

# L890 AU Series

## Infrared LED Lamp

This series of L890-\_\_AU is an AlGaAs LED mounted on a lead frame and encapsulated in various types of epoxy lens which offer different design settings.

On forward bias, it emits a high power radiation of typical 15mW with a peak wavelength at 890nm.

### Specifications

1. Chip material	AlGaAs
2. Peak wavelength	890nm
3. Resin Material	Epoxy resin
4. Solder	Lead free



### Absolute Maximum Ratings

Item	Symbol	Maximum Rated Value	Unit	Ambient Temperature
Power Dissipation	$P_D$	150	mW	$T_a=25^{\circ}\text{C}$
Forward Current	$I_F$	100	mA	$T_a=25^{\circ}\text{C}$
Pulse Forward Current	$I_{FP}$	500	mA	$T_a=25^{\circ}\text{C}$
Reverse Voltage	$V_R$	5	V	$T_a=25^{\circ}\text{C}$
Operating Temperature	$T_{OPR}$	-30 ~ +85	$^{\circ}\text{C}$	$T_a=25^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-40 ~ +100	$^{\circ}\text{C}$	
Soldering Temperature	$T_{SOL}$	265	$^{\circ}\text{C}$	

### Electro-Optical Characteristics ( $T_a=25^{\circ}\text{C}$ )

Item	Symbol	Condition	Minimum	Typical	Maximum	Unit
Forward Voltage	$V_F$	$I_F=50\text{mA}$		1.4	1.7	V
Reverse Current	$I_R$	$V_R=5\text{V}$			10	$\mu\text{A}$
Total Radiated Power	$P_O$	$I_F=50\text{mA}$	10.0	15.0		mW
Peak Wavelength	$\lambda_P$	$I_F=50\text{mA}$		890		nm
Half Width	$\Delta\lambda$	$I_F=50\text{mA}$		50		nm
Rise Time	$t_r$	$I_F=50\text{mA}$		800		ns
Fall Time	$t_f$	$I_F=50\text{mA}$		400		ns

**Characteristics of Radiant Intensity (Ta=25°C)**

Type	Viewing Half Angle	Radiant Intensity I <sub>F</sub> =50mA Unit : mW/sr			Outer Dimension	Dimension Figure
		Minimum	Typical	Maximum		
L890-01AU	±10°		70		Φ 5	1
L890-02AU	±7°		80		Φ 5	2
L890-03AU	±10°		70		Φ 5	3
L890-04AU	±20°		20		Φ 5	4
L890-05AU	±40°		7		Φ 5	5
L890-06AU	±7°		100		Φ 5	6
L890-09AU	±25°(Long) ±15°(Short)		50		Φ 5 Oval	7
L890-46AU					Φ 5	8
L890-41AU	±16°		45		Φ 4	9
L890-42AU	±23°		25		Φ 4	10
L890-31AU					Φ 3	11
L890-33AU	±18°		20		Φ 3	12
L890-34AU					Φ 3	13
L890-36AU	±33°		15		Φ 3	14

Total Radiant Power is measured by Photodyne #500  
 Brightness is measured by Tektronix J-16

