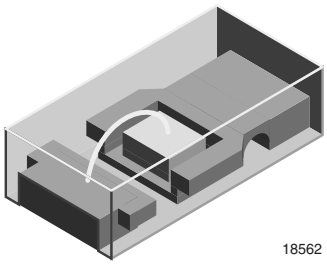
Standard 0603 SMD LED



FEATURES

- Smallest SMD package 0603 with exceptional brightness
  1.6 mm x 0.8 mm x 0.6 mm (L x W x H)
- High reliability lead frame based
- Temperature range - 40 °C to + 100 °C
- Footprint compatible to 0603 chipled
- Wavelength 633 nm (red)
- AlInGaP technology
- Viewing angle: extremely wide 160°
- Grouping parameter: luminous intensity, wavelength
- Available in 8 mm tape
- IR reflow and TTW soldering
- Lead (Pb)-free device

DESCRIPTION

The new 0603 LED series have been designed in the smallest SMD package. This innovative 0603 LED technology opens the way to

- smaller products of higher performance
- more design in flexibility
- enhanced applications

The 0603 LED is an obvious solution for small-scale, high power products that are expected to work reliability in an arduous environment.

APPLICATIONS

- Backlight keypads
- Navigation systems
- Cellular phone displays
- Displays for industrial control systems
- Automotive features
- Miniaturized color effects
- Traffic displays

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: SMD 0603
- Product series: standard
- Angle of half intensity: ± 80°

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY
TLMS1102-GS08	Red, I_V = 100 - 250 mcd

ABSOLUTE MAXIMUM RATINGS[1] TLMS1102				
PARAMETER	**TEST CONDITION**	**SYMBOL**	**VALUE**	**UNIT**
Reverse voltage[2]		V_R	12	V
Forward current	$T_{amb} \leq 40$ °C, $t_p \leq 1s, t_{p/T} \leq 0.1$	I_F	60	mA
DC Forward current	$T_{amb} \leq 60$ °C	I_F	30	mA
Surge forward current	$t_p \leq 10$ µs	I_{FSM}	0.5	A
Power dissipation		P_V	90	mW
Junction temperature		T_j	120	°C
Operating temperature range		T_{amb}	- 40 to + 100	°C
Storage temperature range		T_{stg}	- 40 to + 100	°C
Soldering temperature	acc. Vishay spec	T_{sd}	260	°C
Thermal resistance junction/ ambient	mounted on PC board (pad size > 5 mm^2)	R_{thJA}	480	K/W

Note:
1) T_{amb} = 25 °C, unless otherwise specified
2) Driving the LED in reverse direction is suitable for short term application.

OPTICAL AND ELECTRICAL CHARACTERISTICS[1] TLMS1102, RED						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN**	**TYP.**	**MAX**	**UNIT**
Luminous intensity [2]	I_F = 60 mA	I_V	100		250	mcd
Dominant wavelength	I_F = 60 mA	λ_d	627	633	639	nm
Peak wavelength	I_F = 60 mA	λ_p		645		nm
Angle of half intensity	I_F = 60 mA	φ		± 80		deg
Forward voltage	I_F = 60 mA	V_F		2.1	3.0	V
Reverse voltage	I_R = 10 µA	V_R	6			V
Junction capacitance	V_R = 0, f = 1 MHz	C_j		15		pF

Note:
1) T_{amb} = 25 °C, unless otherwise specified
2) In one Packing Unit IVmax/IVmin £ 1.6

