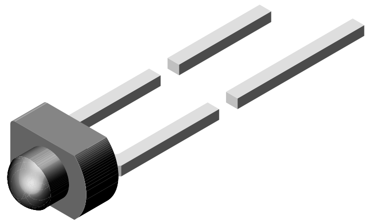
Universal LED, ∅ 1.8 mm Tinted Diffused Miniplast Package



19229

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 1.8 mm (miniplast)
- Product series: standard
- Angle of half intensity: ± 20°

FEATURES

- Three colors
- For DC and pulse operation
- Luminous intensity categorized
- End-to-end stackable in centre-to-centre spacing of 0.1" (2.54 mm)
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

APPLICATIONS

- General indicating and lighting purposes

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLUO2400	Red, I_V > 1.6 mcd	GaAsP on GaP
TLUO2401	Red, I_V = (4 to 20) mcd	GaAsP on GaP
TLUY2400	Yellow, I_V > 1 mcd	GaAsP on GaP
TLUY2401	Yellow, I_V = (2.5 to 12.5) mcd	GaAsP on GaP
TLUG2400	Green, I_V > 1.6 mcd	GaP on GaP
TLUG2401	Green, I_V = (4 to 20) mcd	GaP on GaP

ABSOLUTE MAXIMUM RATINGS[1] TLUO240., TLUY240., TLUG240.

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Reverse voltage			V_R	6	V
DC Forward current		TLUO2400	I_F	30	mA
		TLUY2400	I_F	30	mA
		TLUG2400	I_F	30	mA
Surge forward current	$t_p \leq 10\ \mu s$		I_{FSM}	1	A
Power dissipation	$T_{amb} \leq 55$ °C	TLUO2400	P_V	100	mW
		TLUY2400	P_V	100	mW
		TLUG2400	P_V	100	mW
Junction temperature			T_j	100	°C
Operating temperature range			T_{amb}	- 40 to + 100	°C
Storage temperature range			T_{stg}	- 55 to + 100	°C
Soldering temperature	t ≤ 3 s, 2 mm from body		T_{sd}	260	°C
	t ≤ 5 s, 4 mm from body		T_{sd}	260	°C
Thermal resistance junction/ ambient		TLUO2400	R_{thJA}	450	K/W
		TLUY2400	R_{thJA}	450	K/W
		TLUG2400	R_{thJA}	450	K/W

Note:
[1] T_{amb} = 25 °C, unless otherwise specified

OPTICAL AND ELECTRICAL CHARACTERISTICS[1] TLUO240., RED							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity [2]	I_F = 10 mA	TLUO2400	I_V	1.6	2		mcd
		TLUO2401	I_V	4	5	20	mcd
Dominant wavelength	I_F = 10 mA		λ_d	612		625	nm
Peak wavelength	I_F = 10 mA		λ_p		630		nm
Angle of half intensity	I_F = 10 mA		φ		± 20		deg
Forward voltage	I_F = 20 mA		V_F		2	3	V
Reverse voltage	I_R = 10 µA		V_R	6	15		V
Junction capacitance	V_R = 0, f = 1 MHz		C_j		50		pF

Note:
[1] T_{amb} = 25 °C, unless otherwise specified
[2] in one packing unit $I_{Vmin}/I_{Vmax} \leq 0.5$

OPTICAL AND ELECTRICAL CHARACTERISTICS[1] TLUY240., YELLOW							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity [2]	I_F = 10 mA	TLUY2400	I_V	1	4		mcd
		TLUY2401	I_V	2.5	8	12.5	mcd
Dominant wavelength	I_F = 10 mA		λ_d	581		594	nm
Peak wavelength	I_F = 10 mA		λ_p		585		nm
Angle of half intensity	I_F = 10 mA		φ		± 20		deg
Forward voltage	I_F = 20 mA		V_F		2.4	3	V
Reverse voltage	I_R = 10 µA		V_R	6	15		V
Junction capacitance	V_R = 0, f = 1 MHz		C_j		50		pF

Note:
[1] T_{amb} = 25 °C, unless otherwise specified
[2] in one packing unit $I_{Vmin}/I_{Vmax} \leq 0.5$

