ROITHNER LASERTECHNIK GmbH
WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
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LED740-series

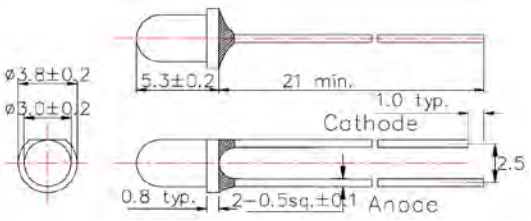
TECHNICAL DATA

Infrared LED, 5 mm package AlGaAs

LED740-series are AlGaAs LEDs mounted on a lead frame and encapsulated in various types of epoxy lens, which offers different design settings.
On forward bias, it emits a high power radiation of typical 18 mW at a peak wavelength at 740 nm.

Specifications

- Structure: AlGaAs
- Peak Wavelength: 740 nm
- Optical Output Power: 18 mW
- Package: Ø 5 mm clear molding
- Resin Material: clear epoxy resin
- Lead Frame: soldered



(Unit: mm)

Absolute Maximum Ratings (T_A=25°C)

Item	Symbol	Value	Unit
Power Dissipation	P_D	140	mW
Forward Current	I_F	75	mA
Pulse Forward Current *1	I_{FP}	500	mA
Reverse Voltage	V_R	5	V
Operating Temperature	T_{opr}	-30 … +85	°C
Storage Temperature	T_{stg}	-40 … +100	°C
Soldering Temperature *2	T_{sol}	240	°C

*1 duty = 1%, pulse width = 1 µs
*2 must be completed within 3 seconds at 260°C

Electro-Optical Characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Peak Wavelength	λ_P	I_F = 50 mA	-	740	-	nm
Half Width	$\Delta\lambda$	I_F = 50 mA	-	30	-	nm
Total Radiated Power *1	P_O	I_F = 50 mA	14	18	-	mW
Forward Voltage	V_F	I_F = 50 mA	-	1.8	2.2	V
Reverse Current	I_R	V_R = 5 V	-	-	10	µA
Rise Time	t_r	I_F = 50 mA	-	80	-	ns
Fall Time	t_f	I_F = 50 mA	-	80	-	ns

Note: The above specifications are for reference purpose only and subjected to change without prior notice.

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Electro-Optical Characteristics

Type	Viewing Half Angle	Radiant Intensity (I_F = 50mA) [Unit: mW/sr]			Outer Dimension	Dimension Figure
		Min.	Typ.	Max.		
LED740-01AU	±10°		90		Ø 5	1
LED740-02AU	±7°		120		Ø 5	2
LED740-03AU	±10°		90		Ø 5	3
LED740-04AU	±20°		40		Ø 5	4
LED740-05AU	±40°		10		Ø 5	5
LED740-06AU	±7°		90		Ø 5	6
LED740-09AU	±25° (long) ±15° (short)		70		Ø 5 Oval	7
LED740-46AU					Ø 5	8
LED740-41AU	±16°		70		Ø 4	9
LED740-42AU	±23°		55		Ø 4	10
LED740-31AU					Ø 3	11
LED740-33AU	±18°		40		Ø 3	12
LED740-34AU					Ø 3	13
LED740-36AU	±33°		20		Ø 3	14

* Radiant Intensity measured by Photodyne #500

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Electro-Optical Characteristics

Figure-1 Ø5 Mold (Type 01)	Figure-2 Ø5 Mold (Type 02)

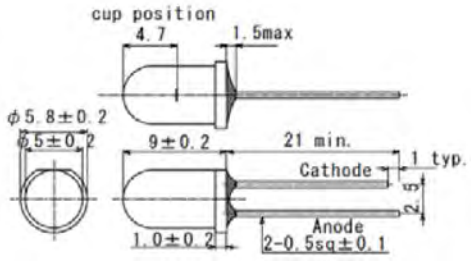
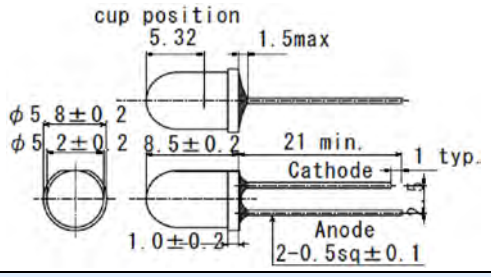

