

| PARTS TABLE | | |
|-----------------|---|------------|
| PART | COLOR, LUMINOUS INTENSITY | TECHNOLOGY |
| VLMS30J1L2-GS08 | Super red, $I_V = (4.5 \text{ to } 18) \text{ mcd}$ | AllnGaP |
| VLMS30J1L2-GS18 | Super red, $I_V = (4.5 \text{ to } 18) \text{ mcd}$ | AllnGaP |
| VLMS30J2K2-GS08 | Super red, $I_V = (5.6 \text{ to } 11.2) \text{ mcd}$ | AllnGaP |
| VLMS30J2K2-GS18 | Super red, $I_V = (5.6 \text{ to } 11.2) \text{ mcd}$ | AllnGaP |
| VLMS30K2L2-GS08 | Super red, $I_V = (9 \text{ to } 18) \text{ mcd}$ | AllnGaP |
| VLMO3000-GS08 | Orange, $I_V > 5.6 \text{ mcd}$ | AllnGaP |
| VLMO3000-GS18 | Orange, $I_V > 5.6 \text{ mcd}$ | AllnGaP |
| VLMO30K1L2-GS08 | Orange, $I_V = (7.1 \text{ to } 18) \text{ mcd}$ | AllnGaP |
| VLMO30K1L2-GS18 | Orange, $I_V = (7.1 \text{ to } 18) \text{ mcd}$ | AllnGaP |
| VLMO30L1M2-GS08 | Orange, $I_V = (11.2 \text{ to } 28) \text{ mcd}$ | AllnGaP |
| VLMO30L1M2-GS18 | Orange, $I_V = (11.2 \text{ to } 28) \text{ mcd}$ | AllnGaP |
| VLMO30K1M2-GS08 | Orange, $I_V = (7.1 \text{ to } 28) \text{ mcd}$ | AllnGaP |
| VLMO30K1M2-GS18 | Orange, $I_V = (7.1 \text{ to } 28) \text{ mcd}$ | AllnGaP |
| VLMY3000-GS08 | Yellow, $I_V > 4.5 \text{ mcd}$ | AllnGaP |
| VLMY3000-GS18 | Yellow, $I_V > 4.5 \text{ mcd}$ | AllnGaP |
| VLMY3001GS08 | Yellow, $I_V = (7.1 \text{ to } 18) \text{ mcd}$ | AllnGaP |
| VLMY3001-GS18 | Yellow, $I_V = (7.1 \text{ to } 18) \text{ mcd}$ | AllnGaP |
| VLMY30J2L1-GS08 | Yellow, $I_V = (5.6 \text{ to } 14) \text{ mcd}$ | AllnGaP |
| VLMY30J2L1-GS18 | Yellow, $I_V = (5.6 \text{ to } 14) \text{ mcd}$ | AllnGaP |
| VLMY30K2M1-GS08 | Yellow, $I_V = (9 \text{ to } 22.4) \text{ mcd}$ | AllnGaP |
| VLMY30K2M1-GS18 | Yellow, $I_V = (9 \text{ to } 22.4) \text{ mcd}$ | AllnGaP |
| VLMY30J2M1-GS08 | Yellow, $I_V = (5.6 \text{ to } 22.4) \text{ mcd}$ | AllnGaP |
| VLMY30J2M1-GS18 | Yellow, $I_V = (5.6 \text{ to } 22.4) \text{ mcd}$ | AllnGaP |

| ABSOLUTE MAXIMUM RATINGS ¹⁾ VLM30.. | | | | |
|--|---|------------|---------------|------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Reverse voltage ²⁾ | | V_R | 6 | V |
| DC forward current | | I_F | 15 | mA |
| Surge forward current | $t_p \leq 10 \mu\text{s}$ | I_{FSM} | 0.1 | A |
| Power dissipation | | P_V | 40 | mW |
| Junction temperature | | T_j | 125 | °C |
| Operating temperature range | | T_{amb} | - 40 to + 100 | °C |
| Storage temperature range | | T_{stg} | - 40 to + 100 | °C |
| Thermal resistance junction/ambient | Mounted on PC board (pad size > 16 mm ²) | R_{thJA} | 400 | K/W |

Note:

