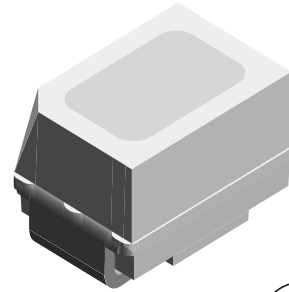


Low Current MiniLED

Description

The new low current MiniLED Series have been designed in a small white SMT package. The feature of the device is the very small package 2.3 mm x 1.3 mm x 1.4 mm and the low forward current. The MiniLED is an obvious solution for small-scale, high-power products that are expected to work reliably in an arduous environment. This is often the case in automotive and industrial application.



19226



Features

- SMD LEDs with exceptional brightness
- Luminous intensity categorized
- Compatible with automatic placement equipment
- IR reflow soldering
- Available in 8 mm tape
- Low profile package
- Non-diffused lens: Excellent for coupling to light pipes and backlighting
- Low power consumption
- Luminous intensity ratio in one packing unit
 $I_{Vmax}/I_{Vmin} \leq 2.0$, optional ≤ 1.6
- Lead-free device

Applications

Automotive: Backlighting in dashboards and switches
 Telecommunication: Indicator and backlighting in telephone and fax
 Indicator and backlight for audio and video equipment
 Indicator and backlight in office equipment
 Flat backlight for LCDs, switches and symbols

Parts Table

Part	Color, Luminous Intensity	Angle of Half Intensity ($\pm\phi$)	Technology
TLMS2000	Red, $I_V = 4.5$ mcd (typ.)	60 °	AllInGaP on GaAs
TLMO2000	Orange, $I_V = 9.0$ mcd (typ.)	60 °	AllInGaP on GaAs
TLMY2000	Yellow, $I_V = 7.1$ mcd (typ.)	60 °	AllInGaP on GaAs

Absolute Maximum Ratings

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

TLMS200. , TLMO200. , TLMY200.

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage		V_R	5	V
DC Forward current	$T_{amb} \leq 100$ °C	I_F	15	mA
Surge forward current	$t_p \leq 10$ μ s	I_{FSM}	0.1	A
Power dissipation	$T_{amb} \leq 100$ °C	P_V	40	mW
Junction temperature		T_j	125	°C
Operating temperature range		T_{amb}	- 40 to + 100	°C

Parameter	Test condition	Symbol	Value	Unit
Storage temperature range		T_{stg}	- 40 to + 100	°C
Soldering temperature	according to IPC 9501	T_{sd}	245	°C
Thermal resistance junction/ambient	mounted on PC board (pad size > 5 mm ²)	R_{thJA}	580	K/W

Optical and Electrical Characteristics

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

Red

TLMS200.

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Luminous intensity ¹⁾	$I_F = 2\text{ mA}$	I_V	2	4.5		mcd
Dominant wavelength	$I_F = 2\text{ mA}$	λ_d		630		nm
Peak wavelength	$I_F = 2\text{ mA}$	λ_p		643		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	$I_R = 10\text{ }\mu\text{A}$	V_R	5			V
Junction capacitance	$V_R = 0, f = 1\text{ MHz}$	C_j		15		pF

¹⁾ in one Packing Unit $I_{Vmax}/I_{Vmin} \leq 2.0$

Orange

TLMO200.

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Luminous intensity ¹⁾	$I_F = 2\text{ mA}$	I_V	4	9		mcd
Dominant wavelength	$I_F = 2\text{ mA}$	λ_d	598	605	611	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	$I_R = 10\text{ }\mu\text{A}$	V_R	5			V
Junction capacitance	$V_R = 0, f = 1\text{ MHz}$	C_j		15		pF

¹⁾ in one Packing Unit $I_{Vmax}/I_{Vmin} \leq 2.0$

Yellow

TLMY200.

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Luminous intensity ¹⁾	$I_F = 2\text{ mA}$	I_V	3.2	7.1		mcd
Dominant wavelength	$I_F = 2\text{ mA}$	λ_d	581	588	594	nm
Peak wavelength	$I_F = 2\text{ mA}$	λ_p		590		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	$I_R = 10\text{ }\mu\text{A}$	V_R	5			V
Junction capacitance	$V_R = 0, f = 1\text{ MHz}$	C_j		15		pF

