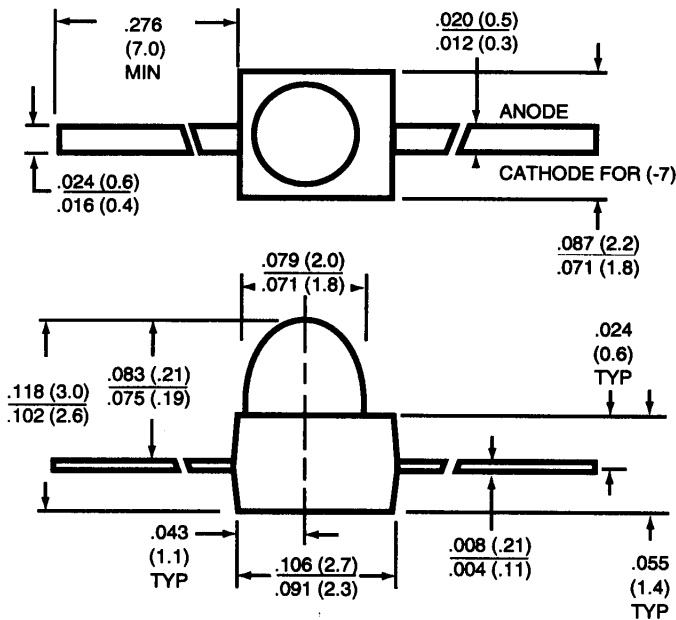




SUBMINIATURE T-3/4 (1.9 mm) SOLID STATE LAMPS

High Eff. Red	QTLP913-2	RED DIFFUSED	High Eff. Red	QTLP912-2	CLEAR
Yellow	QTLP913-3	YELLOW DIFFUSED	Yellow	QTLP912-3	CLEAR
Green	QTLP913-4	GREEN DIFFUSED	Green	QTLP912-4	CLEAR
AlGaAs Red	QTLP913-7	RED DIFFUSED	AlGaAs Red	QTLP912-7	CLEAR
AlGaAs Red	QTLP913-9	RED DIFFUSED	AlGaAs Red	QTLP912-9	CLEAR

PACKAGE DIMENSIONS



Note: All dimensions are in inches (mm).

DESCRIPTION

These subminiature LED lamps are intended for low cost status indication on PCBs, backlighting keyboards and switches. They are compatible with vapor phase reflow or wave solder surface mount equipment. Both clear and tinted diffused lenses, as well as a choice of "yoke", "Z-bend", or "gull-wing" lead bends are available.

FEATURES

- Subminiature package
- Low package profile
- Choice of clear or tinted diffused lens
- Three lead bend options
- Tape and reel option

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

	High Eff. Red QTLP913-2 QTLP912-2	Yellow QTLP913C-3 QTLP912C-3	Green QTLP913-4 QTLP912-4	AlGaAs Red QTLP913C-7,9 QTLP912C-7,9	Unit
DC Forward Current (I _F)	30	20	30	40	mA
Peak Forward Current (I _F) @ f = 1.0 KHz, Duty factor = 1/10	160	160	160	200	mA
Power Dissipation (P _d)	100	85	100	100	mW
Reversed Voltage (V _R) I _R = 10μA	5	5	5	5	V
Operating Temperature Range	-40°C to +85°C				
Storage Temperature Range	-40°C to +100°C				
Lead Soldering Time	5 secs @ 260°C for wave solder; 10 secs @ 260°C for IR reflow				



SUBMINIATURE T-3/4 (1.9 mm) SOLID STATE LAMPS

ELECTRO-OPTICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Part Number: QTLP	High Eff. Red 912-2	Yellow 912-3	Green 912-4	AlGaAs Red 912-7,9	Test Condition
Luminous Intensity (mcd)					I _F = 20 mA
Minimum	40	15	30	110	
Typical	80	30	50	170	
Forward Voltage (V_F)					I _F = 20 mA
Minimum	1.7	1.7	1.7	1.7	
Typical	2.0	2.0	2.1	2.0	
Maximum	2.8	2.8	2.8	2.8	
Peak Wavelength (nm)	635	585	565	660	I _F = 20 mA
Spectral Line Half Width (nm)	45	35	30	20	I _F = 20 mA
Viewing Angle (degrees)	25	25	25	25	I _F = 20 mA

Part Number: QTLP	High Eff. Red 913-2	Yellow 913-3	Green 913-4	AlGaAs Red 913-7,9	Test Condition
Luminous Intensity (mcd)					I _F = 20 mA
Minimum	10	10	2	70	
Typical	15	15	5	110	
Forward Voltage (V_F)					I _F = 20 mA
Minimum	1.7	1.7	1.7	1.7	
Typical	2.0	2.0	2.1	2.0	
Maximum	2.8	2.8	2.8	2.8	
Peak Wavelength (nm)	635	585	565	660	I _F = 20 mA
Spectral Line Half Width (nm)	45	35	30	20	I _F = 20 mA
Viewing Angle (degrees)	50	50	50	50	I _F = 20 mA

TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES ($T_A = 25^\circ\text{C}$)

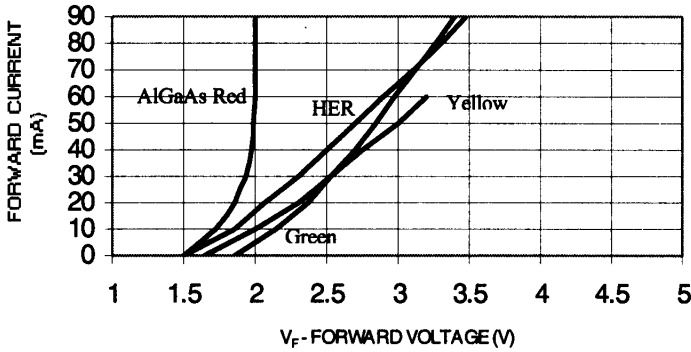


Fig 1. Forward Current vs. Forward Voltage

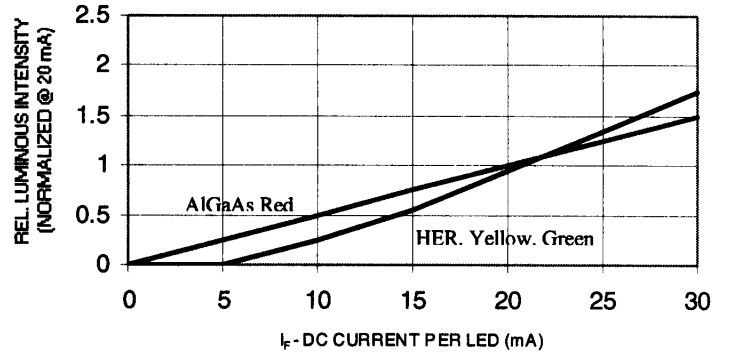


Fig 2. Forward Current vs. Forward Voltage

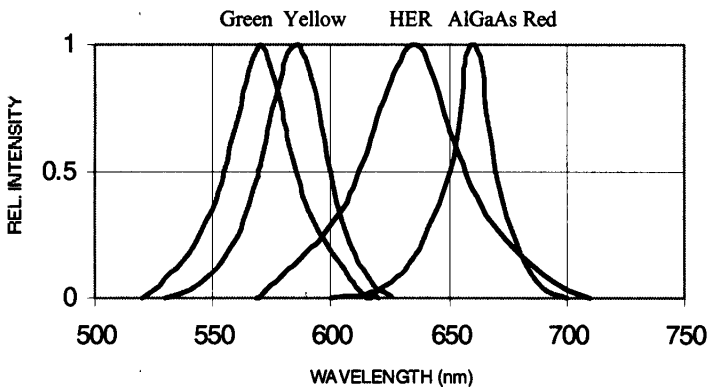


Fig 3. Relative Intensity vs. Wavelength

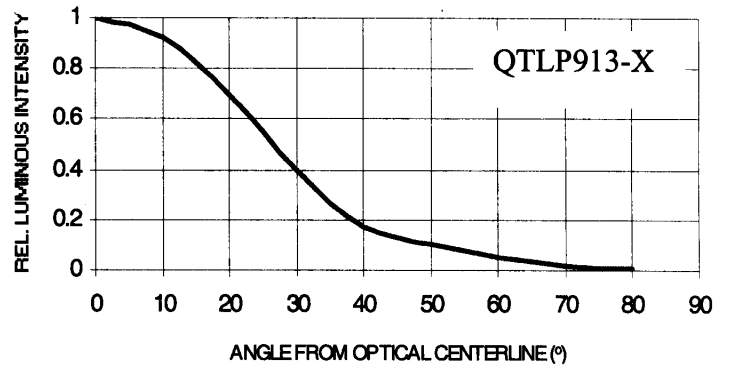


Fig 4. Relative Intensity vs. Angular Displacement

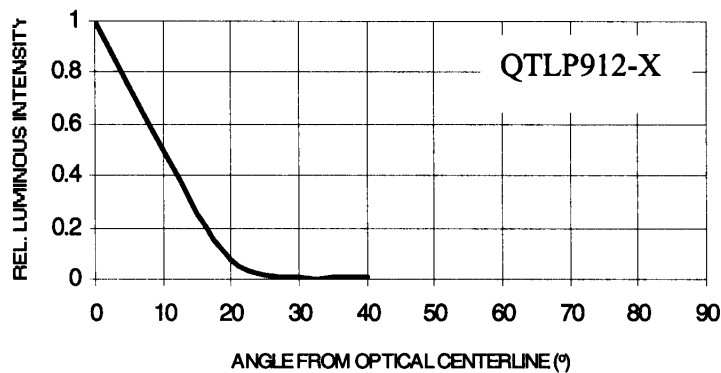


Fig 5. Relative Intensity vs. Angular Displacement