OPTICAL AND ELECTRICAL CHARACTERISTICS[1] TLUG240., GREEN							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity [2]	I_F = 10 mA	TLUG2400	I_V	1.6	5		mcd
		TLUG2401	I_V	4	12	20	mcd
Dominant wavelength	I_F = 10 mA		λ_d	562		575	nm
Peak wavelength	I_F = 10 mA		λ_p		565		nm
Angle of half intensity	I_F = 10 mA		φ		± 20		deg
Forward voltage	I_F = 20 mA		V_F		2.4	3	V
Reverse voltage	I_R = 10 µA		V_R	6	15		V
Junction capacitance	V_R = 0, f = 1 MHz		C_j		50		pF

Note:
[1] T_{amb} = 25 °C, unless otherwise specified
[2] in one packing unit $I_{Vmin}/I_{Vmax} \leq 0.5$

TYPICAL CHARACTERISTICS

T_{amb} = 25 °C, unless otherwise specified

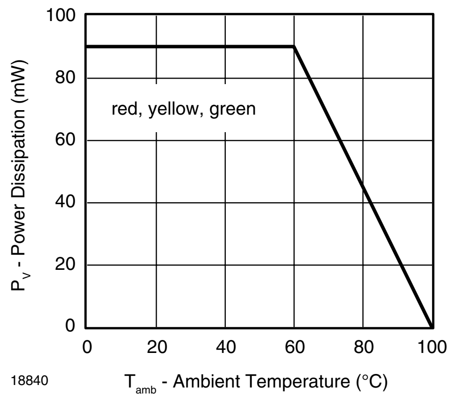


