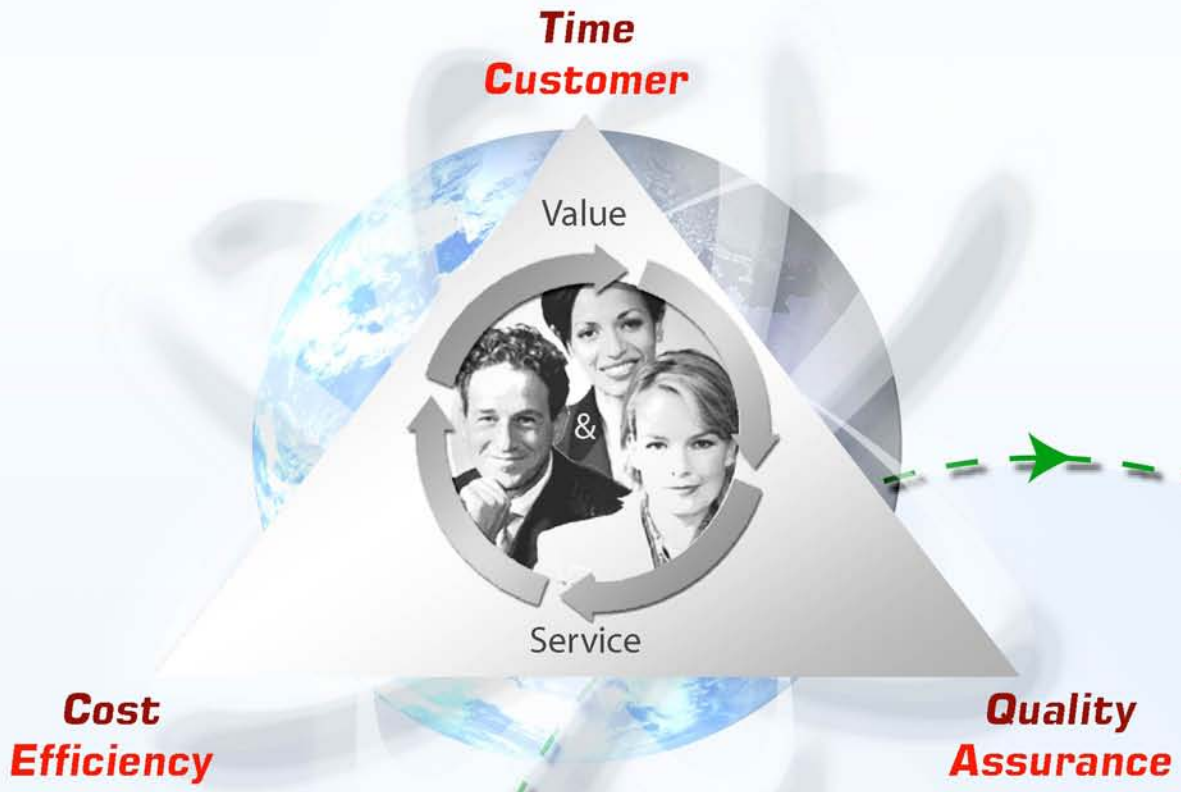


Fig 11-4



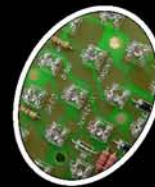


# Why Unity



# UNi

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