

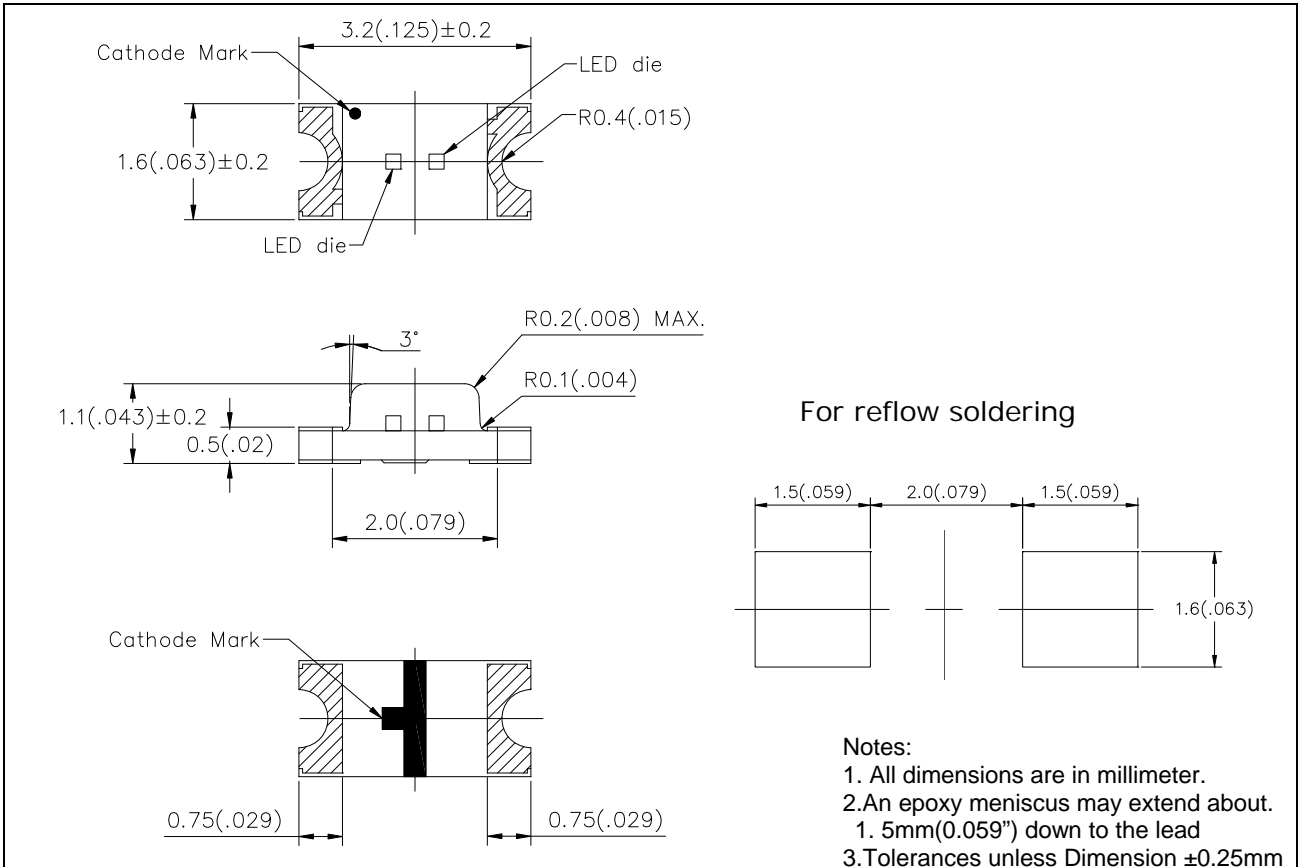
Part No. **AL-HD1X133**

Diff No.

3.2x1.6x1.1 mm

Type : SMD LED

**Package Dimension :**



■ **Features :**

- Choice of various viewing angles.
- Available on Tape and Reel.
- Reliable and robust.

■ **Descriptions :**

- The series is specially designed for application requiring higher brightness.
- The LED lamps are available with different colors, intensity, epoxy colors etc.