Figure 1. Power Dissipation vs. Ambient Temperature

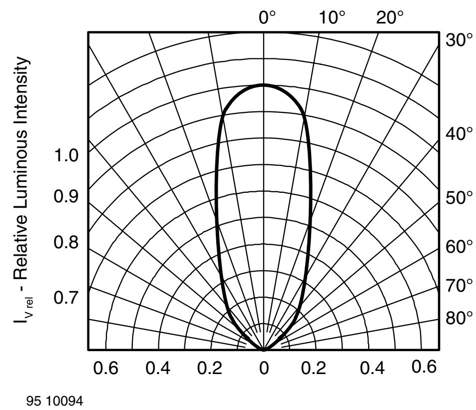


Figure 4. Rel. Luminous Intensity vs. Angular Displacement

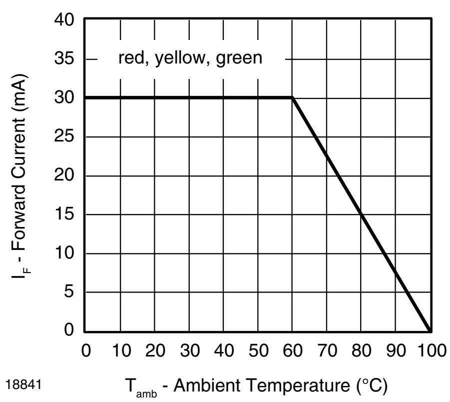


Figure 2. Forward Current vs. Ambient Temperature

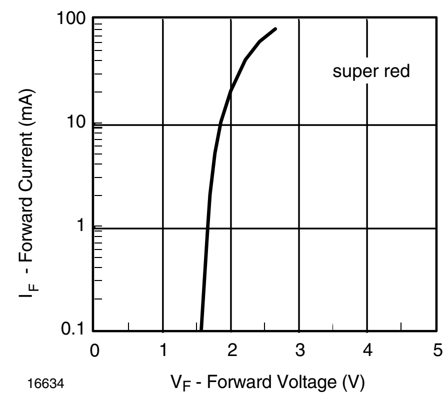


Figure 5. Forward Current vs. Forward Voltage

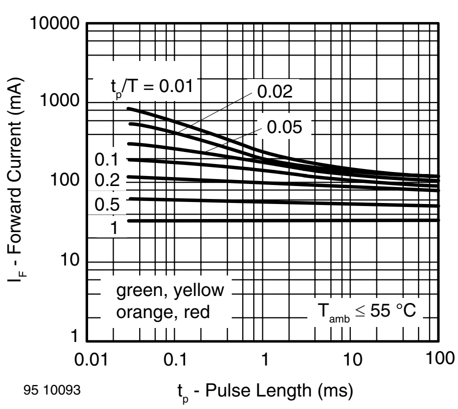


Figure 3. Forward Current vs. Pulse Length

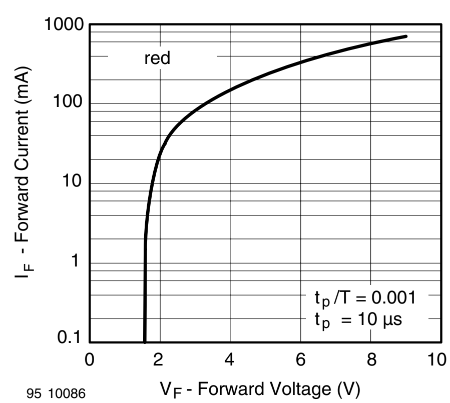


Figure 6. Forward Current vs. Forward Voltage

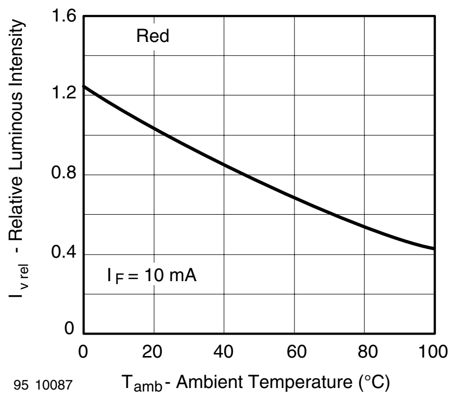


Figure 7. Rel. Luminous Intensity vs. Ambient Temperature

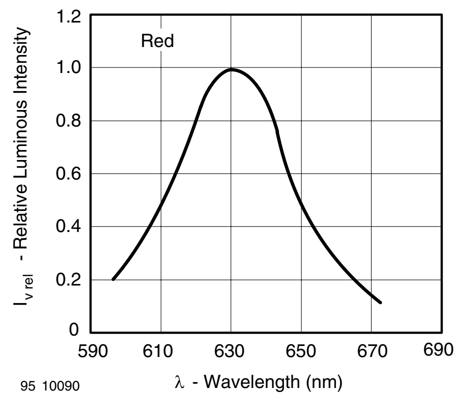


Figure 10. Relative Intensity vs. Wavelength