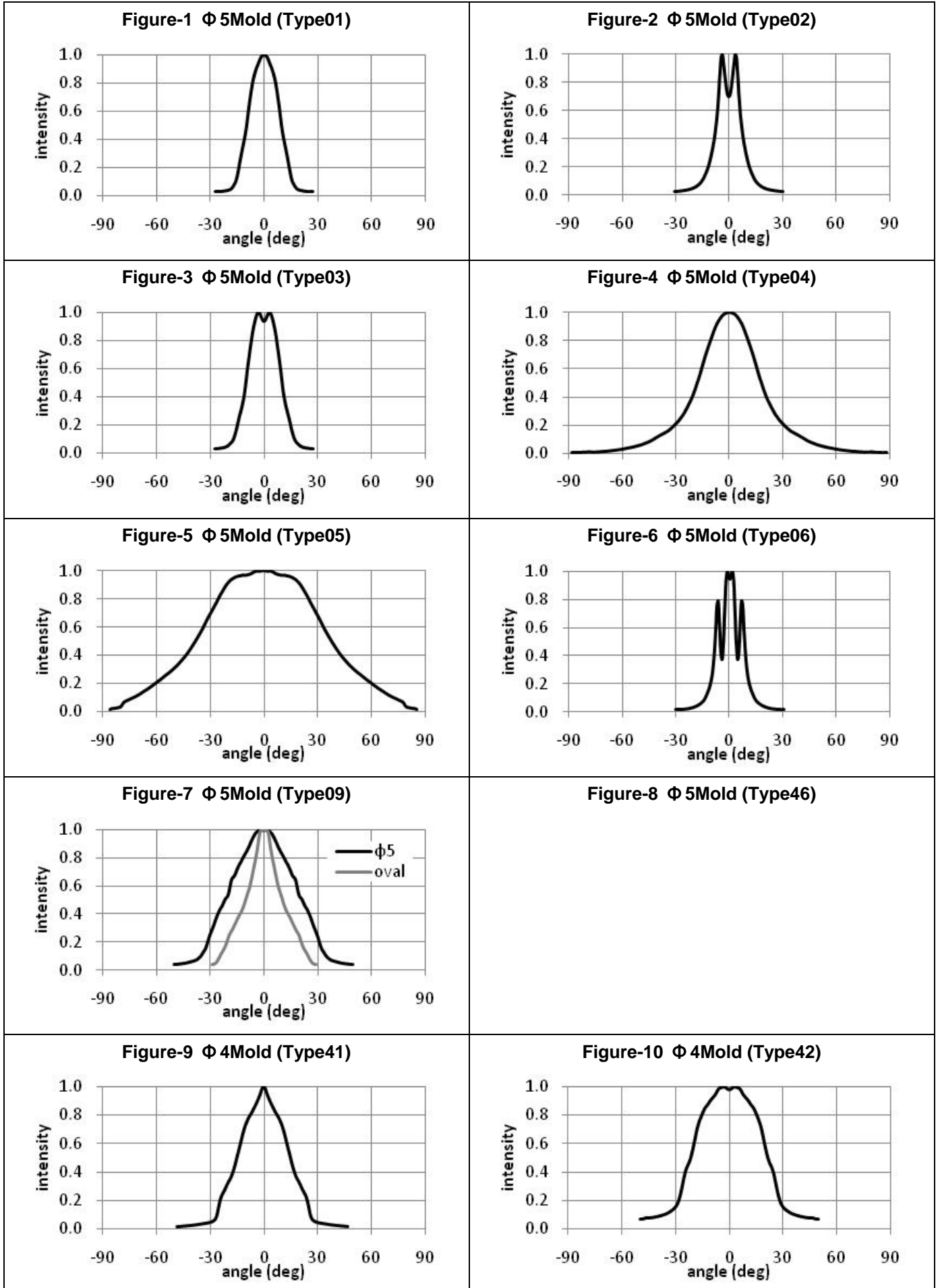
Outer Dimension of LED Lamp (1/2)

