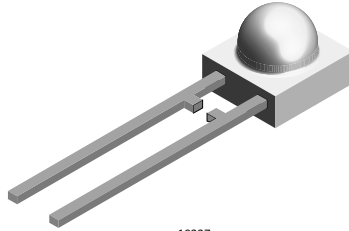


## Sideview LED, 5 mm Tinted Diffused



### FEATURES

- Even luminance of the emitting surface
- Wide viewing angle
- Yellow and green color categorized
- For DC and pulse operation
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: side view
- Product series: standard
- Angle of half intensity:  $\pm 80^\circ$

### APPLICATIONS

- Indicating and illumination purposes

### PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLPR5600	Red, $I_V > 1$ mcd	GaAsP on GaP
TLPH5600	Red, $I_V > 0.63$ mcd	GaAsP on GaP
TLPY5600	Yellow, $I_V > 0.63$ mcd	GaAsP on GaP
TLPG5600	Green, $I_V > 0.63$ mcd	GaP on GaP
TLPP5600	Pure green, $I_V > 0.63$ mcd	GaP on GaP

### ABSOLUTE MAXIMUM RATINGS<sup>1)</sup> TLPR5600, TLPH5600, TLPY5600, TLPG5600, TLPP5600

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Reverse voltage			$V_R$	6	V
DC Forward current		TLPR5600	$I_F$	20	mA
		TLPH5600	$I_F$	30	mA
		TLPY5600	$I_F$	30	mA
		TLPG5600	$I_F$	30	mA
		TLPP5600	$I_F$	30	mA
Surge forward current	$t_p \leq 10 \mu\text{s}$		$I_{FSM}$	1	A
Power dissipation	$T_{amb} \leq 60^\circ\text{C}$	TLPR5600	$P_V$	60	mW
		TLPH5600	$P_V$	100	mW
		TLPY5600	$P_V$	100	mW
		TLPG5600	$P_V$	100	mW
		TLPP5600	$P_V$	100	mW
Junction temperature			$T_j$	100	$^\circ\text{C}$
Operating temperature range			$T_{amb}$	- 40 to + 100	$^\circ\text{C}$
Storage temperature range			$T_{stg}$	- 55 to + 100	$^\circ\text{C}$
Soldering temperature	$t \leq 5$ s, 2 mm from body		$T_{sd}$	260	$^\circ\text{C}$



<b>ABSOLUTE MAXIMUM RATINGS<sup>1)</sup> TLPR5600, TLPH5600, TLPY5600, TLPG5600, TLPP5600</b>					
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Thermal resistance junction/ambient		TLPR5600	$R_{thJA}$	500	K
		TLPH5600	$R_{thJA}$	400	K/W
		TLPY5600	$R_{thJA}$	400	K/W
		TLPG5600	$R_{thJA}$	400	K/W
		TLPP5600	$R_{thJA}$	400	K/W

Note:

<sup>1)</sup>  $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

<b>OPTICAL AND ELECTRICAL CHARACTERISTICS<sup>1)</sup> TLPR5600, RED</b>						
PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity <sup>2)</sup>	$I_F = 10\text{ mA}$	$I_V$	1	2.5		mcd
Dominant wavelength	$I_F = 10\text{ mA}$	$\lambda_d$		630		nm
Peak wavelength	$I_F = 10\text{ mA}$	$\lambda_p$		640		nm
Angle of half intensity	$I_F = 10\text{ mA}$	$\varphi$		$\pm 80$		deg
Forward voltage	$I_F = 20\text{ mA}$	$V_F$		2	3	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$	$V_R$	6	15		V
Junction capacitance	$V_R = 0, f = 1\text{ MHz}$	$C_j$		50		pF

Note:

<sup>1)</sup>  $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

<sup>2)</sup> in one packing unit  $I_{Vmin}/I_{Vmax} \leq 0.5$

<b>OPTICAL AND ELECTRICAL CHARACTERISTICS<sup>1)</sup> TLPH5600, RED</b>						
PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity <sup>2)</sup>	$I_F = 10\text{ mA}$	$I_V$	0.63	1.5		mcd
Dominant wavelength	$I_F = 10\text{ mA}$	$\lambda_d$	612		625	nm
Peak wavelength	$I_F = 10\text{ mA}$	$\lambda_p$		635		nm
Angle of half intensity	$I_F = 10\text{ mA}$	$\varphi$		$\pm 80$		deg
Forward voltage	$I_F = 20\text{ mA}$	$V_F$		2	3	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$	$V_R$	6	15		V
Junction capacitance	$V_R = 0, f = 1\text{ MHz}$	$C_j$		50		pF