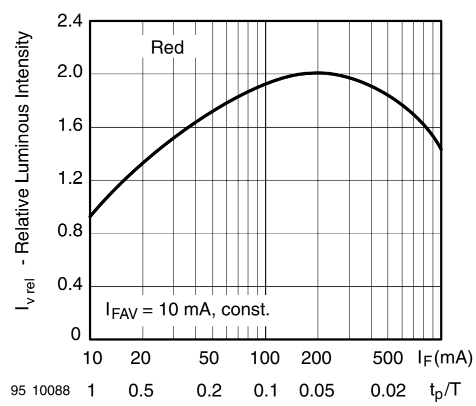


Figure 8. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

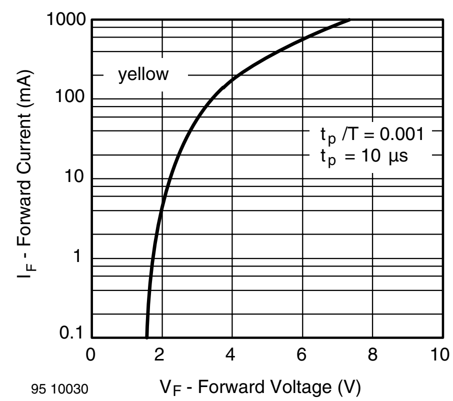


Figure 11. Forward Current vs. Forward Voltage

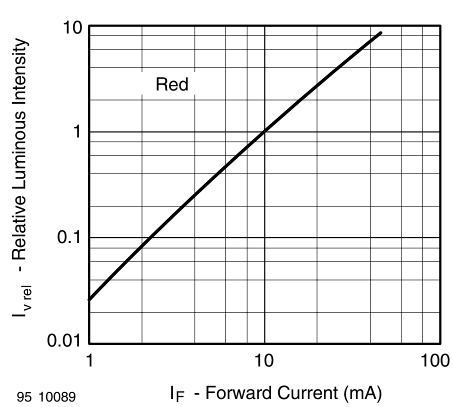


Figure 9. Relative Luminous Intensity vs. Forward Current

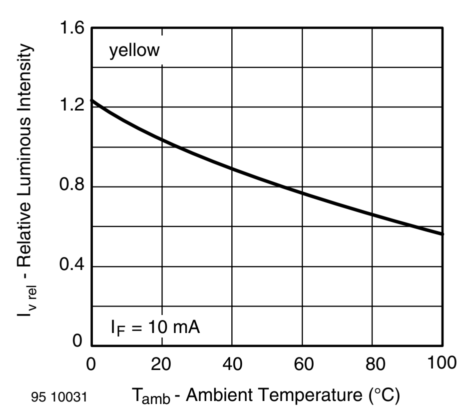


Figure 12. Rel. Luminous Intensity vs. Ambient Temperature

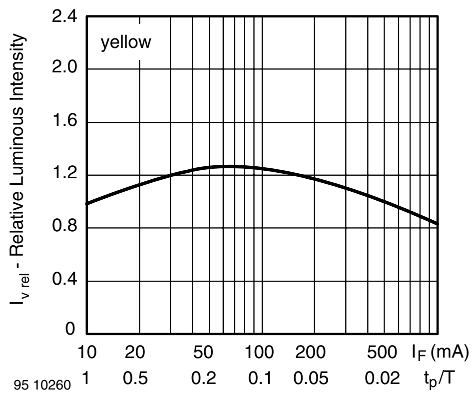


Figure 13. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

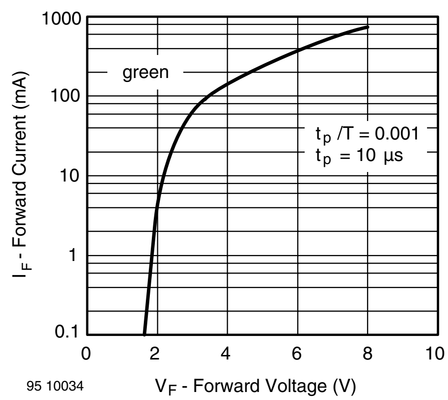


Figure 16. Forward Current vs. Forward Voltage

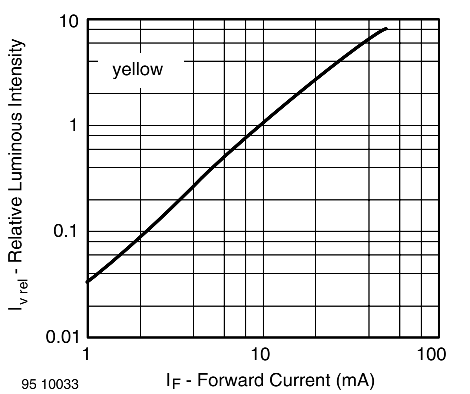


Figure 14. Relative Luminous Intensity vs. Forward Current