	

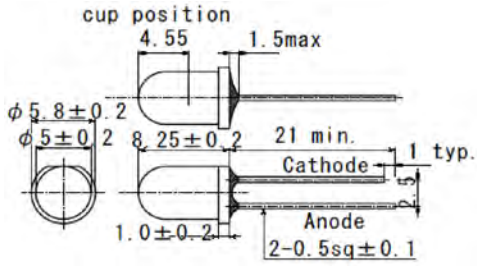
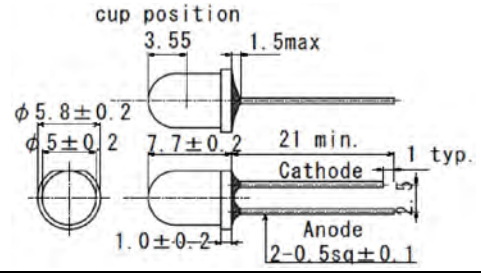
Figure-3 Ø5 Mold (Type 03)	**Figure-4 Ø5 Mold (Type 04)**
	

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Figure-5 Ø5 Mold (Type 05)	Figure-6 Ø5 Mold (Type 06)

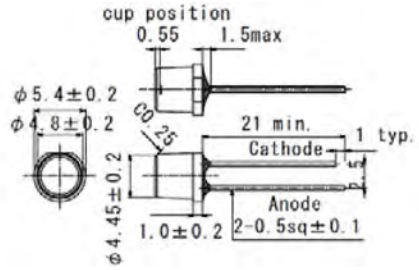
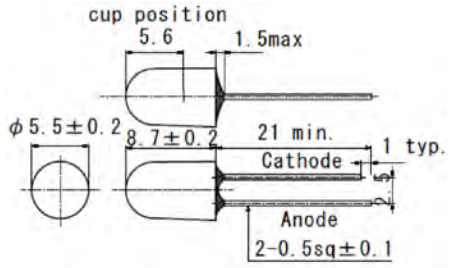

	

Figure-7 Ø5 Mold (Type 09)	**Figure-8 Ø5 Mold (Type 46)**

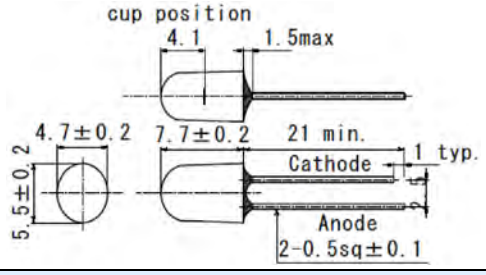
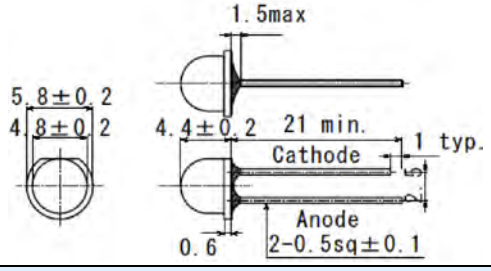

	