¹⁾ $T_{amb} = 25 \text{ °C}$, unless otherwise specified

²⁾ Driving the LED in reverse direction is suitable for short term application

**OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ VLMS30..., RED**

| PARAMETER | TEST CONDITION | PART | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|----------------------------------|------------------------|------------|-------------|------|----------|------|------|
| Luminous intensity ²⁾ | $I_F = 2 \text{ mA}$ | VLMS3000 | I_V | 2.8 | | | mcd |
| | $I_F = 10 \text{ mA}$ | VLMS3000 | I_V | | 20 | | mcd |
| | $I_F = 2 \text{ mA}$ | VLMS30J1K2 | I_V | 4.5 | | 11.2 | mcd |
| | $I_F = 2 \text{ mA}$ | VLMS30K1L2 | I_V | 7.1 | | 18 | mcd |
| | $I_F = 2 \text{ mA}$ | VLMS30J1L2 | I_V | 4.5 | | 18 | mcd |
| | $I_F = 2 \text{ mA}$ | VLMS30J2K2 | I_V | 5.6 | | 11.2 | mcd |
| | $I_F = 2 \text{ mA}$ | VLMS30K2L2 | I_V | 9 | | 18 | mcd |
| Dominant wavelength | $I_F = 2 \text{ mA}$ | | λ_d | 624 | | 636 | nm |
| Peak wavelength | $I_F = 2 \text{ mA}$ | | λ_p | | 635 | | nm |
| Angle of half intensity | $I_F = 2 \text{ mA}$ | | ϕ | | ± 60 | | deg |
| Forward voltage | $I_F = 2 \text{ mA}$ | | V_F | | 1.8 | 2.2 | V |
| Reverse voltage | $I_R = 10 \mu\text{A}$ | | V_R | 6 | 15 | | V |

Note:

¹⁾ $T_{amb} = 25 \text{ }^\circ\text{C}$, unless otherwise specified²⁾ In one packing unit $I_{Vmax}/I_{Vmin} \leq 1.6$ **OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ VLMO30..., ORANGE**

| PARAMETER | TEST CONDITION | PART | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|----------------------------------|------------------------|------------|-------------|------|----------|------|------|
| Luminous intensity ²⁾ | $I_F = 2 \text{ mA}$ | VLMO3000 | I_V | 5.6 | | | mcd |
| | $I_F = 10 \text{ mA}$ | VLMO3000 | I_V | | 50 | | mcd |
| | $I_F = 2 \text{ mA}$ | VLMO30K1L2 | I_V | 7.1 | | 18 | mcd |
| | $I_F = 2 \text{ mA}$ | VLMO30L1M2 | I_V | 11.2 | | 28 | mcd |
| | $I_F = 2 \text{ mA}$ | VLMO30K1M2 | I_V | 7.1 | | 28 | mcd |
| Dominant wavelength | $I_F = 2 \text{ mA}$ | | λ_d | 600 | | 609 | nm |
| Peak wavelength | $I_F = 2 \text{ mA}$ | | λ_p | | 610 | | nm |
| Angle of half intensity | $I_F = 2 \text{ mA}$ | | ϕ | | ± 60 | | deg |
| Forward voltage | $I_F = 2 \text{ mA}$ | | V_F | | 1.8 | 2.2 | V |
| Reverse voltage | $I_R = 10 \mu\text{A}$ | | V_R | 6 | 15 | | V |

Note:

¹⁾ $T_{amb} = 25 \text{ }^\circ\text{C}$, unless otherwise specified²⁾ In one packing unit $I_{Vmax}/I_{Vmin} \leq 1.6$ **OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ VLMY30..., YELLOW**

| PARAMETER | TEST CONDITION | PART | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|----------------------------------|------------------------|------------|-------------|------|----------|------|------|
| Luminous intensity ²⁾ | $I_F = 2 \text{ mA}$ | VLMY3000 | I_V | 4.5 | | | mcd |
| | $I_F = 10 \text{ mA}$ | VLMY3000 | I_V | | 50 | | mcd |
| | $I_F = 10 \text{ mA}$ | VLMY3001 | I_V | 7.1 | | 18 | mcd |
| | $I_F = 2 \text{ mA}$ | VLMY30J2L1 | I_V | 5.6 | | 14 | mcd |
| | $I_F = 2 \text{ mA}$ | VLMY30K2M1 | I_V | 9 | | 22.4 | mcd |
| | $I_F = 2 \text{ mA}$ | VLMY30J2M1 | I_V | 5.6 | | 22.4 | mcd |
| Dominant wavelength | $I_F = 2 \text{ mA}$ | | λ_d | 581 | | 594 | nm |
| Peak wavelength | $I_F = 2 \text{ mA}$ | | λ_p | | 585 | | nm |
| Angle of half intensity | $I_F = 2 \text{ mA}$ | | ϕ | | ± 60 | | deg |
| Forward voltage | $I_F = 2 \text{ mA}$ | | V_F | | 1.8 | 2.2 | V |
| Reverse voltage | $I_R = 10 \mu\text{A}$ | | V_R | 6 | 15 | | V |

