Super Flux LEDS

LTL911QRKS / 912QRKS Super Red
LTL911QEKS / 912QEKS Red
LTL911QHKS / 912QHKS Red Orange
LTL911QYKS / 912QYKS Amber Yellow

Features

- High current operation / High flux output.
- Low thermal resistance / Low profile.
- Widely viewing angle.
- Meet SAE/ECE/JIS automotive color requirements.
- Tube package for automatic insertion requirement.

Description

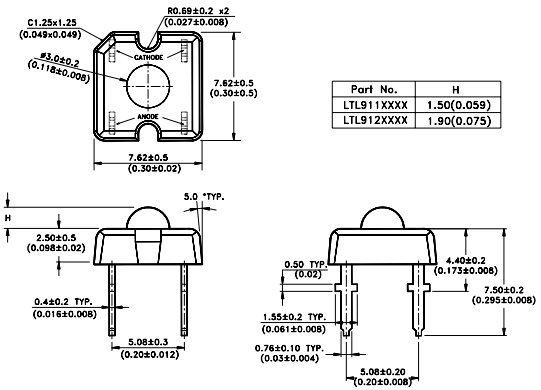
The source devices are made with AS AlInGaP Light Emitting Diode.

This package design allows the lighting designer to reduce the number of LEDs required and provide a more uniform and unique illuminated appearance. This is possible through the package's efficient optical design and high-current capabilities. The low profile package can be easily coupled to reflectors or lenses to efficiently distribute light and provide the desired illuminated appearance.

Application

- Automotive exterior lighting.
- Electronic sign and signals.

Package Dimensions



Part No.	H
LTL911XXXX	1.50(0.059)
LTL912XXXX	1.90(0.075)

Notes:
1. All dimensions are in millimeters (inches).
2. Protruded resin is 1.0mm (.04") max.
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to change without notice.

Devices

Part No. LTL	Lens	Source Color
911QRKS / 912QRKS	Water Clear	AlInGaP Super Red
911QEKS / 912QEKS	Water Clear	AlInGaP Red
911QHKS / 912QHKS	Water Clear	AlInGaP Red Orange
911QYKS / 912QYKS	Water Clear	AlInGaP Amber Yellow

Absolute Maximum Ratings at Ta=25℃

Parameter	Super Red	Red	Red Orange	Amber Yellow	Unit
Power Dissipation	190	190	190	190	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	160	160	160	160	mA
Continuous Forward Current	70	70	70	70	mA
Derating Linear From 70℃	1.17	1.17	1.17	1.17	mA/℃
Reverse Voltage (I_R=100 μA)	10	10	10	10	v
Operating Temperature Range	-40℃ to + 100℃				
Storage Temperature Range	-55℃ to + 100℃				
Soldering Preheat Temperature Lead Soldering Temperature	100℃ for 30 Seconds 260℃ for 5 Seconds [1.5mm(.06") From Seating Plane]				

Notes: Operation at currents below 10mA is not recommended.