Figure-9 Ø4 Mold (Type 41)	**Figure-10 Ø4 Mold (Type 42)**

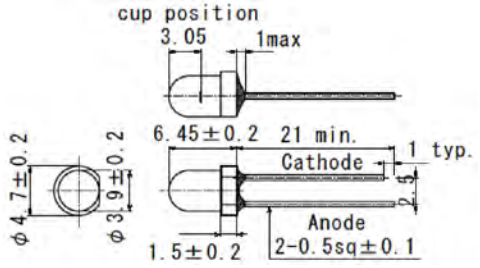
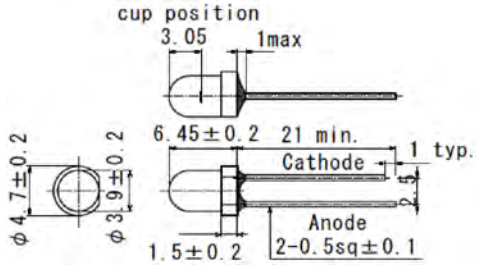

	

Figure-11 Ø3 Mold (Type 31)	**Figure-12 Ø3 Mold (Type 33)**

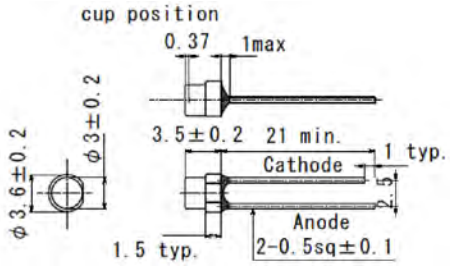
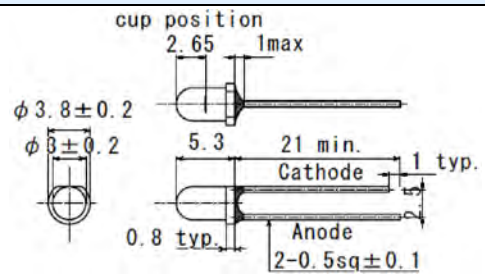
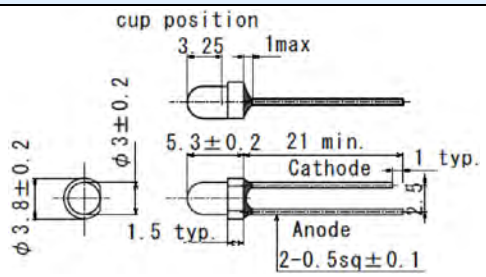
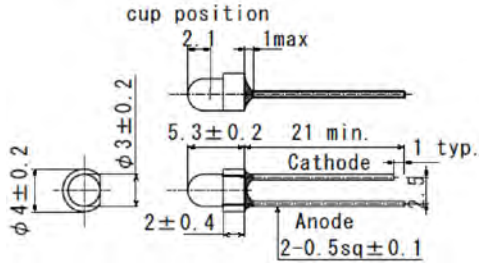

	