■ **Applications :**

- TV set
- Monitor
- Telephone

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PART NO.	Chip		Lens Color
	Material	Emitted Color	
AL-HD1X133	GaAlAs/GaAs	Super Red	Water Clear
	GaP/GaP	Hi-Eff Green	

■ Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Rating	Unit
Forward Current	I <sub>F</sub>	30	mA
Operating Temperature	T <sub>opr</sub>	-25 to +80	°C
Storage Temperature	T <sub>stg</sub>	-30 to +85	°C
Soldering Temperature	T <sub>sol</sub>	260 ± 5	°C
Power Dissipation	P <sub>D</sub>	R : 60	mW
		G : 100	
Peak Forward Current (Duty 1/10@1KHz)	I <sub>F</sub> (Peak)	100	mA
Reverse Voltage	V <sub>R</sub>	5	V

■ Electronic Optical Characteristics :

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>v</sub>	R	/	25	/	mcd I <sub>F</sub> =20mA
		G	/	12	/	
Viewing Angle	2θ <sub>1/2</sub>	/	120	/	deg	I <sub>F</sub> =20mA
Peak Wavelength	λ <sub>p</sub>	R	/	660	/	nm I <sub>F</sub> =20mA
		G	/	575	/	
Dominant Wavelength	λ <sub>d</sub>	R	/	643	/	nm I <sub>F</sub> =20mA
		G	/	570	/	
Spectrum Radiation Bandwidth	Δλ	R	/	20	/	nm I <sub>F</sub> =20mA
		G	/	30	/	
Forward Voltage	V <sub>F</sub>	R	/	2.0	2.6	V I <sub>F</sub> =20mA
		G	/	2.0	2.6	
Reverse Current	I <sub>R</sub>	/	/	100	μA	V <sub>R</sub> =5V

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■ Reliability test items and conditions :

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS-C-7021 :B-1	Connect with a power $I_f=20\text{mA}$ $T_a$ =Under room temperature Test time=1,000hrs	0/20
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS-C-7021 :B-11	$T_a=+65^\circ\text{C} \pm 5^\circ\text{C}$ RH=90%-95% Test time=240hrs	0/20
	High Temperature Storage	MIL-STD-883:1008 JIS-C-7021 :B-10	High $T_a=+85^\circ\text{C} \pm 5^\circ\text{C}$ Test time=1,000hrs	0/20
	Low Temperature Storage	JIS-C-7021 :B-12	Low $T_a=-35^\circ\text{C} \pm 5^\circ\text{C}$ Test time=1,000hrs	0/20
Environmental Test	Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS-C-7021 :A-4	$-35^\circ\text{C} \sim +25^\circ\text{C} \sim +85^\circ\text{C} \sim +25^\circ\text{C}$ 60min 20min 60min 20min Test Time=5cycle	0/20
	Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011	$-35^\circ\text{C} \pm 5^\circ\text{C} \sim +85^\circ\text{C} \pm 5^\circ\text{C}$ 20min 20min Test Time=10cycle	0/20
	Solder Resistance	MIL-STD-202:201A MIL-STD-750:2031 JIS-C-7021 :A-1	Preheating : 140°C -160°C, within 2 minutes. Operation heating : 260°C (Max.), within 10seconds. (Max.)	0/20

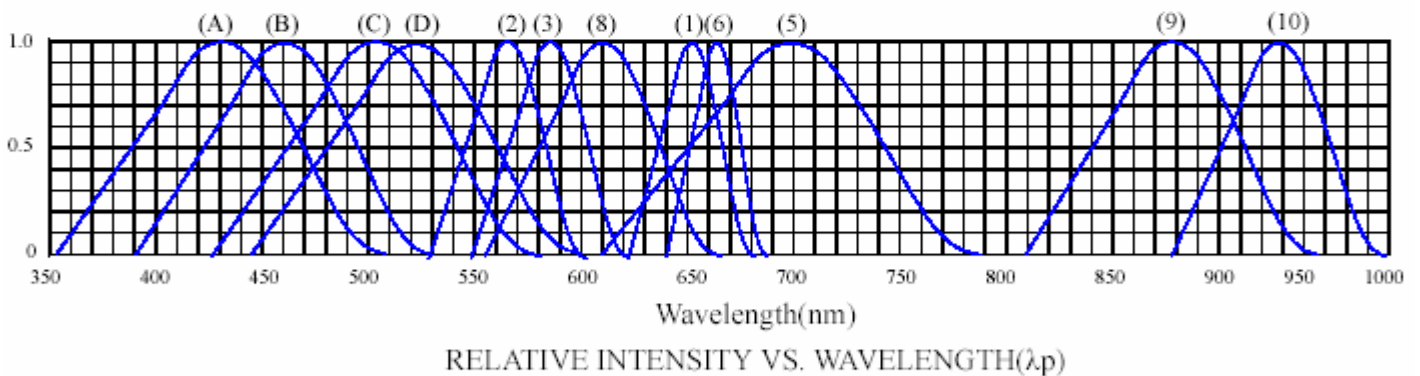
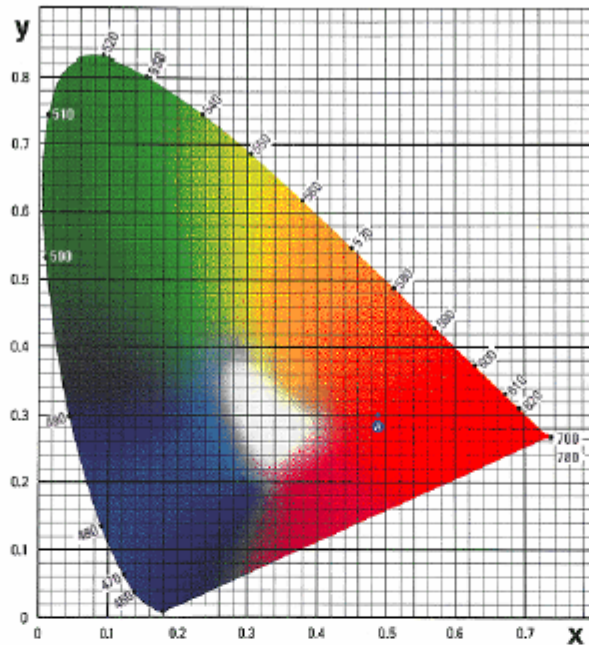
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◆ TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS CURVES