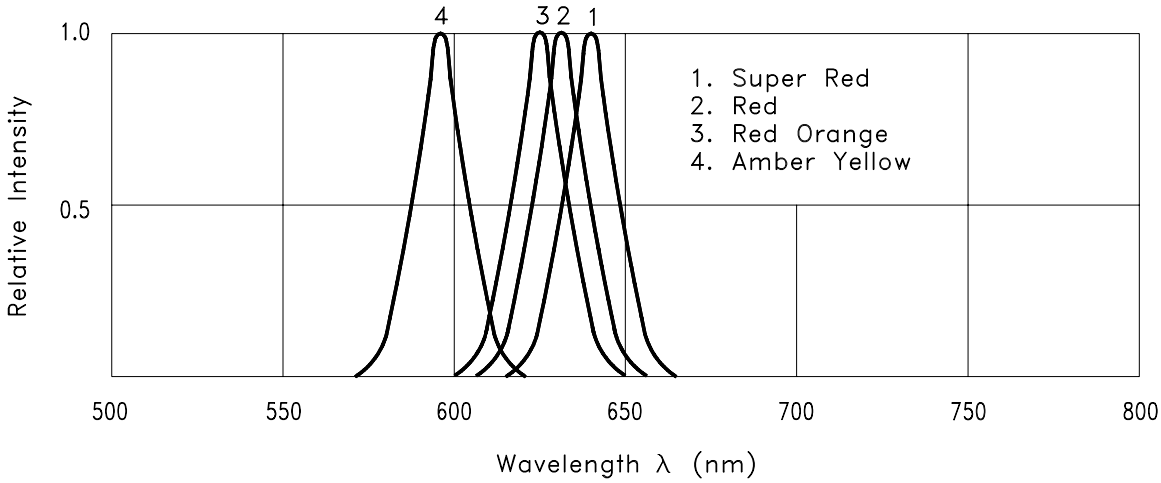


Fig.1 Relative Intensity vs. Wavelength

Electrical / Optical Characteristics and Curves at Ta= 25℃

Parameter	Symbol	Part No. LTL	Min.	Typ.	Max.	Unit	Test Condition
Total Flux	ϕ v	911QRKS	600	1350		mlm	IF=70mA Note 1
		911QEKS	600	1850			
		911QHKS	600	1850			
		911QYKS	600	1550			
		912QRKS	600	1350			
		912QEKS	600	1850			
		912QHKS	600	1850			
		912QYKS	600	1550			
Luminous Intensity / Total Flux	Iv / ϕ v	911QXKS		0.6		mcd / mlm	
		912QXKS		1.2			
Viewing Angle	$2\theta_{1/2}$	911QXKS		90		deg	Note 2 (fig.5)
		912QXKS		60			
Peak Emission wavelength	λ P	911QRKS		639		nm	Measurement @ peak (Fig.1)
		911QEKS		632			
		911QHKS		624			
		911QYKS		595			
		912QRKS		639			
		912QEKS		632			
		912QHKS		624			
		912QYKS		595			
Dominant Wavelength	λ d	911QRKS		631		nm	Note 3
		911QEKS		624			
		911QHKS		618			
		911QYKS		592			
		912QRKS		631			
		912QEKS		624			
		912QHKS		618			
		912QYKS		592			
Spectral Line Half-Width	$\triangle\lambda$	911QRKS		20		nm	
		911QEKS		20			
		911QHKS		18			
		911QYKS		15			
		912QRKS		20			
		912QEKS		20			
		912QHKS		18			
		912QYKS		15			
Forward Voltage	V_F		1.85	2.15	2.65	V	I_F=70mA
Reverse Voltage	V_R		10	20		V	I_R=100 μ A
Capacitance	C			40		pF	V_F=0, f=1MHz
Thermal resistance	R θ J-PIN			160		℃/W	

Notes:
1. ϕv is the total luminous flux output as measured with an integrating sphere.
2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3. The dominant wavelength, λd is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

Typical Electrical / Optical Characteristic Curves (25℃ Ambient Temperature Unless Otherwise Noted)

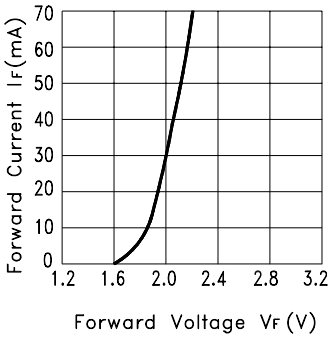


Fig.2 Forward Current vs. Forward Voltage

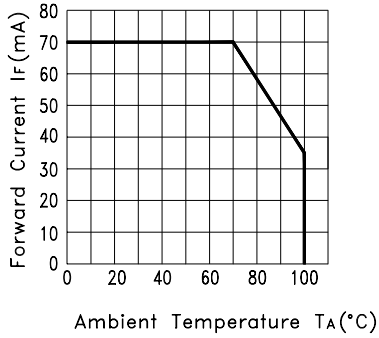


Fig.3 Forward Current Derating Curve

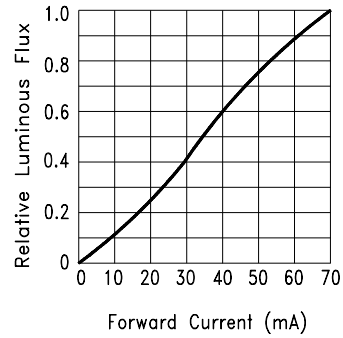


Fig.4 Relative Luminous Flux vs. Forward Current

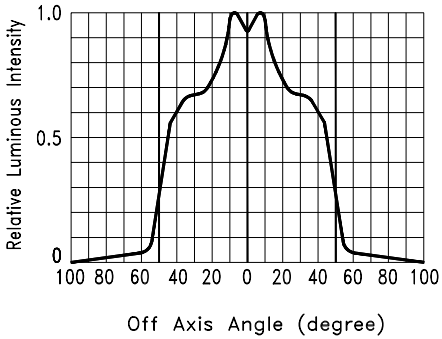


Fig.5-1 Relative Luminous Intensity vs. Off Axis Angle
LTL911XXXX

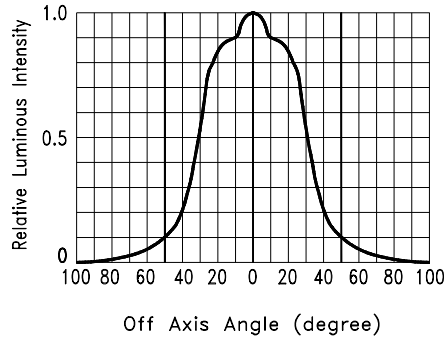


Fig.5-2 Relative Luminous Intensity vs. Off Axis Angle
LTL912XXXX

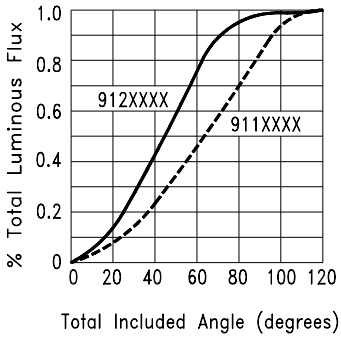


Fig.6 Percent Total Luminous Flux vs. Total Included Angle