Note:

<sup>1)</sup>  $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

<sup>2)</sup> in one packing unit  $I_{Vmin}/I_{Vmax} \leq 0.5$

<b>OPTICAL AND ELECTRICAL CHARACTERISTICS<sup>1)</sup> TLPY5600, YELLOW</b>						
PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity <sup>2)</sup>	$I_F = 10\text{ mA}$	$I_V$	0.63	1.5		mcd
Dominant wavelength	$I_F = 10\text{ mA}$	$\lambda_d$	581		594	nm
Peak wavelength	$I_F = 10\text{ mA}$	$\lambda_p$		585		nm
Angle of half intensity	$I_F = 10\text{ mA}$	$\varphi$		$\pm 80$		deg
Forward voltage	$I_F = 20\text{ mA}$	$V_F$		2.4	3	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$	$V_R$	6	15		V
Junction capacitance	$V_R = 0, f = 1\text{ MHz}$	$C_j$		50		pF

Note:

<sup>1)</sup>  $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

<sup>2)</sup> in one packing unit  $I_{Vmin}/I_{Vmax} \leq 0.5$

<b>OPTICAL AND ELECTRICAL CHARACTERISTICS<sup>1)</sup> TLP5600, GREEN</b>						
PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity <sup>2)</sup>	$I_F = 10 \text{ mA}$	$I_V$	0.63	1.5		mcd
Dominant wavelength	$I_F = 10 \text{ mA}$	$\lambda_d$	562		575	nm
Peak wavelength	$I_F = 10 \text{ mA}$	$\lambda_p$		565		nm
Angle of half intensity	$I_F = 10 \text{ mA}$	$\phi$		$\pm 80$		deg
Forward voltage	$I_F = 20 \text{ mA}$	$V_F$		2.4	3	V
Reverse voltage	$I_R = 10 \mu\text{A}$	$V_R$	6	15		V
Junction capacitance	$V_R = 0, f = 1 \text{ MHz}$	$C_j$		50		pF

Note:

<sup>1)</sup>  $T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

<sup>2)</sup> in one packing unit  $I_{Vmin}/I_{Vmax} \leq 0.5$

<b>OPTICAL AND ELECTRICAL CHARACTERISTICS<sup>1)</sup> TLPP5600, PURE GREEN</b>						
PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity <sup>2)</sup>	$I_F = 10 \text{ mA}$	$I_V$	0.63	1.6		mcd
Dominant wavelength	$I_F = 10 \text{ mA}$	$\lambda_d$	555		565	nm
Peak wavelength	$I_F = 10 \text{ mA}$	$\lambda_p$		555		nm
Angle of half intensity	$I_F = 10 \text{ mA}$	$\phi$		$\pm 80$		deg
Forward voltage	$I_F = 20 \text{ mA}$	$V_F$		2.4	3	V
Reverse voltage	$I_R = 10 \mu\text{A}$	$V_R$	6	15		V
Junction capacitance	$V_R = 0, f = 1 \text{ MHz}$	$C_j$		50		pF

Note:

<sup>1)</sup>  $T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

<sup>2)</sup> in one packing unit  $I_{Vmin}/I_{Vmax} \leq 0.5$

### TYPICAL CHARACTERISTICS

$T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

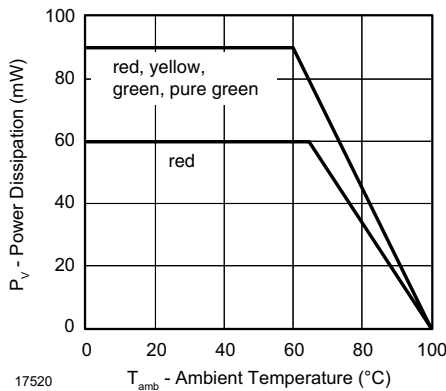


Figure 1. Power Dissipation vs. Ambient Temperature

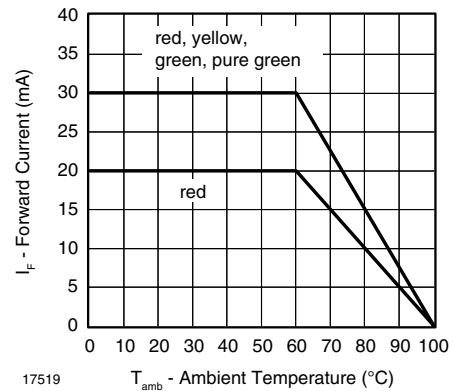


Figure 2. Forward Current vs. Ambient Temperature

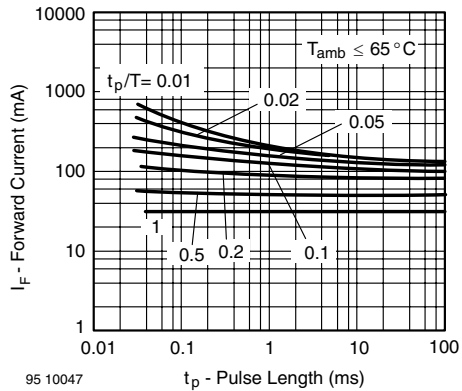


Figure 3. Forward Current vs. Pulse Length

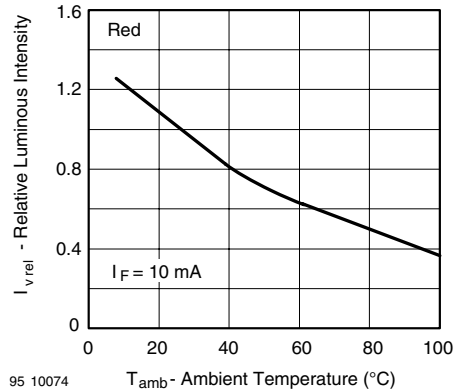


Figure 6. Rel. Luminous Intensity vs. Ambient Temperature

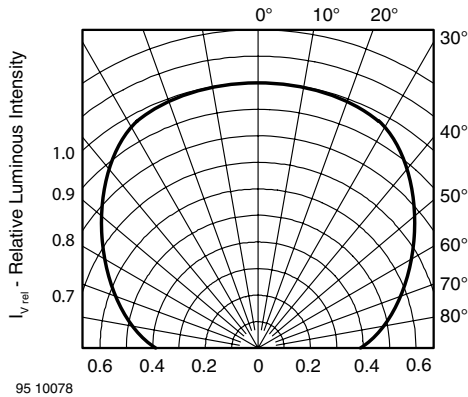


Figure 4. Rel. Luminous Intensity vs. Angular Displacement

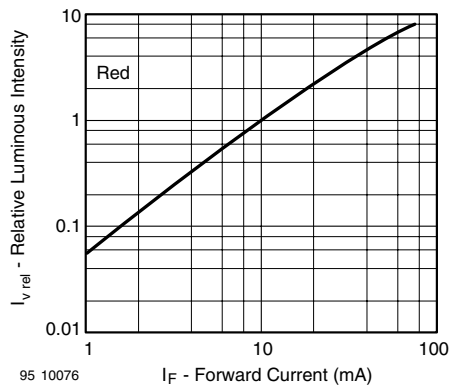