Figure-13 Ø3 Mold (Type 34)	**Figure-12 Ø3 Mold (Type 36)**
	

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Viewing Half Angle

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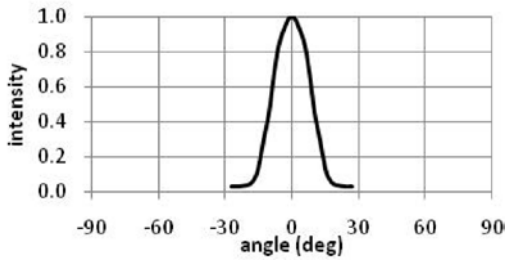	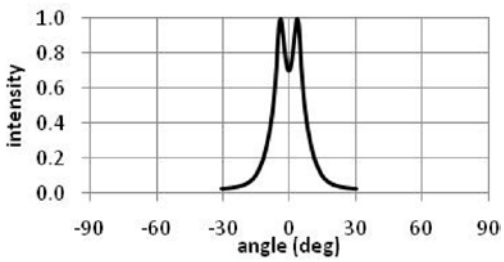
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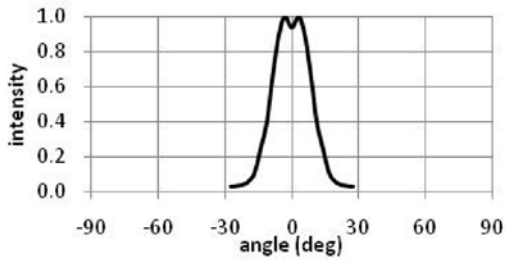	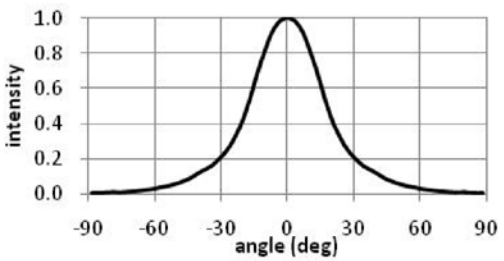
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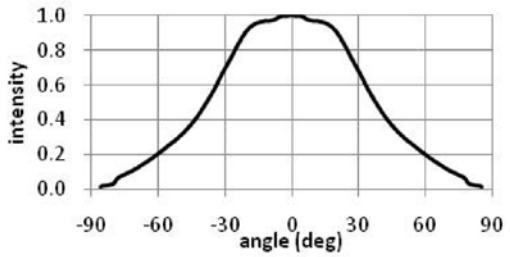	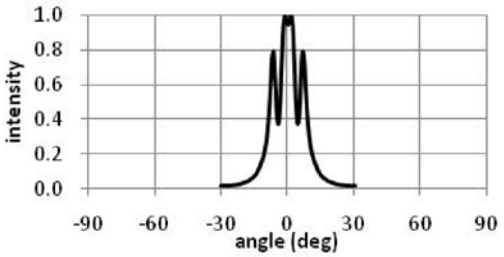
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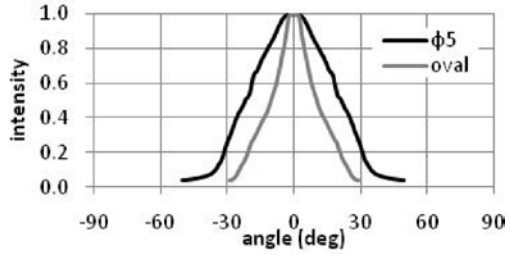	
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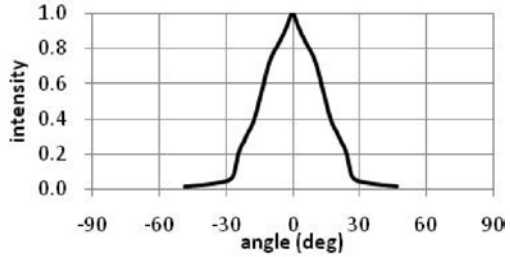	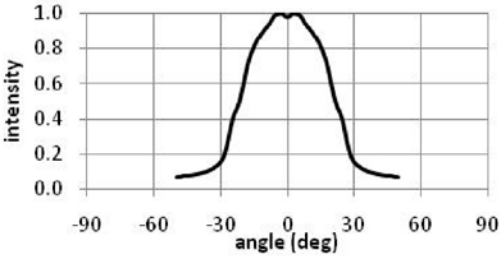