Note:

¹⁾ $T_{amb} = 25 \text{ }^\circ\text{C}$, unless otherwise specified²⁾ In one packing unit $I_{Vmax}/I_{Vmin} \leq 1.6$



| LUMINOUS INTENSITY CLASSIFICATION | | | |
|-----------------------------------|-----------------------|------|------|
| GROUP | LIGHT INTENSITY (mcd) | | |
| STANDARD | OPTIONAL | MIN. | MAX. |
| H | 1 | 2.8 | 3.55 |
| | 2 | 3.55 | 4.5 |
| J | 1 | 4.5 | 5.6 |
| | 2 | 5.6 | 7.1 |
| K | 1 | 7.1 | 9.0 |
| | 2 | 9.0 | 11.2 |
| L | 1 | 11.2 | 14.0 |
| | 2 | 14.0 | 18.0 |
| M | 1 | 18.0 | 22.4 |
| | 2 | 22.4 | 28.0 |

Note:

Luminous Intensity is tested at a current pulse duration of 25 ms and an accuracy of $\pm 11\%$. The above type numbers represent the order groups which include only a few brightness groups. Only one group will be shipped in one reel (there will be no mixing of two groups on each reel). In order to ensure availability, single brightness groups will not be orderable. In a similar manner for colors where wavelength groups are measured and binned, single wavelength groups will be shipped in any one reel. In order to ensure availability, single wavelength groups will not be orderable.

| COLOR CLASSIFICATION | | | | |
|----------------------|----------------------|------|--------|------|
| GROUP | YELLOW | | ORANGE | |
| | DOM. WAVELENGTH (nm) | | | |
| | MIN. | MAX. | MIN. | MAX. |
| 1 | 581 | 584 | | |
| 2 | 583 | 586 | 600 | 603 |
| 3 | 585 | 588 | 602 | 605 |
| 4 | 587 | 590 | 604 | 607 |
| 5 | 589 | 592 | 606 | 609 |
| 6 | 591 | 594 | | |

Note:

Wavelengths are tested at a current pulse duration of 25 ms and an accuracy of ± 1 nm.

| CROSSING TABLE | |
|----------------|-------------|
| VISHAY | OSRAM |
| VLMO30K1L2 | LOT67K-K1L2 |
| VLMO30K1M2 | LOT67K-K1M2 |
| VLMO30L1M2 | LOT67K-L1M2 |
| VLMS30J1K2 | LST67K-J1K2 |
| VLMS30J1L2 | LST67K-J1L2 |
| VLMS30K1L2 | LST67K-K1L2 |
| VLMY30J2L1 | LYT67K-J2L1 |
| VLMY30J2M1 | LYT67K-J2M1 |
| VLMY30K2M1 | LYT67K-K2M1 |