LUMINOUS INTENSITY CLASSIFICATION		
GROUP	**LUMINOUS INTENSITY (MCD)**	
	MIN	**MAX**
Wa	100	160
Wb	125	200
Xa	160	250

TYPICAL CHARACTERISTICS

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

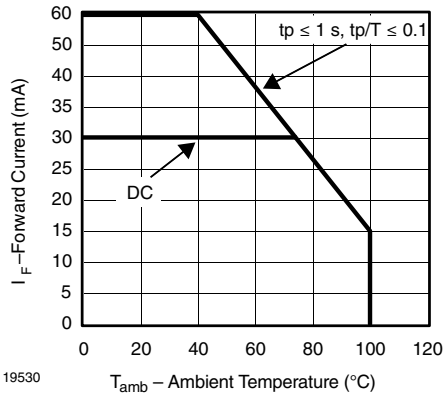


Figure 1. Forward Current vs. Ambient Temperature

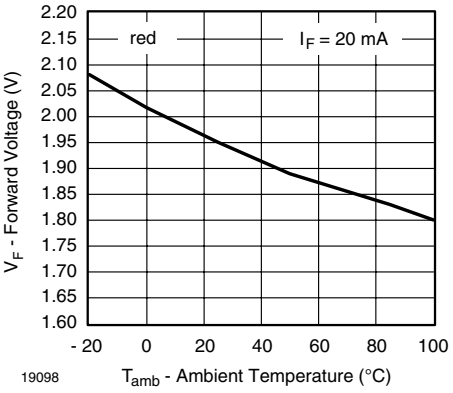


Figure 4. Forward Voltage vs. Ambient Temperature

