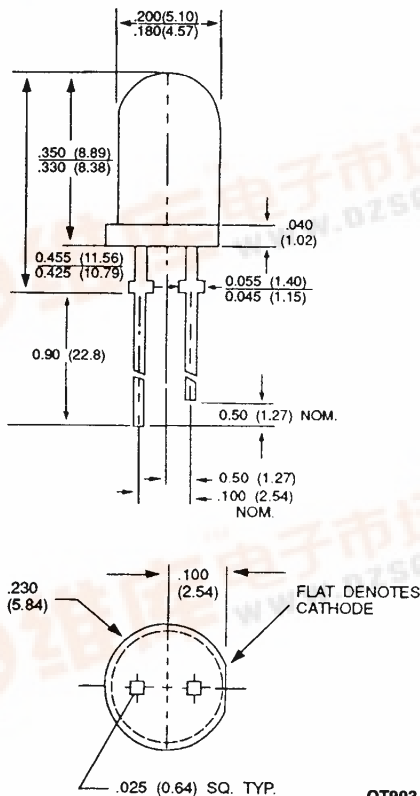




INTEGRATED T-1 3/4 RESISTOR LAMPS 5 VOLT and 12 VOLT SERIES

RED MR3050/MR3051 TINTED
HIGH EFFICIENCY RED MR3750/MR3751 TINTED
YELLOW MR3350/MR3351 TINTED
HIGH EFFICIENCY GREEN MR3450/MR3451 TINTED

PACKAGE DIMENSIONS



QT903

DESCRIPTION

This group of T-1 3/4 size LED lamps contain integral resistors. Operation at 5 volts (MR3X50 Part Nos.) or 12 volts (MR3X51 Part Nos.) is possible without the use of external current limiting resistors. Color tinted, diffused epoxy packages are used for all the lamps in this group.

FEATURES

- Integral Current Limiting Resistor (No external resistor required)
- TTL Compatible
- Operate with 5 Volt & 12 Volt Supplies
- All Colors - Red, HER, Yellow, Green
- Wide Viewing Angle
- Solid-State Reliability

NOTES:

1. ALL TOLERANCES, UNLESS OTHERWISE SPECIFIED: .XXX ± 010
2. ALL DIMENSIONS IN INCHES (MILLIMETERS)

PHYSICAL CHARACTERISTICS

TYPE	SOURCE COLOR	LENS COLOR
MR3050	Red	Red Diffused
MR3051	Red	Red Diffused
MR3750	High Efficiency Red	Red Diffused
MR3751	High Efficiency Red	Red Diffused
MR3350	Yellow	Yellow Diffused
MR3351	Yellow	Yellow Diffused
MR3450	High Efficiency Green	Green Diffused
MR3451	High Efficiency Green	Green Diffused



INTEGRATED T-1 3/4 RESISTOR LAMPS 5 VOLT and 12 VOLT SERIES

ELECTRO-OPTICAL CHARACTERISTICS (TA = 25°C Unless Otherwise Specified)														
		RED				HIGH EFFICIENCY RED				UNITS		TEST CONDITION		
PARAMETER	SYMBOL	MR3050			MR3051			MR3750			MR3751			
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
Luminous Intensity	I _v				1.0	2.0					1.5	4.0	mcd	V _F = 12 V
Luminous Intensity	I _v	1.0	2.0					1.5	4.0				mcd	V _F = 5 V
Total Viewing Angle	2θ1/2		60			60			60			60	Deg	
Peak Wavelength	λp		655			655			635			635	nm	
Spectral Line Halfwidth	Δ λ1/2		24			24			40			40	nm	
Forward Current 12V Devices	I _F										13	20	mA	V _F = 12 V
Forward Current 5V Devices	I _F		13	20		13	20		10	15			mA	V _F = 5 V
Reverse Breakdown Voltage	V _R	5.0			5.0			5.0			5.0			I _R = 100μA

ELECTRO-OPTICAL CHARACTERISTICS (TA = 25°C Unless Otherwise Specified)													
YELLOW						HIGH EFFICIENCY GREEN				UNITS		TEST CONDITION	
PARAMETER	SYMBOL	MR3350		MR3351		MR3450		MR3451					
		MIN.	TYP. MAX	MIN.	TYP. MAX.	MIN.	TYP. MAX.	MIN.	TYP. MAX.				
Luminous Intensity	I _v			1.5	4.0				1.5	4.0	mcd	V _F = 12 V	
Luminous Intensity	I _v	1.5	4.0					1.5	4.0		mcd	V _F = 5 V	
Total Viewing Angle	2θ1/2		60		60		60		60		Deg		
Peak Wavelength	λp		583		583		565		565		nm		
Spectral Line Halfwidth	Δ λ 1/2		36		36		28		28		nm		
Forward Current 12V Devices	I _F				13	20				13	20	mA	V _F = 12 V
Forward Current 5V Devices	I _F		10	15				12	15			mA	V _F = 5 V
Reverse Breakdown Voltage	V _R	5.0			5.0		5.0		5.0				I _R = 100μA