Figure 7. Relative Luminous Intensity vs. Forward Current

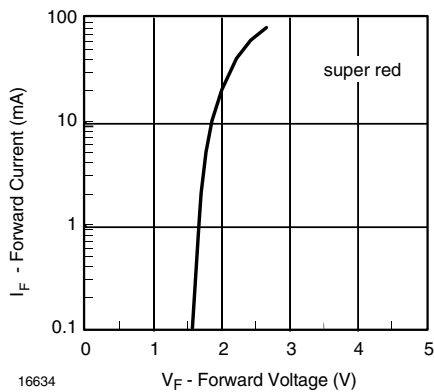


Figure 5. Forward Current vs. Forward Voltage

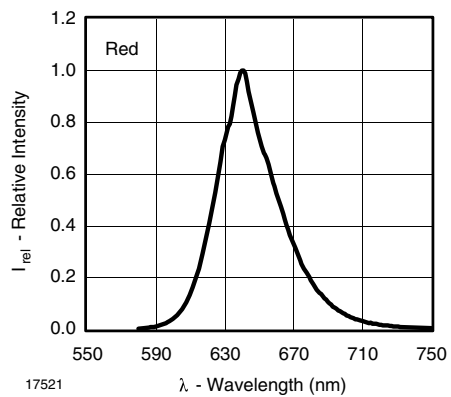


Figure 8. Relative Intensity vs. Wavelength

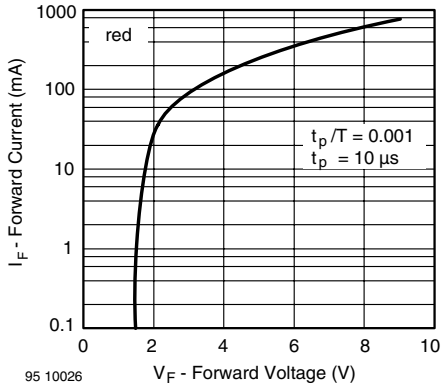


Figure 9. Forward Current vs. Forward Voltage

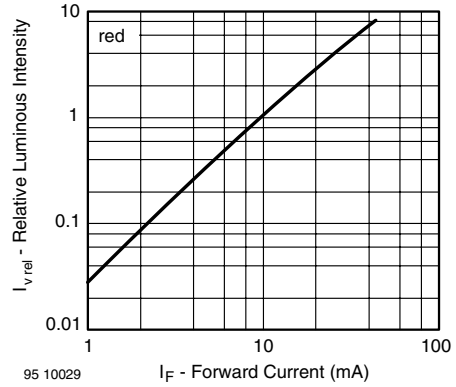


Figure 12. Relative Luminous Intensity vs. Forward Current

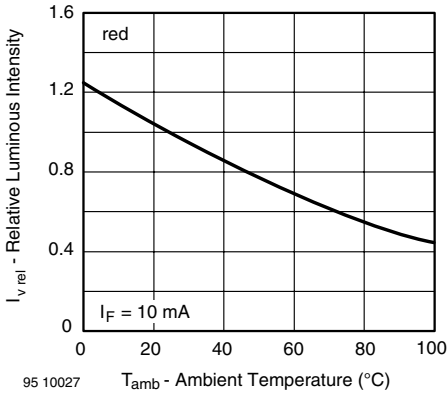


Figure 10. Rel. Luminous Intensity vs. Ambient Temperature

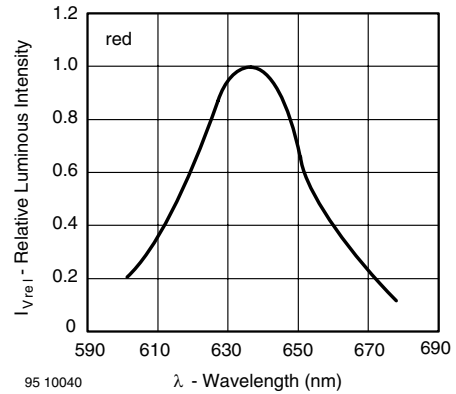


Figure 13. Relative Intensity vs. Wavelength

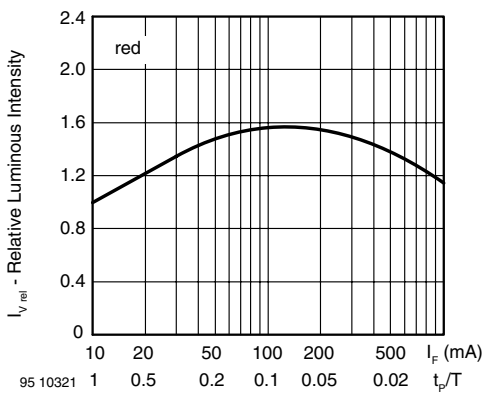


Figure 11. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