TYPICAL CHARACTERISTICS

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

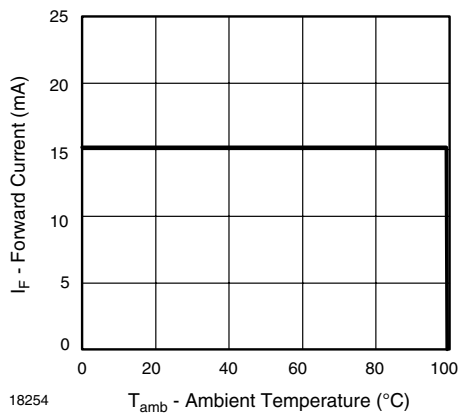


Figure 1. Forward Current vs. Ambient Temperature

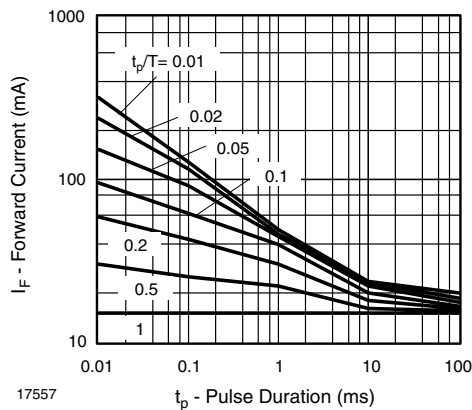


Figure 2. Forward Current vs. Pulse Length

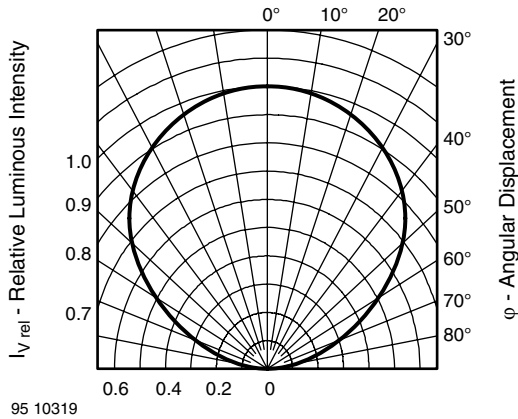


Figure 3. Rel. Luminous Intensity vs. Angular Displacement

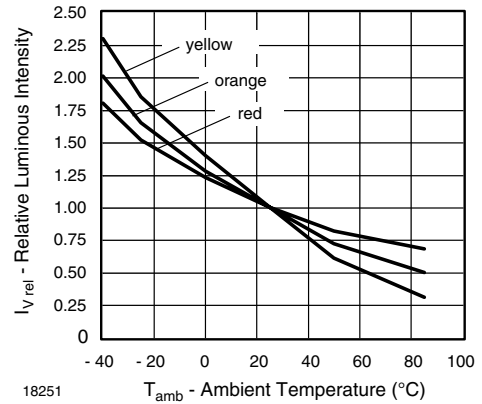


Figure 6. Rel. Luminous Intensity vs. Ambient Temperature

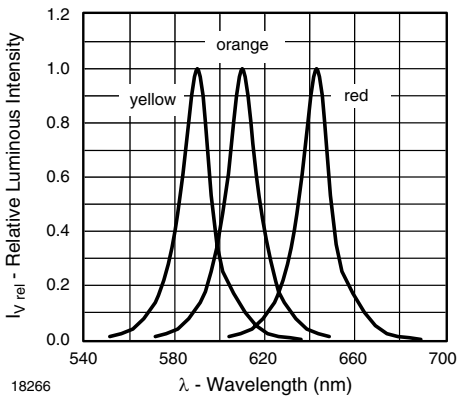


Figure 4. Relative Intensity vs. Wavelength

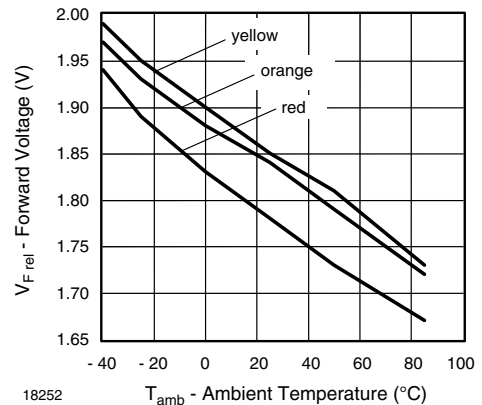


Figure 7. Forward Voltage vs. Ambient Temperature

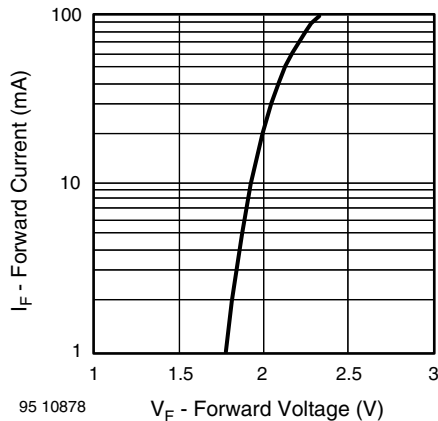
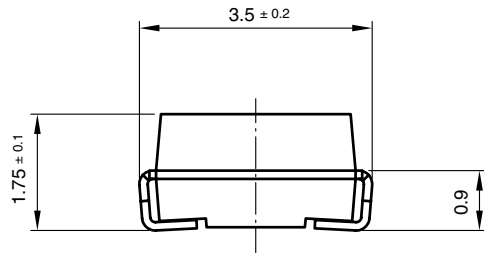
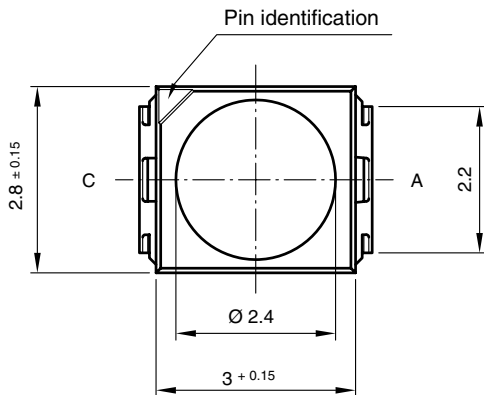


Figure 5. Forward Current vs. Forward Voltage

PACKAGE DIMENSIONS in millimeters



technical drawings
according to DIN
specifications



Mounting Pad Layout



Drawing-No.: 6.541-5067.01-4
Issue: 5; 04.11.08
20541

METHOD OF TAPING/POLARITY AND TAPE AND REEL

SMD LED (VLM.3 - SERIES)

Vishay's LEDs in SMD packages are available in an antistatic 8 mm blister tape (in accordance with DIN IEC 40 (CO) 564) for automatic component insertion. The blister tape is a plastic strip with impressed component cavities, covered by a top tape.