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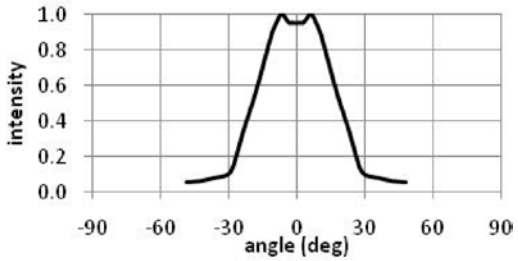
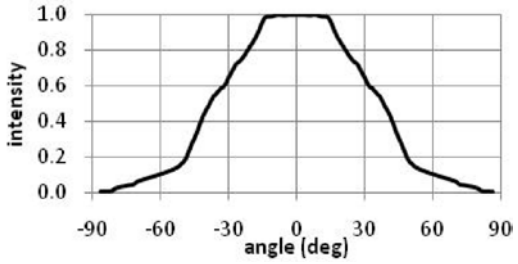
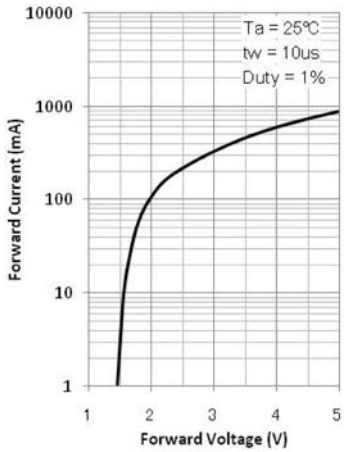
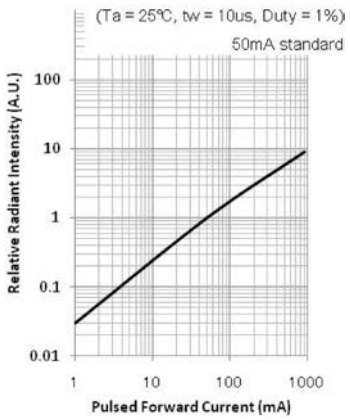
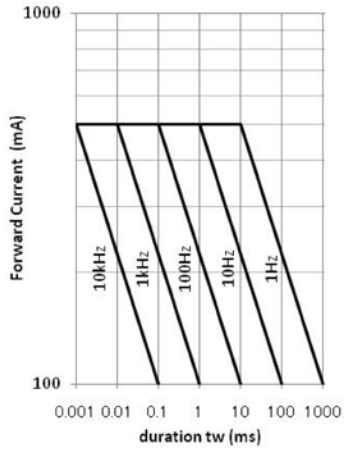
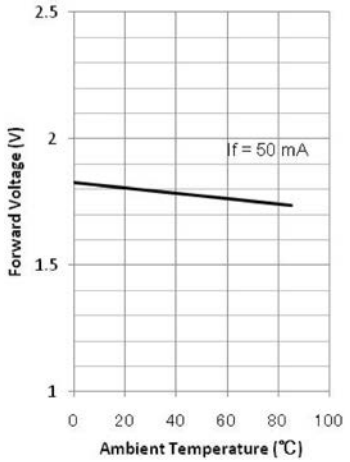
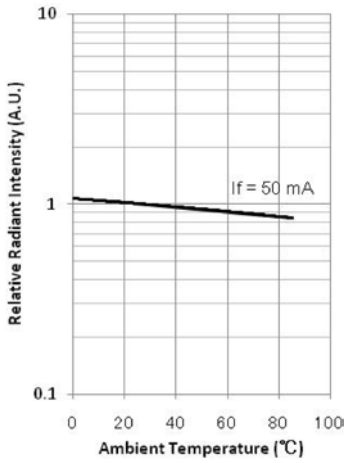
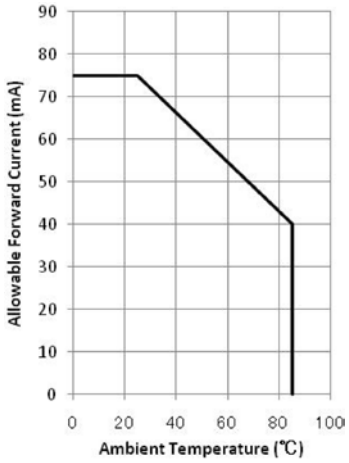
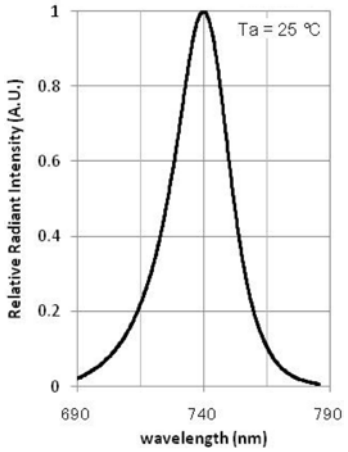
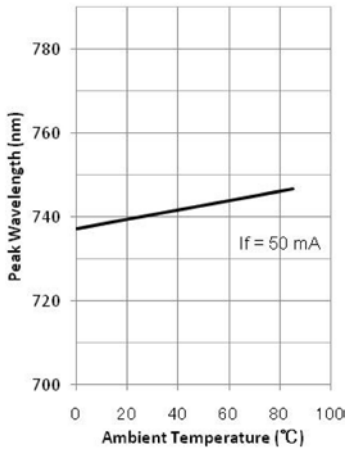
	