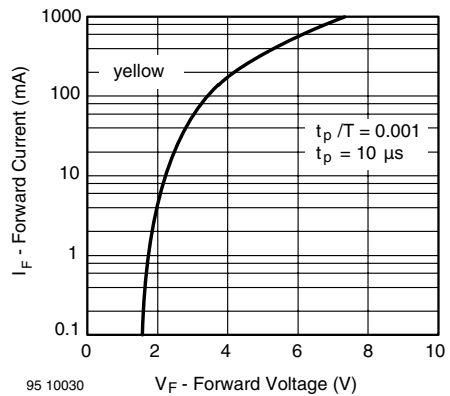


Figure 14. Forward Current vs. Forward Voltage

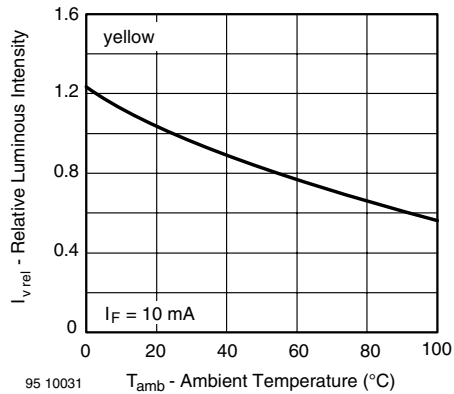


Figure 15. Rel. Luminous Intensity vs. Ambient Temperature

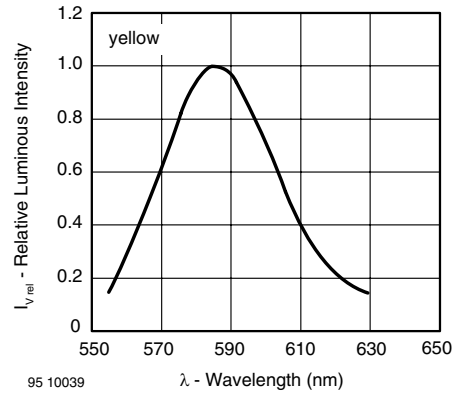


Figure 18. Relative Intensity vs. Wavelength

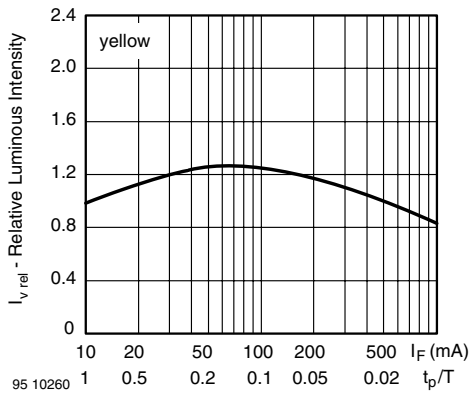


Figure 16. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

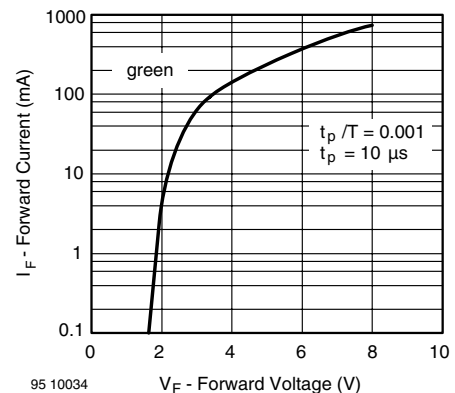


Figure 19. Forward Current vs. Forward Voltage

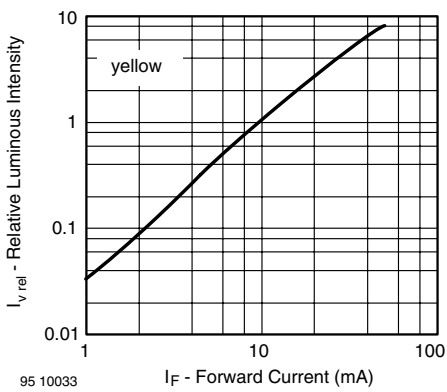


Figure 17. Relative Luminous Intensity vs. Forward Current

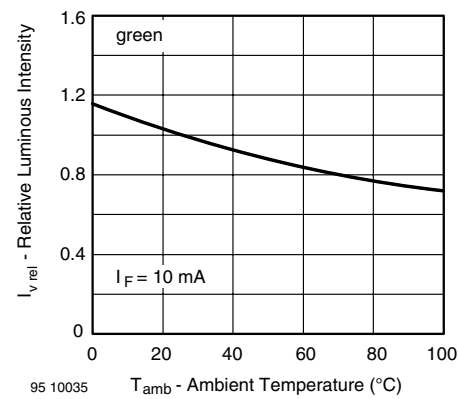


Figure 20. Rel. Luminous Intensity vs. Ambient Temperature

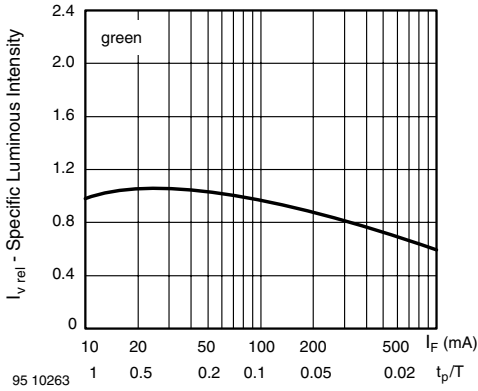