<p><b>Figure-1 <math>\Phi</math> 5Mold (Type01)</b></p> <p>cup position 4.7 1.5max</p> <p><math>\phi</math> 5.8<math>\pm</math>0.2 <math>\phi</math> 5<math>\pm</math>0.2</p> <p>9<math>\pm</math>0.2 21 min. Cathode 1 typ.</p> <p>1.0<math>\pm</math>0.2 Anode 2-0.5sq<math>\pm</math>0.1</p>	<p><b>Figure-2 <math>\Phi</math> 5Mold (Type02)</b></p> <p>cup position 5.32 1.5max</p> <p><math>\phi</math> 5.8<math>\pm</math>0.2 <math>\phi</math> 5.2<math>\pm</math>0.2</p> <p>8.5<math>\pm</math>0.2 21 min. Cathode 1 typ.</p> <p>1.0<math>\pm</math>0.2 Anode 2-0.5sq<math>\pm</math>0.1</p>
<p><b>Figure-3 <math>\Phi</math> 5Mold (Type03)</b></p> <p>cup position 4.55 1.5max</p> <p><math>\phi</math> 5.8<math>\pm</math>0.2 <math>\phi</math> 5<math>\pm</math>0.2</p> <p>8.25<math>\pm</math>0.2 21 min. Cathode 1 typ.</p> <p>1.0<math>\pm</math>0.2 Anode 2-0.5sq<math>\pm</math>0.1</p>	<p><b>Figure-4 <math>\Phi</math> 5Mold (Type04)</b></p> <p>cup position 3.55 1.5max</p> <p><math>\phi</math> 5.8<math>\pm</math>0.2 <math>\phi</math> 5<math>\pm</math>0.2</p> <p>7.7<math>\pm</math>0.2 21 min. Cathode 1 typ.</p> <p>1.0<math>\pm</math>0.2 Anode 2-0.5sq<math>\pm</math>0.1</p>
<p><b>Figure-5 <math>\Phi</math> 5Mold (Type05)</b></p> <p>cup position 0.55 1.5max</p> <p><math>\phi</math> 5.4<math>\pm</math>0.2 <math>\phi</math> 4.8<math>\pm</math>0.2</p> <p>3.35 21 min. Cathode 1 typ.</p> <p><math>\phi</math> 4.45<math>\pm</math>0.2 Anode 2-0.5sq<math>\pm</math>0.1</p> <p>1.0<math>\pm</math>0.2</p>	<p><b>Figure-6 <math>\Phi</math> 5Mold (Type06)</b></p> <p>cup position 5.6 1.5max</p> <p><math>\phi</math> 5.5<math>\pm</math>0.2</p> <p>8.7<math>\pm</math>0.2 21 min. Cathode 1 typ.</p> <p>Anode 2-0.5sq<math>\pm</math>0.1</p>
<p><b>Figure-7 <math>\Phi</math> 5Mold (Type09)</b></p> <p>cup position 4.1 1.5max</p> <p>4.7<math>\pm</math>0.2 7.7<math>\pm</math>0.2 21 min. Cathode 1 typ.</p> <p>5.5<math>\pm</math>0.2 Anode 2-0.5sq<math>\pm</math>0.1</p>	<p><b>Figure-8 <math>\Phi</math> 5Mold (Type46)</b></p> <p>1.5max</p> <p>5.8<math>\pm</math>0.2 4.8<math>\pm</math>0.2</p> <p>4.4<math>\pm</math>0.2 21 min. Cathode 1 typ.</p> <p>0.6 Anode 2-0.5sq<math>\pm</math>0.1</p>
<p><b>Figure-9 <math>\Phi</math> 4Mold (Type41)</b></p> <p>cup position 3.05 1max</p> <p><math>\phi</math> 4.7<math>\pm</math>0.2 <math>\phi</math> 3.9<math>\pm</math>0.2</p> <p>6.45<math>\pm</math>0.2 21 min. Cathode 1 typ.</p> <p>1.5<math>\pm</math>0.2 Anode 2-0.5sq<math>\pm</math>0.1</p>	<p><b>Figure-10 <math>\Phi</math> 4Mold (Type42)</b></p> <p>cup position 3.05 1max</p> <p><math>\phi</math> 4.7<math>\pm</math>0.2 <math>\phi</math> 3.9<math>\pm</math>0.2</p> <p>6.45<math>\pm</math>0.2 21 min. Cathode 1 typ.</p> <p>1.5<math>\pm</math>0.2 Anode 2-0.5sq<math>\pm</math>0.1</p>

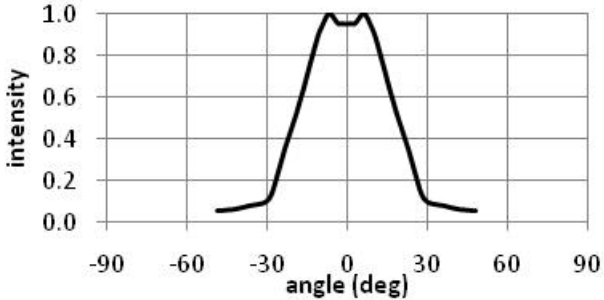
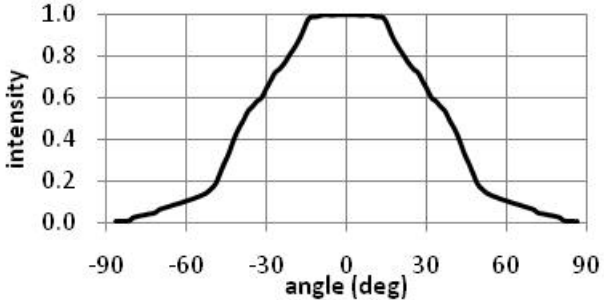
Outer Dimension of LED Lamp (2/2)