¹⁾ in one Packing Unit $I_{Vmax}/I_{Vmin} \leq 2.0$

Typical Characteristics ($T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

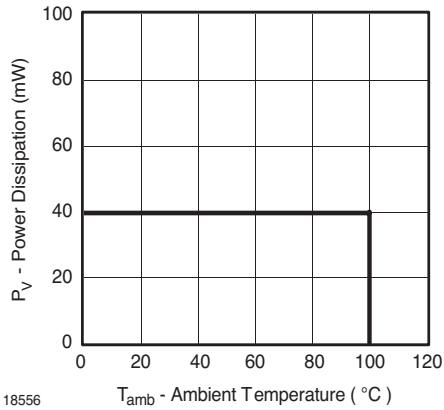


Figure 1. Power Dissipation vs. Ambient Temperature

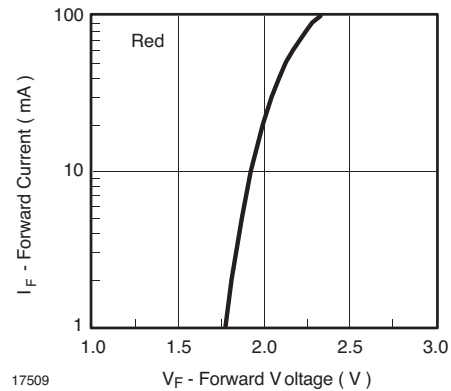


Figure 4. Forward Current vs. Forward Voltage

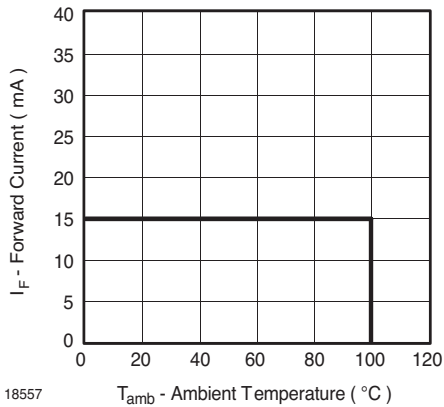


Figure 2. Forward Current vs. Ambient Temperature

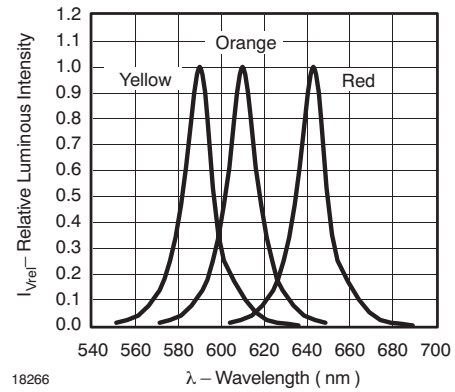


Figure 5. Relative Intensity vs. Wavelength

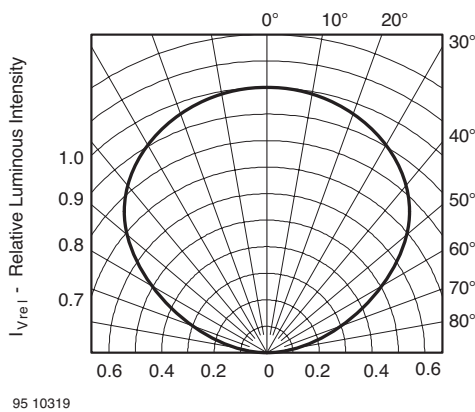