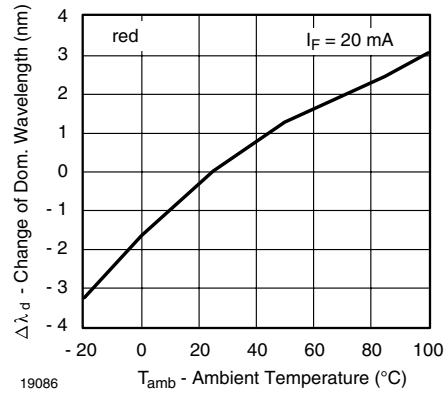


Figure 2. Change of Dominant Wavelength vs. Ambient Temperature

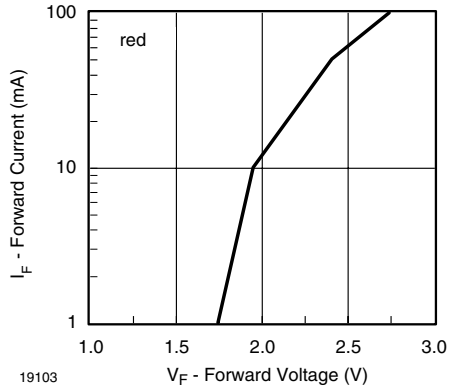


Figure 5. Forward Current vs. Forward Voltage

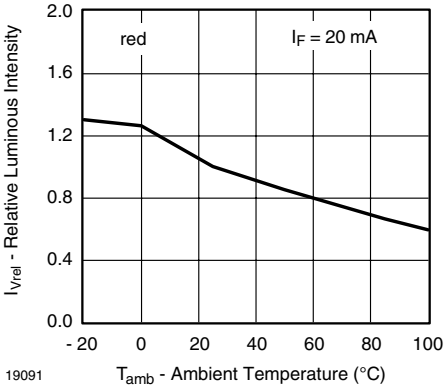


Figure 3. Relative Luminous Intensity vs. Amb. Temperature

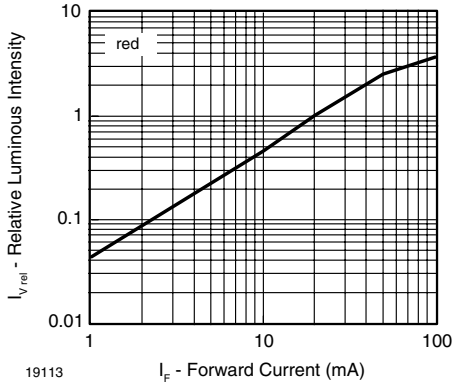
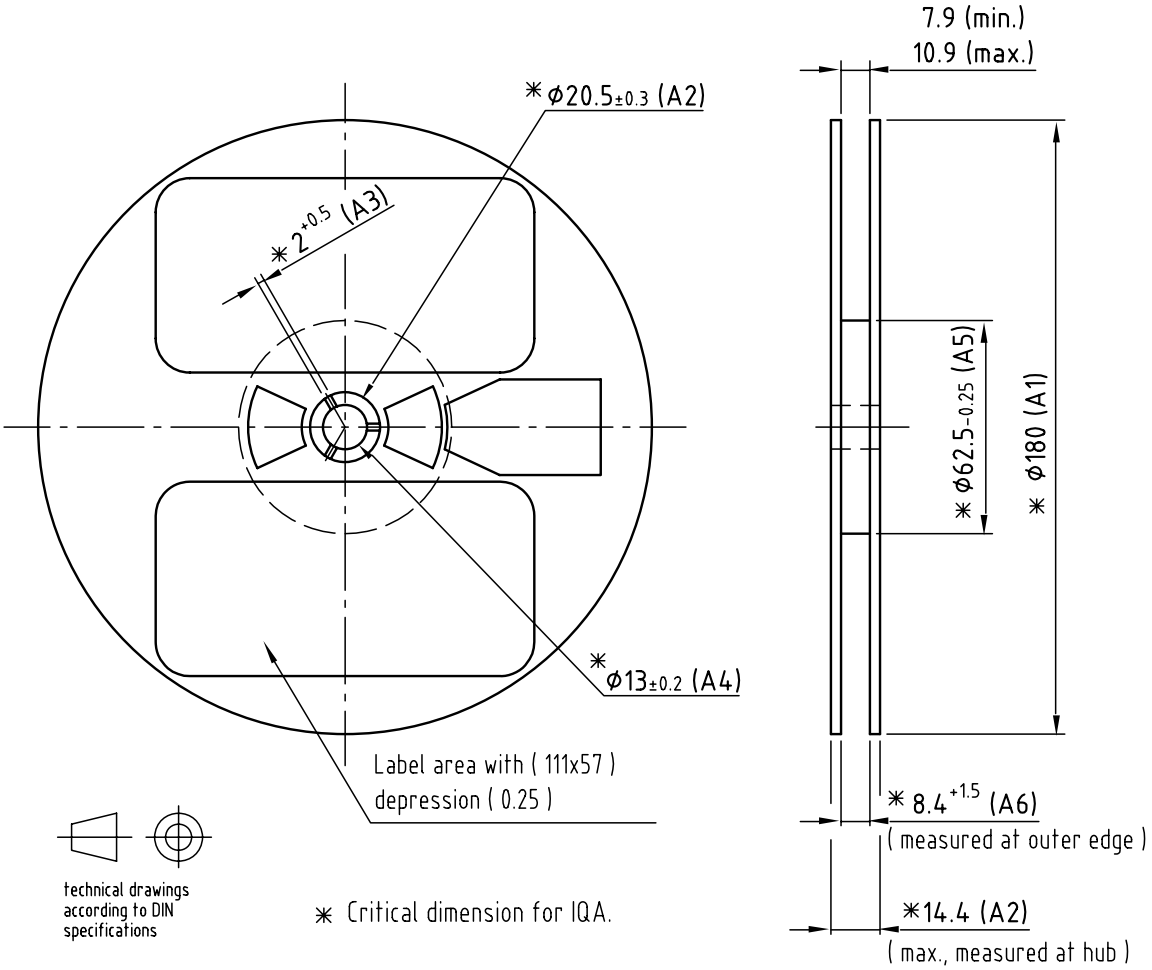