<p><b>Figure-11 <math>\Phi 3</math>Mold (Type31)</b></p> <p>cup position</p> <p>0.37 1max</p> <p><math>\phi 3.6 \pm 0.2</math></p> <p>3.5 <math>\pm 0.2</math> 21 min. Cathode 1 typ.</p> <p>1.5 typ. Anode 2-0.5sq <math>\pm 0.1</math></p>	<p><b>Figure-12 <math>\Phi 3</math>Mold (Type33)</b></p> <p>cup position</p> <p>2.65 1max</p> <p><math>\phi 3.8 \pm 0.2</math></p> <p><math>\phi 3 \pm 0.2</math> 5.3 21 min. Cathode 1 typ.</p> <p>0.8 typ. Anode 2-0.5sq <math>\pm 0.1</math></p>
<p><b>Figure-13 <math>\Phi 3</math>Mold (Type34)</b></p> <p>cup position</p> <p>3.25 1max</p> <p><math>\phi 3.8 \pm 0.2</math></p> <p><math>\phi 3 \pm 0.2</math> 5.3 <math>\pm 0.2</math> 21 min. Cathode 1 typ.</p> <p>1.5 typ. Anode 2-0.5sq <math>\pm 0.1</math></p>	<p><b>Figure-14 <math>\Phi 3</math>Mold (Type36)</b></p> <p>cup position</p> <p>2.1 1max</p> <p><math>\phi 4 \pm 0.2</math></p> <p><math>\phi 3 \pm 0.2</math> 5.3 <math>\pm 0.2</math> 21 min. Cathode 1 typ.</p> <p>2 <math>\pm 0.4</math> Anode 2-0.5sq <math>\pm 0.1</math></p>
<p><b>Figure-15</b></p>	<p><b>Figure-16</b></p>
<p><b>Figure-17</b></p>	<p><b>Figure-18</b></p>
<p><b>Figure-19</b></p>	<p><b>Figure-20</b></p>