- (1) GaAsP/GaAs 655nm/Red
- (2) GaP 568nm/ Yellow Green
- (3) GaAsP/GaP 585nm/Yellow
- (4) GaAsP/GaP 635nm/Orange & Hi-Eff Red
- (5) GaP 700nm/Bright Red
- (6) GaAlAs/GaAs 660nm/Super Red
- (8) GaAsP/GaP 610nm/Super Red

- (9)- GaAlAs 880nm
- (10)-GaAs/GaAs&GaAlAs/GaAs 940nm
- (A)- GaN 430nm/Blue
- (B)- InGaN 470nm/Blue
- (C)- InGaN 502nm/Ultra Green
- (D)- InGaN 523nm/Ultra Green

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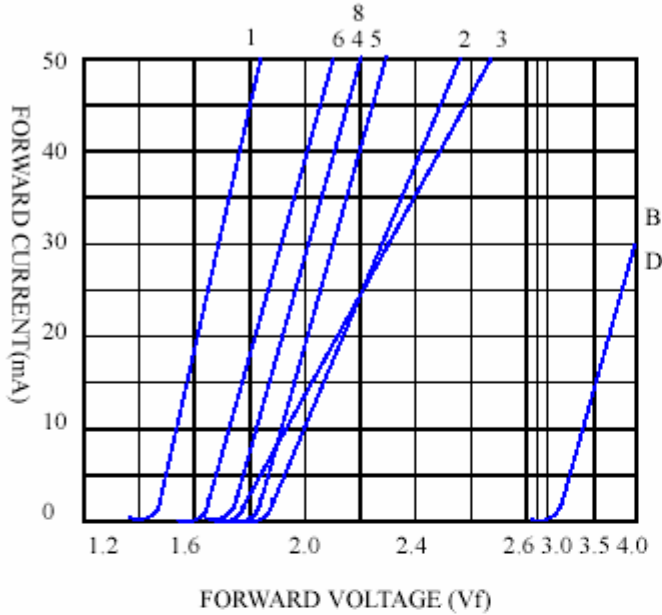
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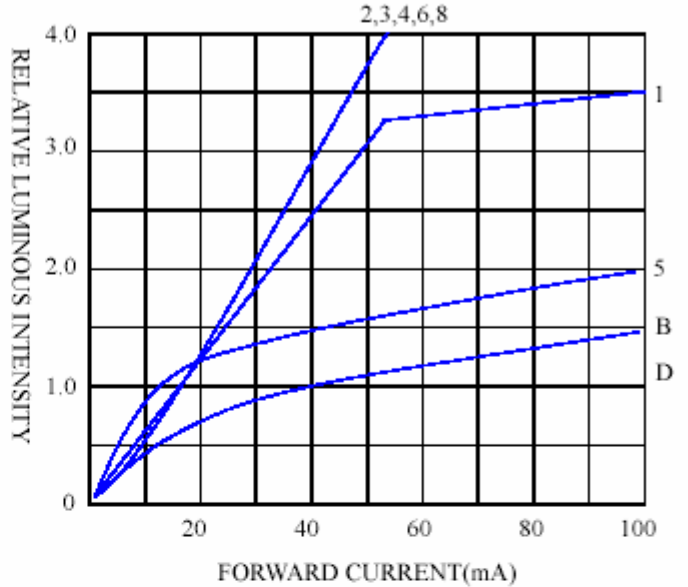
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◆ CHARACTERISTICS DIAGRAMS

FORWARD CURRENT VS. FORWARD VOLTAGE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT VS. AMBIENT TEMPERATURE