Figure-13 Ø3 Mold (Type 34)	**Figure-12 Ø3 Mold (Type 36)**
	

Typical Performance Curves

Forward Current – Forward Voltage	Relative Radiant Intensity – Pulse Forward Current
	
Forward Current – Pulse Duration	**Forward Voltage – Ambient Temperature**
	

Relative Radiant Intensity – Ambient Temperature	Allowable Forward Current – Ambient Temperature
	
Peak Wavelength	**Peak Wavelength – Ambient Temperature**
	

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Precaution for Use

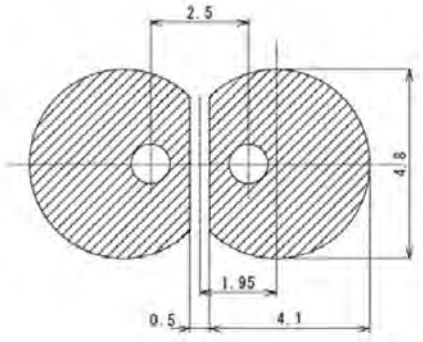
1. Cautions

- DO NOT look directly into the emitting area of the LED or through the optical system during operation! To prevent in adequate exposure of the radiation, wear protective glasses.
- This LED is emitting invisible light.

2. Lead Forming

- Lead forming should be done before soldering.
- When forming leads, the leads should be bent at a point at least 3 mm from the base of the lead. DO NOT use the base of the lead frame as a fulcrum during lead forming!
- DO NOT apply any bending stress to the base of the lead. The stress to the base may damage the LED's characteristics or it may break the LEDs.
- When mounted the LEDs onto the printed circuit board, the holes on the circuit board should be exactly aligned with the leads of LEDs. If the LEDs are mounted with stress at the leads, it causes deterioration of the lead and it will degrade the LEDs.

Recommended Land Layout

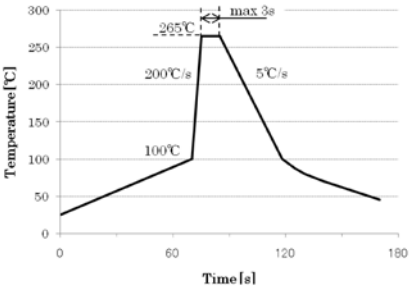


(Unit: mm)

3. Soldering Conditions

- Solder the LEDs no closer than 3 mm from the base of the lead.
- DO NOT apply any stress to the lead particularly when heat.
- After soldering the LEDs, the lead should be protected from mechanical shock or vibration until the LEDs return to room temperature.
- The LEDs must not be reposition after soldering.
- When it is necessary to clamp the LEDs to prevent soldering failure, it is important to minimize the mechanical stress on the LEDs.
- Cut the LED leads at room temperature. Cutting the leads at high temperature may cause the failure of the LEDs.

Soldering Conditions



4. Static Electricity

- The LEDs are very sensitive to Static Electricity and surge voltage. So it is recommended that a wrist band and/or an anti-electrostatic glove be used when handling the LEDs.
- All devices, equipment and machinery must be grounded properly. It is recommended that precautions should be taken against surge voltage to the equipment that mounts the LEDs.