Figure 6. Relative Luminous Intensity vs. Forward Current

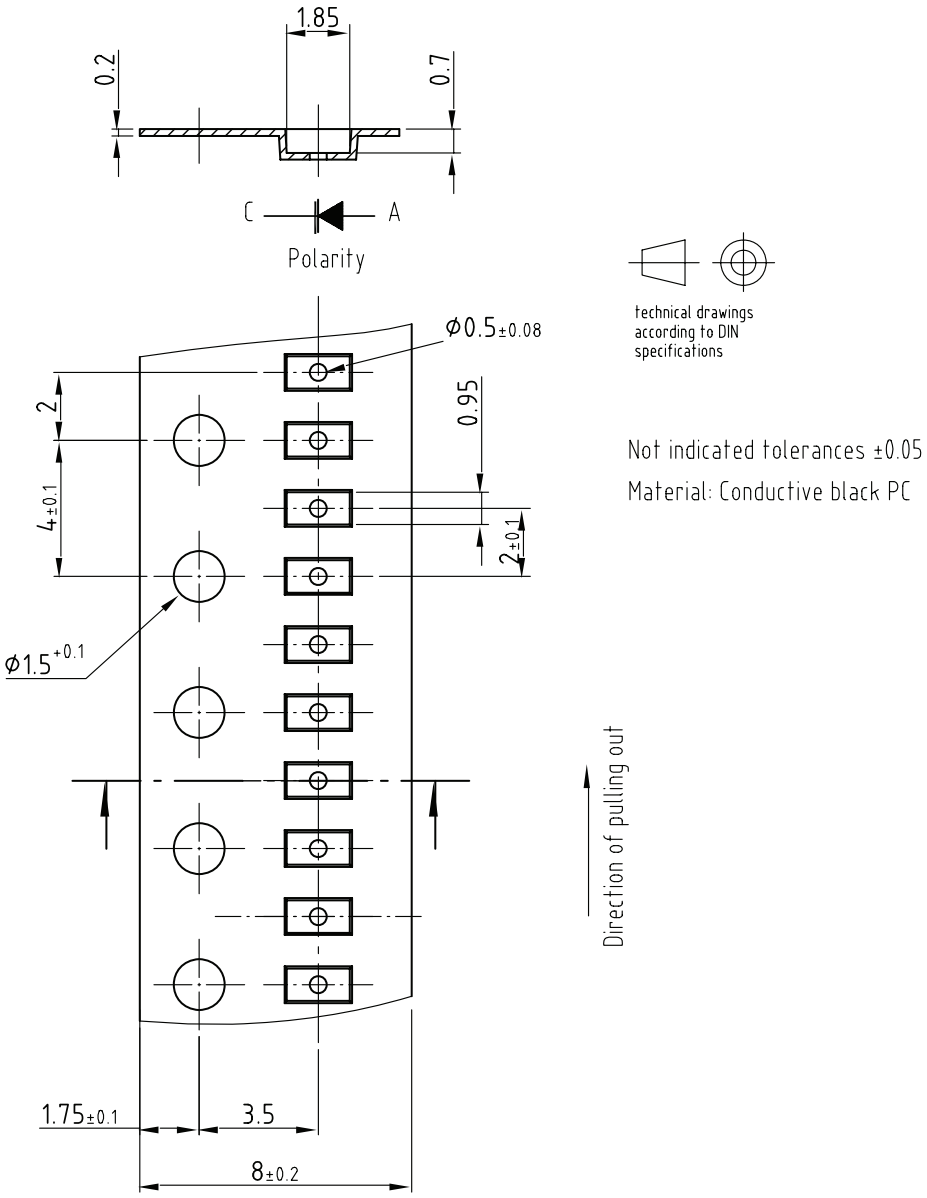
REEL DIMENSIONS in millimeters



Drawing-No.: 9.800-5086.01-4
Issue: 1; 29.04.04
19043

Not indicated tolerances ±0.05
Material: black static dissipative

TAPE DIMENSIONS in millimeters

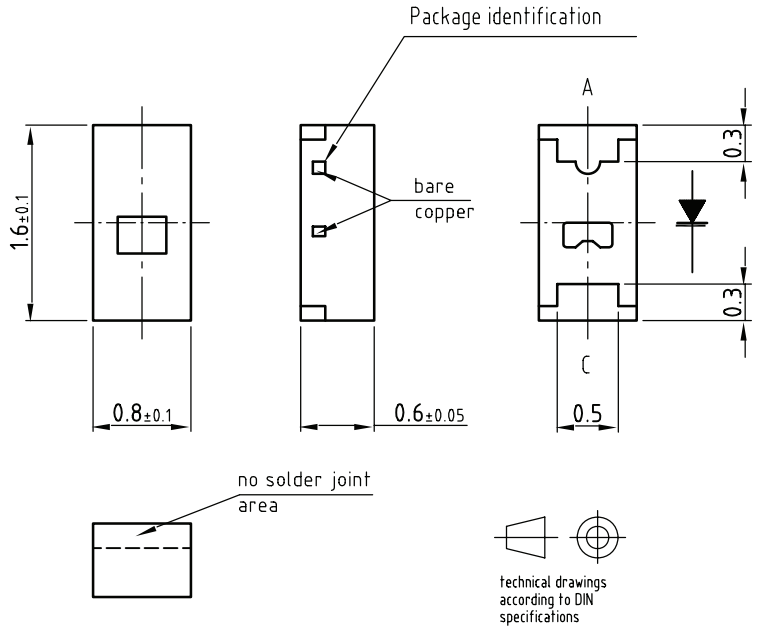


Drawing-No.: 9.700-5290.01-4

Issue: 2; 10.07.06

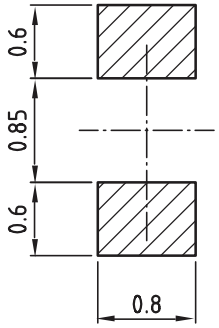
19044

PACKAGE DIMENSIONS in millimeters



Not indicated tolerances ±0.1

Recommended solder pad



Drawing-No.: 6.541-5056.01-4
Issue: 2; 04.05.05

19426

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.

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

Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.