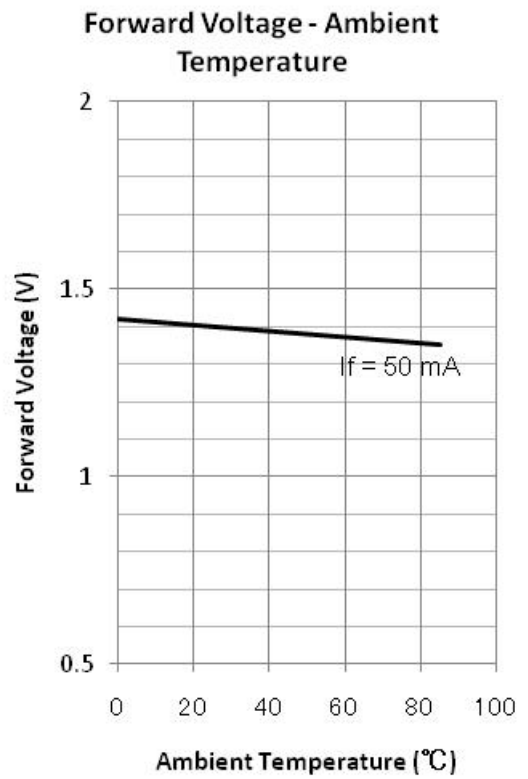
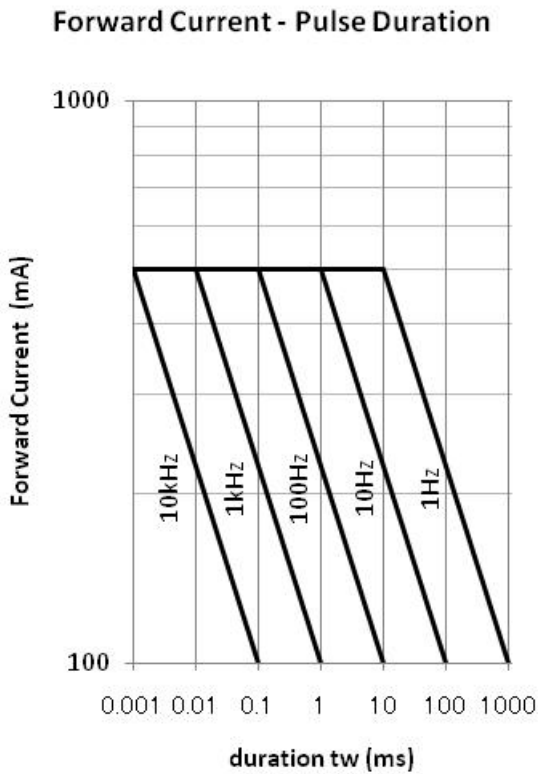
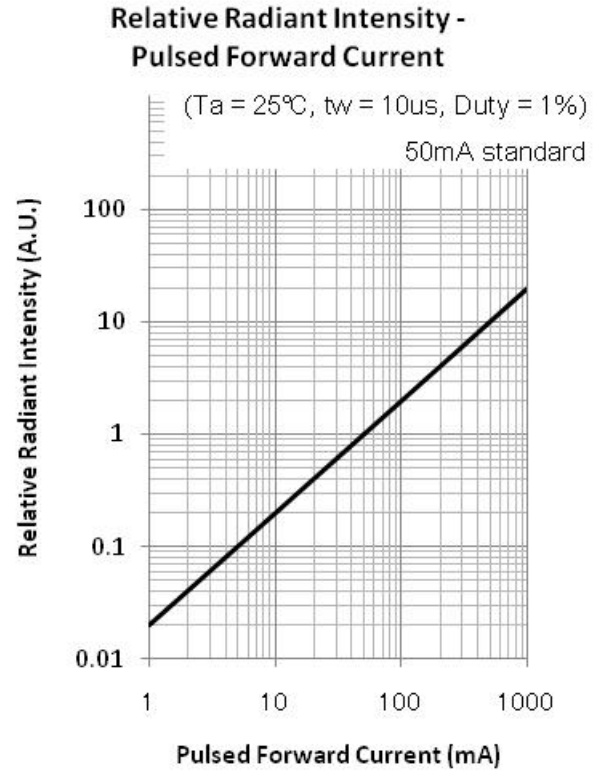
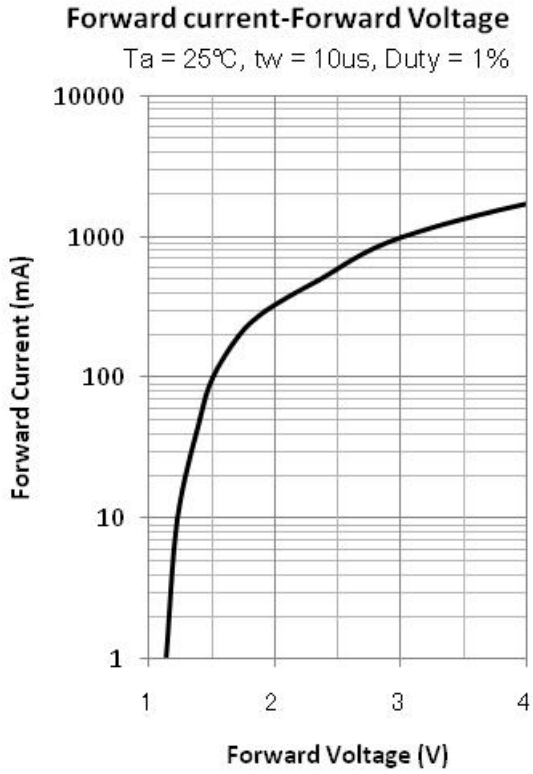
The Viewing half angle (1/2)