REEL PACKAGE DIMENSION IN MILLIMETERS FOR SMD LEDS, TAPE OPTION GS08 (= 1500 PCS.)

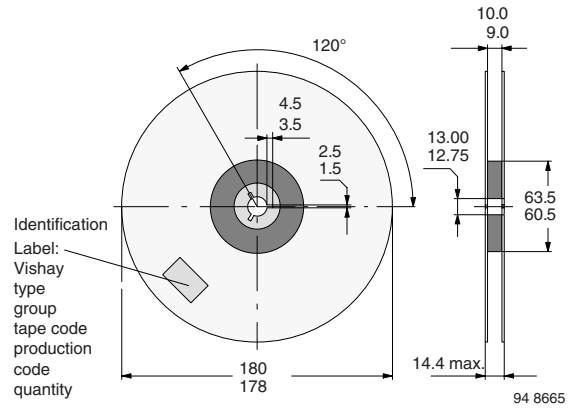


Figure 9. Reel Dimensions - GS08

TAPING OF VLM.3...



Figure 8. Tape Dimensions in mm for PLCC-2

REEL PACKAGE DIMENSION IN MILLIMETERS FOR SMD LEDS, TAPE OPTION GS18 (= 8000 PCS.) PREFERRED



Figure 10. Reel Dimensions - GS18

SOLDERING PROFILE

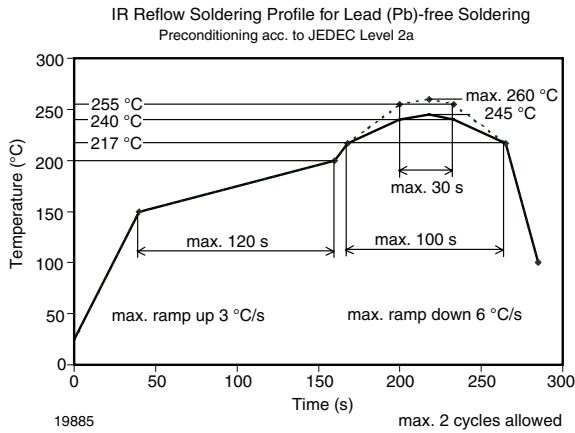


Figure 11. Vishay Lead (Pb)-free Reflow Soldering Profile (acc. to J-STD-020)

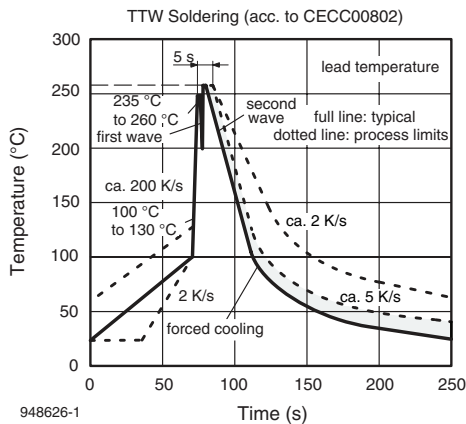
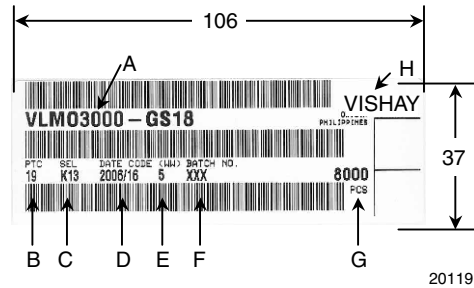


Figure 12. Double Wave Soldering of Opto Devices (all Packages)

BAR CODE PRODUCT LABEL EXAMPLE:



- A) Type of component
- B) Manufacturing plant
- C) SEL - selection code (bin):
e.g.: K1 = code for luminous intensity group
3 = code for color group
- D) Date code year/week
- E) Day code (e.g. 5: Friday)
- F) Batch no.
- G) Total quantity
- H) Company code



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