Figure 21. Specific Luminous Intensity vs. Forward Current

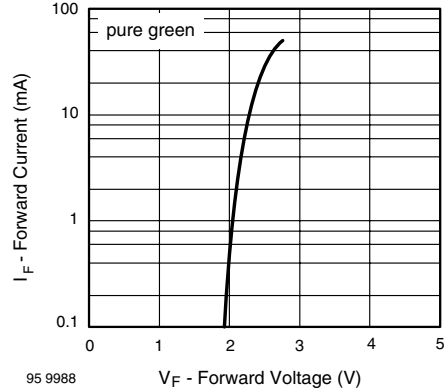


Figure 24. Forward Current vs. Forward Voltage

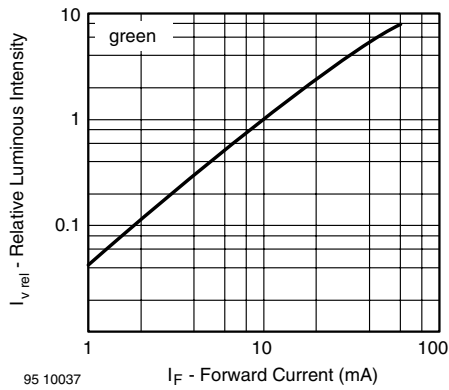


Figure 22. Relative Luminous Intensity vs. Forward Current

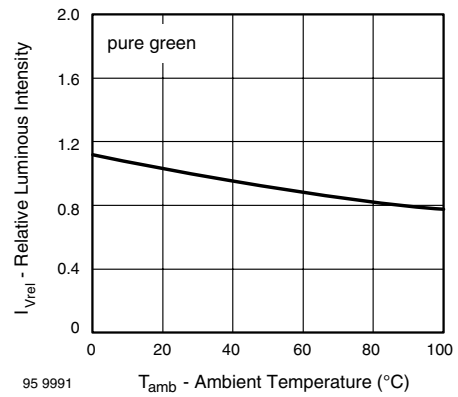


Figure 25. Rel. Luminous Intensity vs. Ambient Temperature

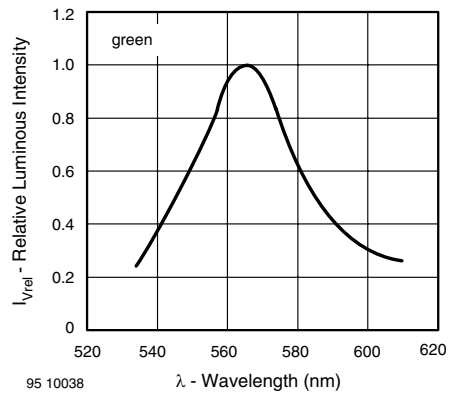


Figure 23. Relative Intensity vs. Wavelength

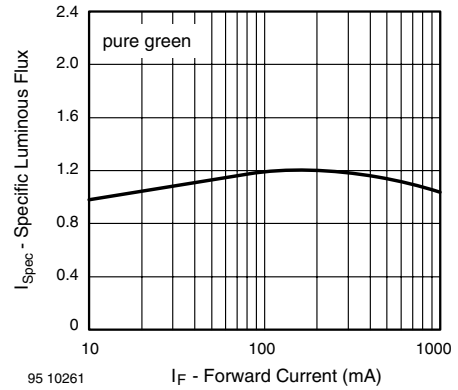


Figure 26. Specific Luminous Intensity vs. Forward Current

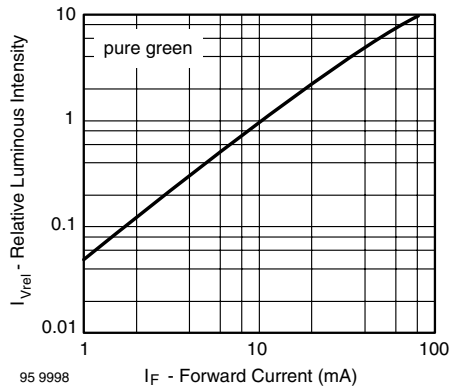


Figure 27. Relative Luminous Intensity vs. Forward Current

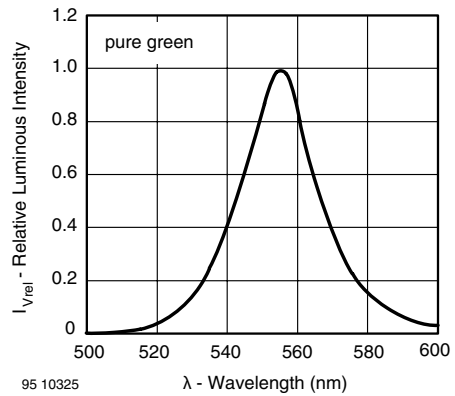
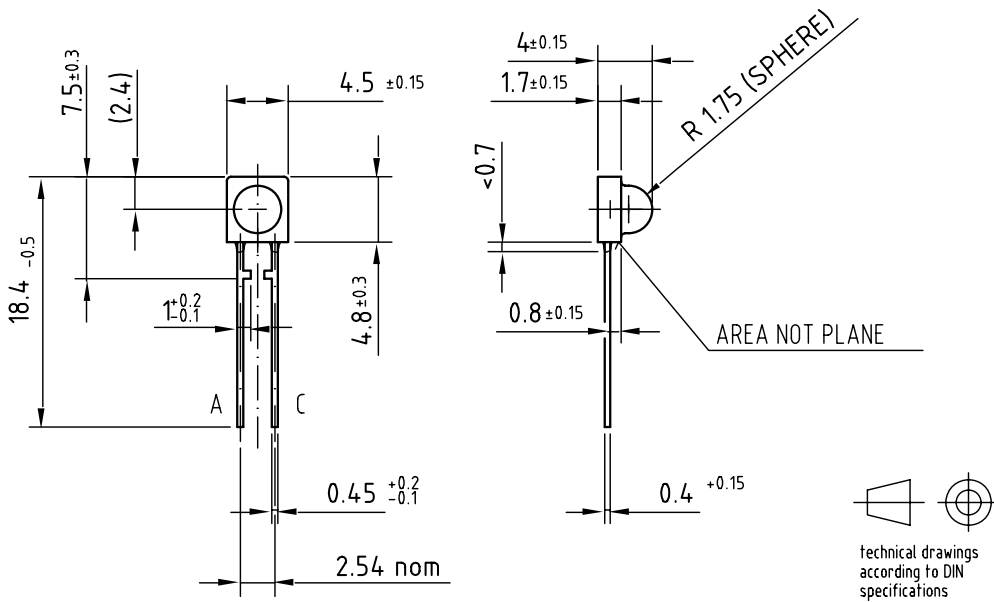


Figure 28. Relative Intensity vs. Wavelength

**PACKAGE DIMENSIONS** in millimeters



Drawing-No.: 6.544-5127.01-4

Issue: 1; 15.11.95

95 11321





## **Ozone Depleting Substances Policy Statement**

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.

We reserve the right to make changes to improve technical design  
and may do so without further notice.

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use Vishay Semiconductors products for any unintended or unauthorized application, the buyer shall indemnify Vishay Semiconductors against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

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



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