ABSOLUTE MAXIMUM RATINGS (TA = 25°C Unless Otherwise Specified)				
	RED/HER/YELLOW 5 VOLT LAMPS	RED/HER/YELLOW 12 VOLT LAMPS	GREEN 5 VOLT LAMPS	GREEN 12 VOLT LAMPS
DC Forward Voltage (T _A =25°C)	7.5 Volts	15 Volts	7.5 Volts	15 Volts
Reverse Voltage (I _r =100 μA)	5 Volts	5 Volts	5 Volts	5 Volts
Operating Temperature Range	-40°C to +85°C	-40°C to +85°C	-20°C to +85°C	-20°C to +85°C
Storage Temperature Range	-55°C to +100°C	-55°C to +100°C	-55°C to +100°C	-55°C to +100°C
Lead Soldering Temperature	260°C for 5 seconds			



INTEGRATED T-1 3/4 RESISTOR LAMPS 5 VOLT and 12 VOLT SERIES

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

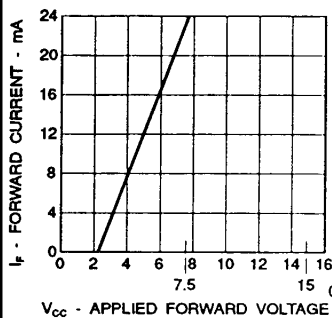


Fig. 1. Forward Current vs. Applied Forward Voltage 5 Volt Devices

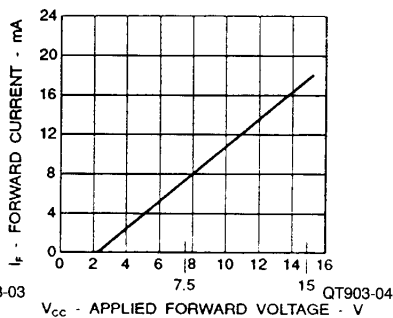


Fig. 2. Forward Current vs. Applied Forward Voltage 12 Volt Devices

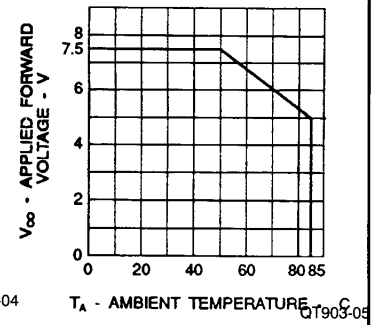


Fig. 3. Maximum Allowed Applied Forward Voltage vs. Ambient Temperature $R_{\theta JA} = 175^\circ\text{C/W}$ 5 Volt Devices

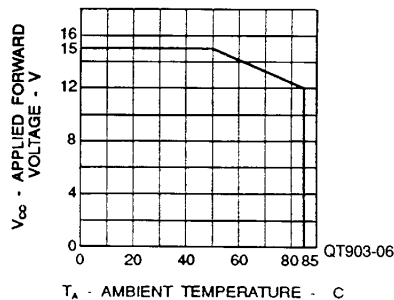


Fig. 4. Maximum Allowed Applied Forward Voltage vs. Ambient Temperature $R_{\theta JA} = 175^\circ\text{C/W}$ 12 Volt Devices

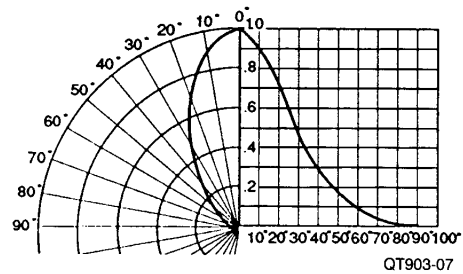


Fig. 5. Relative Luminous Intensity vs. Angular Displacement for T-1 3/4 Package

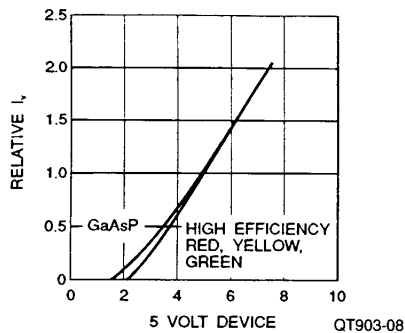


Fig. 6. Relative Luminous Intensity vs. Applied Forward Voltage 5 Volt Devices

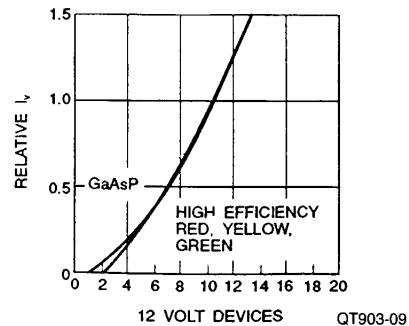


Fig. 7. Relative Luminous Intensity vs. Applied Forward Voltage 12 Volt Devices