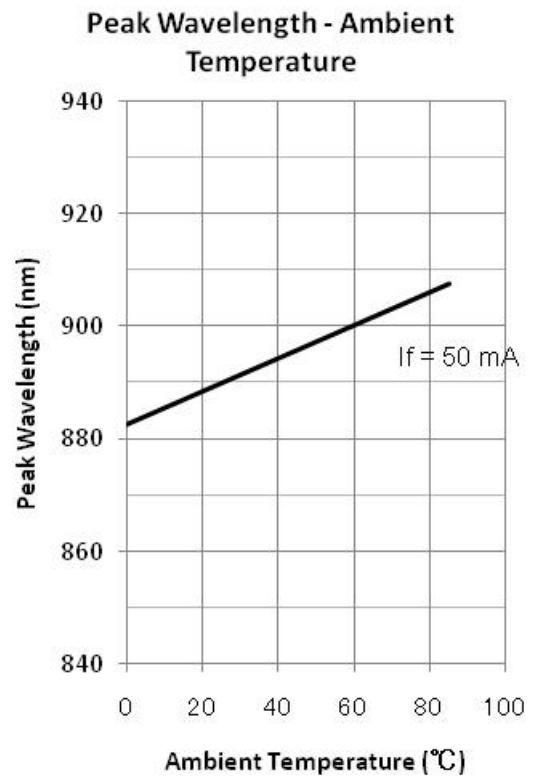
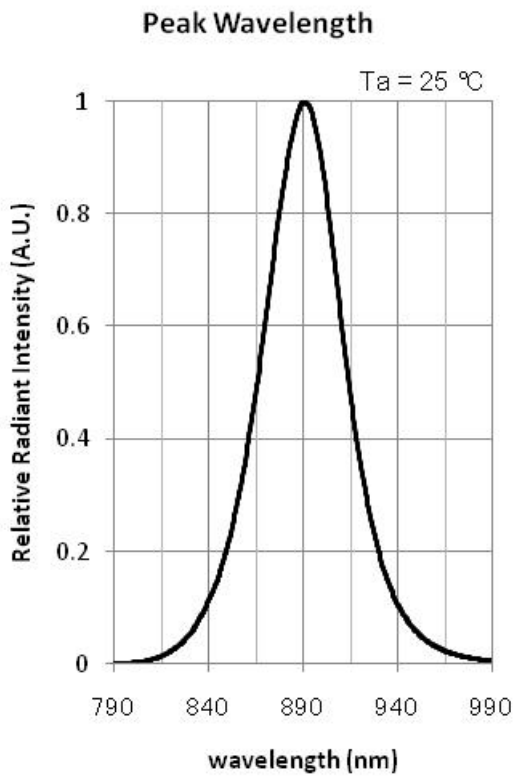
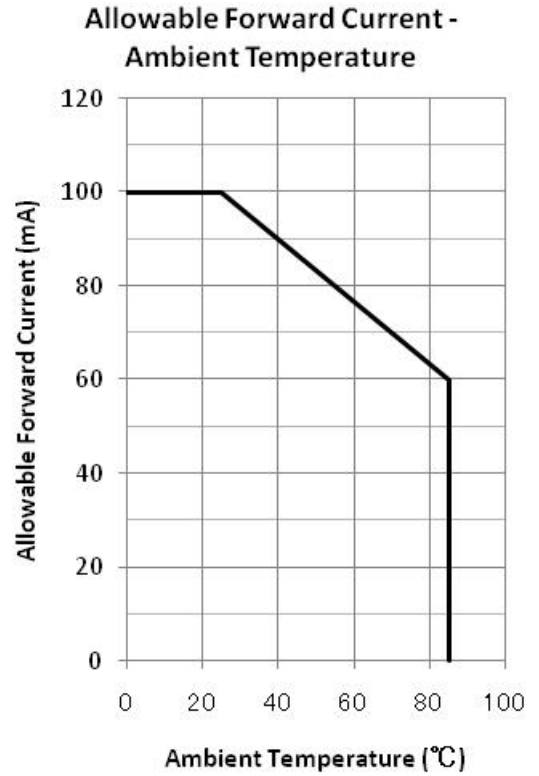
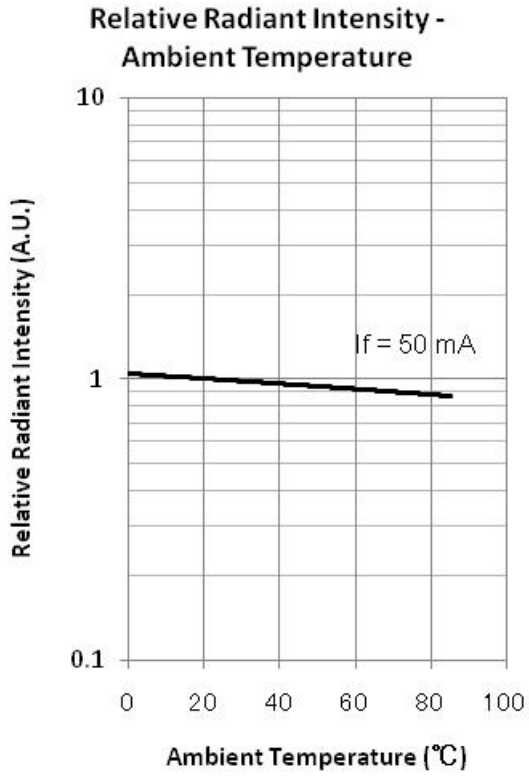
The Viewing half angle (2/2)