Figure 3. Rel. Luminous Intensity vs. Angular Displacement

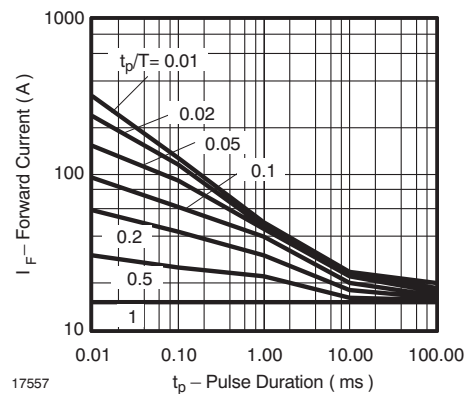


Figure 6. Forward Current vs. Pulse Length

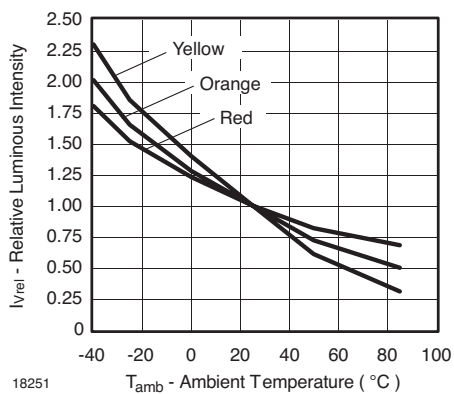


Figure 7. Rel. Luminous Intensity vs. Ambient Temperature

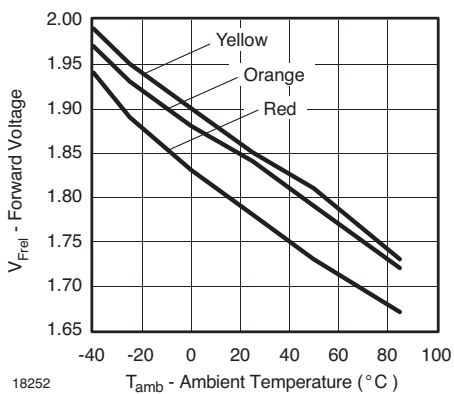
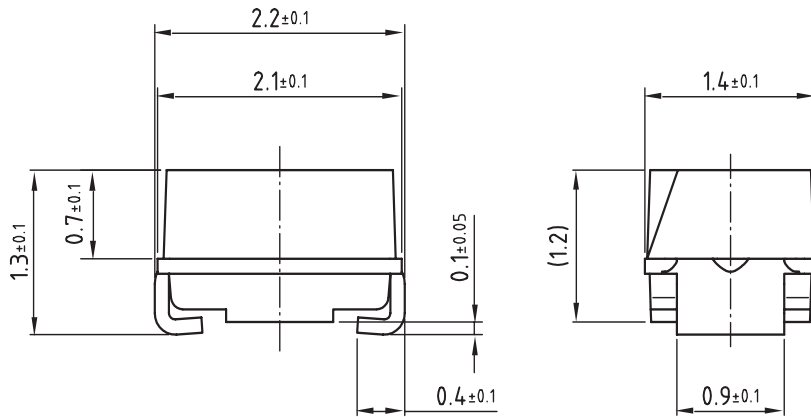
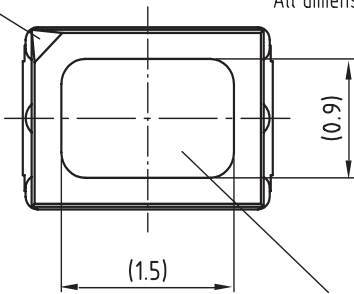


Figure 8. Forward Voltage vs. Ambient Temperature

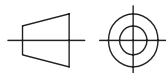
Package Dimensions in mm



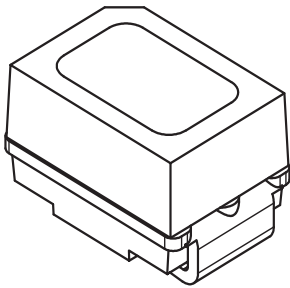
Cathode mark
 Not indicated tolerances ± 0.2
 All dimensions in mm