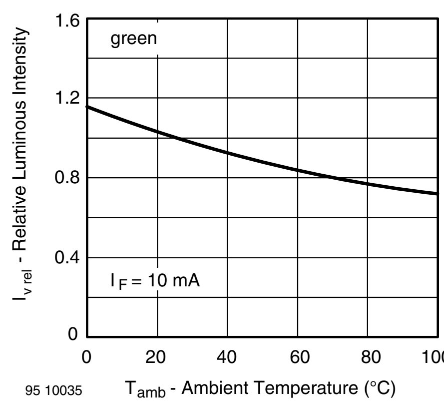


Figure 17. Rel. Luminous Intensity vs. Ambient Temperature

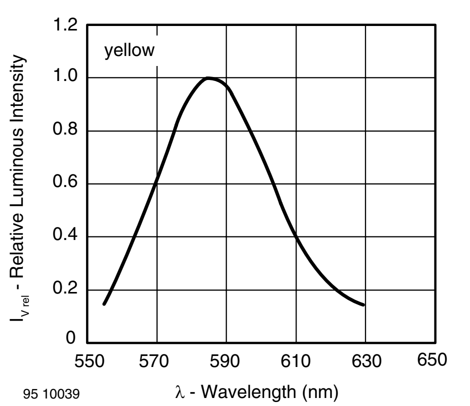


Figure 15. Relative Intensity vs. Wavelength

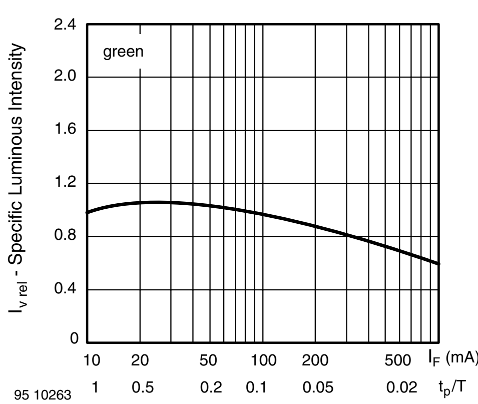


Figure 18. Specific Luminous Intensity vs. Forward Current

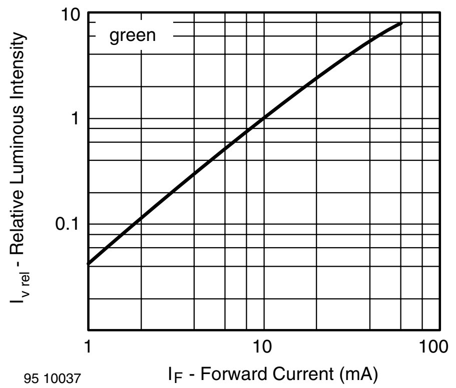


Figure 19. Relative Luminous Intensity vs. Forward Current

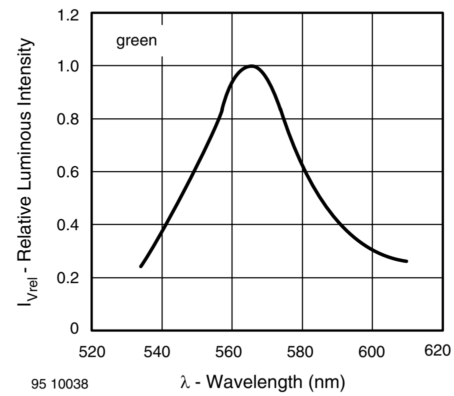
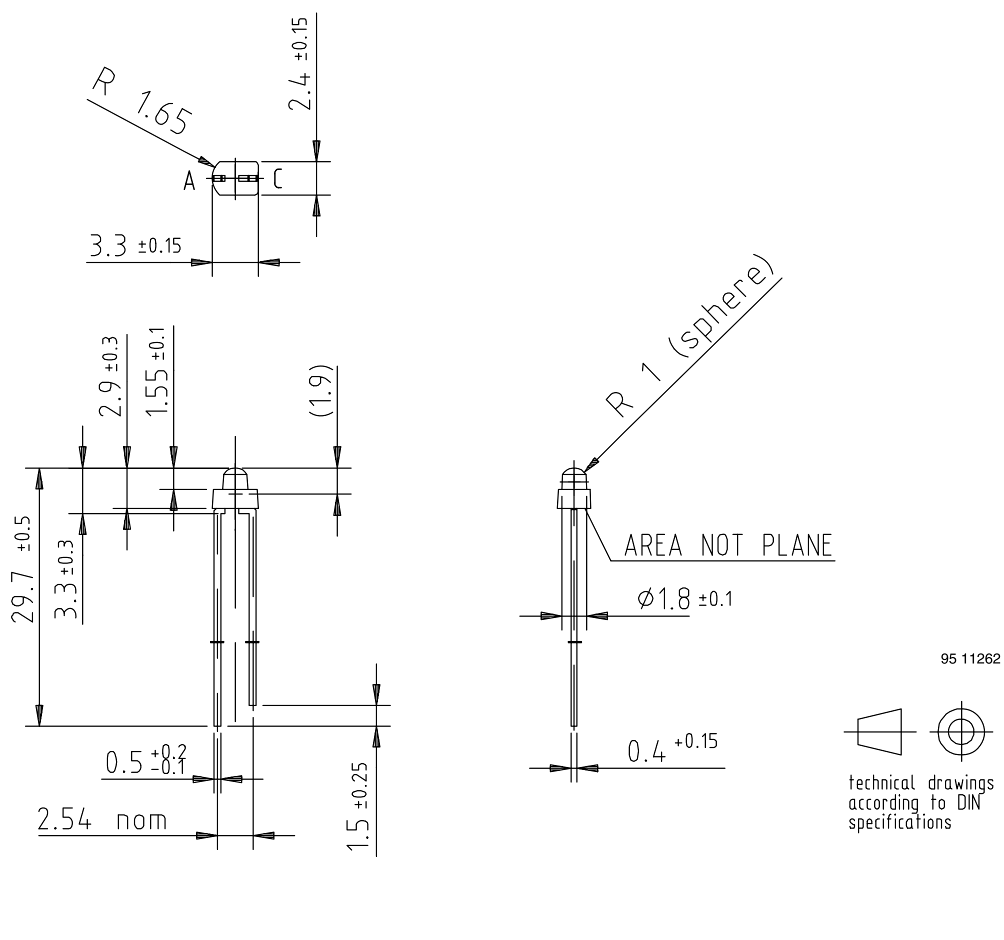


Figure 20. Relative Intensity vs. Wavelength

PACKAGE DIMENSIONS in millimeters



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It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

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