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MR5360

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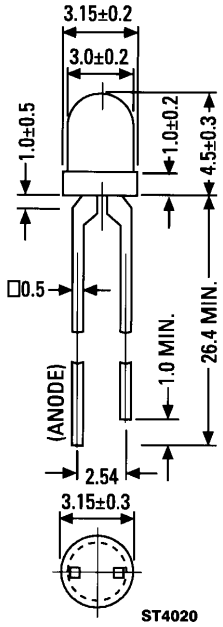
FAIRCHILD
SEMICONDUCTOR™

INTEGRATED T-1 RESISTOR LAMPS
5 VOLT and 12 VOLT SERIES

RED MR5060 TINTED/MR5660 UNTINTED
HIGH EFFICIENCY RED MR5760/MR5761 TINTED
YELLOW MR5360/MR5361 TINTED
HIGH EFFICIENCY GREEN MR5460/MR5461 TINTED

PACKAGE DIMENSIONS



NOTES:
1. ALL DIMENSIONS ARE IN MM.
2. LEAD SPACING IS MEASURED WHERE THE LEADS EMERGE FROM THE PACKAGE.
3. PROTRUDED RESIN UNDER THE FLANGE IS 1.5 mm (0.059") MAX.

DESCRIPTION

This group of T-1 size LED lamps contain integral resistors. Operation at 5 volts (MR5X60 Part Nos.) or 12 volts (MR5X61 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; with the exception of the MR5660, which is no tint - but diffused.

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

PHYSICAL CHARACTERISTICS

TYPE	SOURCE COLOR	LENS COLOR
MR5060	Red	Red Diffused
MR5660	Red	Clear Diffused
MR5760	High Efficiency Red	Red Diffused
MR5761	High Efficiency Red	Red Diffused
MR5360	Yellow	Yellow Diffused
MR5361	Yellow	Yellow Diffused
MR5460	High Efficiency Green	Green Diffused
MR5461	High Efficiency Green	Green Diffused

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ELECTRO-OPTICAL CHARACTERISTICS (TA = 25°C Unless Otherwise Specified)

		RED						HIGH EFFICIENCY RED						UNITS	TEST CONDITION
PARAMETER	SYMBOL	MR5060			MR5660			MR5760			MR5761				
		MIN.	TYP.	MAX	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Luminous Intensity	I_V										1.5	4.0		mcd	V_F=12 V
Luminous Intensity	I_V	0.8	1.5		0.8	1.5		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	MR5360			MR5361			MR5460			MR5461				
		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 λ1/2		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			

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5 VOLT and 12 VOLT SERIES

TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES
(TA = 25°C Unless Otherwise Specified)

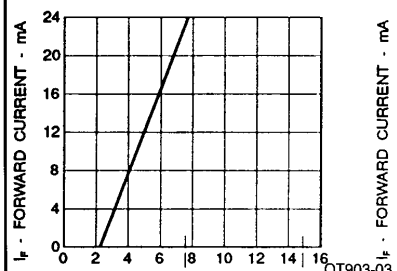

Fig. 1. Forward Current vs. Applied Forward Voltage 5 Volt Devices

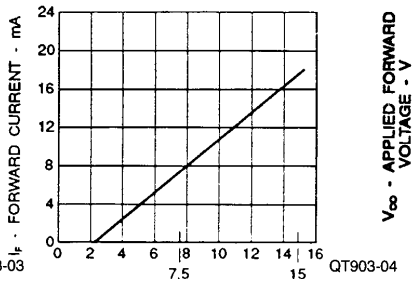

Fig. 2. Forward Current vs. Applied Forward Voltage 12 Volt Devices

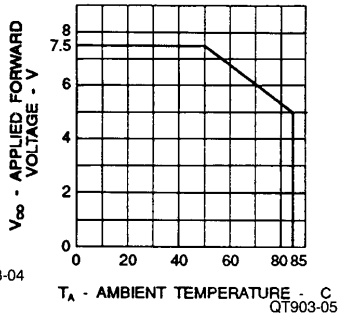

Fig. 3. Maximum Allowed Applied Forward Voltage vs. Ambient Temperature $R\theta_{JA}$=175°C/W 5 Volt Devices

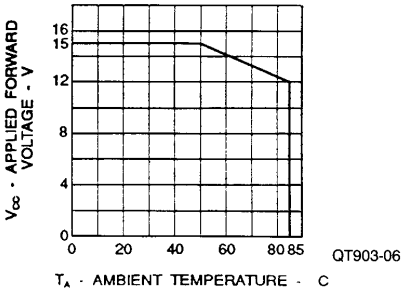

Fig. 4. Maximum Allowed Applied Forward Voltage vs. Ambient Temperature $R\theta_{JA}$=175°C/W 12 Volt Devices

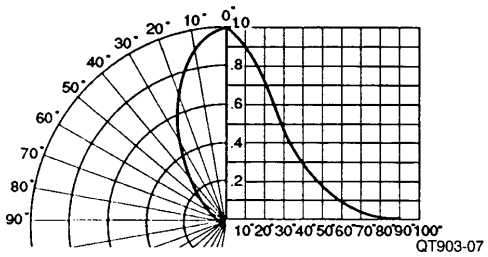

Fig. 5. Relative Luminous Intensity vs. Angular Displacement for T-1 Package

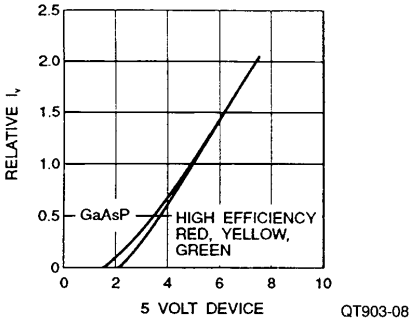

Fig. 6. Relative Luminous Intensity vs. Applied Forward Voltage 5 Volt Devices

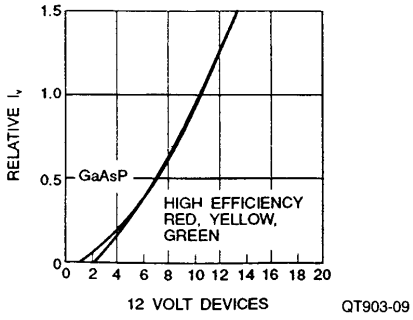

Fig. 7. Relative Luminous Intensity vs. Applied Forward Voltage 12 Volt Devices

INTEGRATED T-1 REISTOR LAMPS
5 VOLT and 12 VOLT SERIES

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.