<p><b>Figure-11 <math>\Phi</math> 3Mold (Type31)</b></p>	<p><b>Figure-12 <math>\Phi</math> 3Mold (Type33)</b></p> 
<p><b>Figure-13 <math>\Phi</math> 3Mold (Type34)</b></p>	<p><b>Figure-14 <math>\Phi</math> 3Mold (Type36)</b></p> 
<p><b>Figure-15</b></p>	<p><b>Figure-16</b></p>
<p><b>Figure-17</b></p>	<p><b>Figure-18</b></p>
<p><b>Figure-19</b></p>	<p><b>Figure-20</b></p>

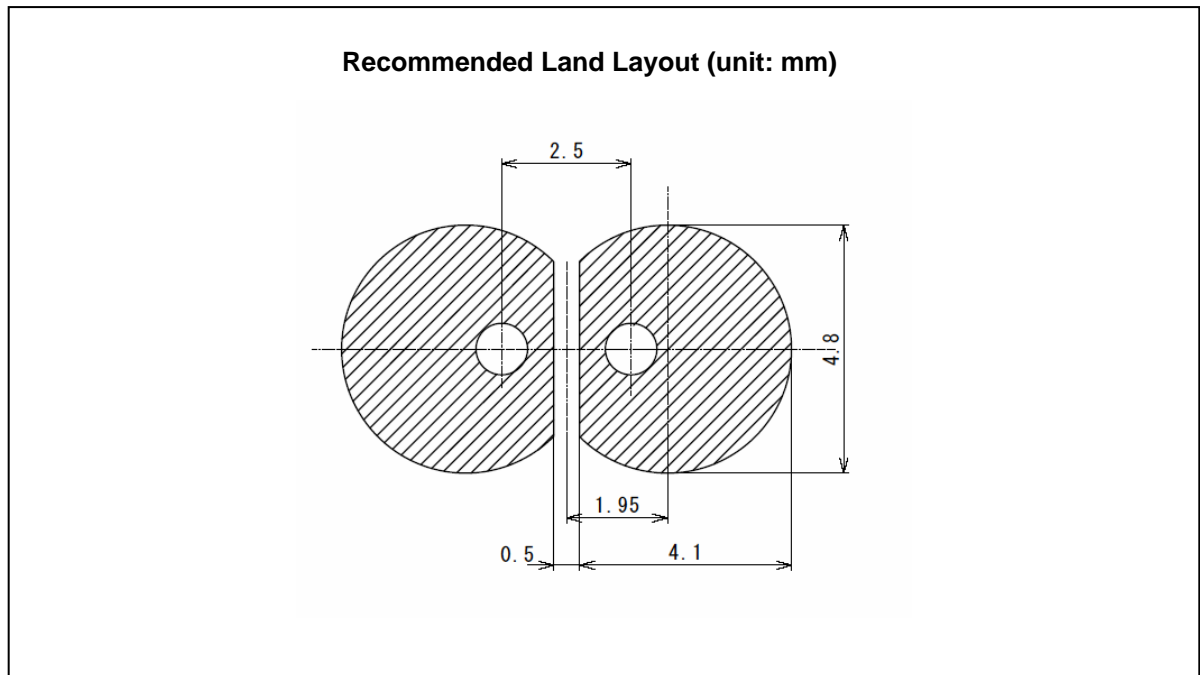
**L890 AU Series Operating Conditions (1/2)**



L890 AU Series Operating Conditions (2/2)



## Recommended Land Layout



## Soldering Conditions