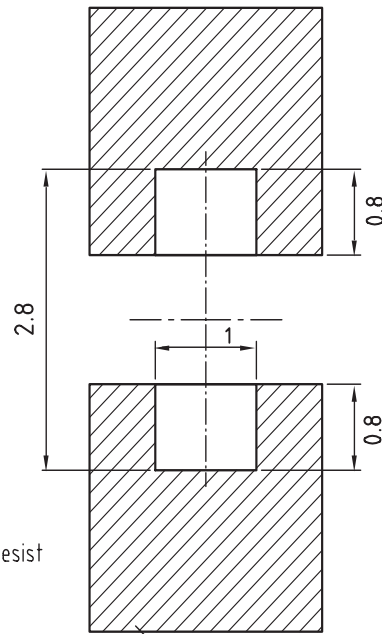
Area not flat



technical drawings according to DIN specifications



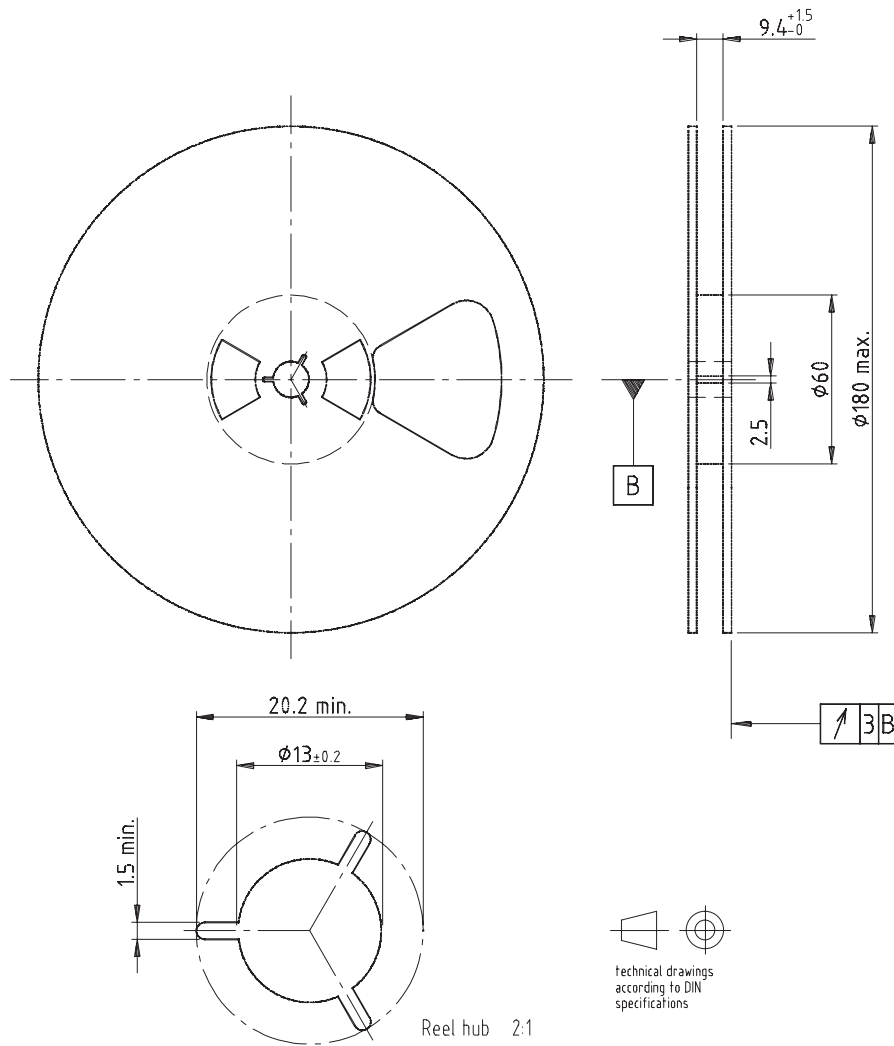
Proposed pad layout (for reference only)



16892

Drawing-No.: 6.541-5052.01-4
 Issue: 3; 22.04.03

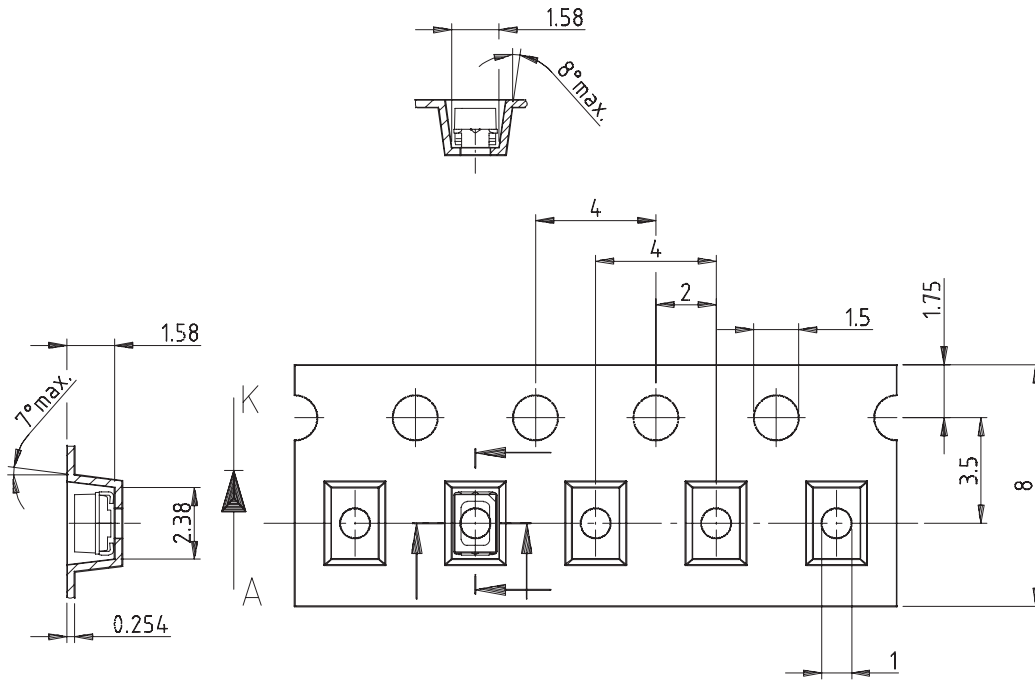
Reel Dimensions



Drawing-No.: 9.800-5051.V5-4
Issue: 1; 25.07.02

16938

Tape Dimensions



Drawing-No.: 9.700-5266.01-4

Issue: 1; 05.06.02

16939

Leader and Trailer

GS08 = 3000 pcs