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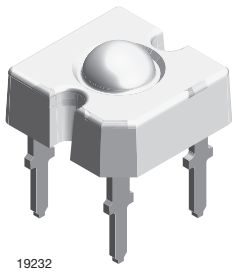
TELUX LED



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DESCRIPTION

The TELUX series is a clear, non diffused LED for applications where supreme luminous flux is required.

It is designed in an industry standard 7.62 mm square package utilizing highly developed (AS) AlInGaP technology.

The supreme heat dissipation of TELUX allows applications at high ambient temperatures.

All packing units are binned for luminous flux, forward voltage, and color to achieve the most homogenous light appearance in application.

SAE and ECE color requirements for automobile application are available for color red.

ESD resistivity 2 kV (HBM) according to MIL STD 883D, method 3015.7.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: TELUX
- Product series: power
- Angle of half intensity: ± 45°

FEATURES

- High luminous flux
- Supreme heat dissipation: R_{thJP} is 90 K/W
- High operating temperature: T_{amb} = -40 °C to +110 °C
- Meets SAE and ECE color requirements for the automobile industry for color red
- Packed in tubes for automatic insertion
- Luminous flux, forward voltage, and color categorized for each tube
- Small mechanical tolerances allow precise usage of external reflectors or lightguides
- Compatible with wave solder processes according to CECC 00802 and J-STD-020
- ESD-withstand voltage: up to 2 kV according to JESD 22-A114-B
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE

Pb-free

e4

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

APPLICATIONS

- Exterior lighting
- Dashboard illumination
- Tail-, stop-, and turn signals of motor vehicles
- Replaces small incandescent lamps
- Traffic signals and signs

PARTS TABLE

PART	COLOR	LUMINOUS FLUX (mlm)			at I_F (mA)	WAVELENGTH (nm)			at I_F (mA)	FORWARD VOLTAGE (V)			at I_F (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
TLWR9900	Red	2500	3900	-	70	611	616	634	70	1.83	2.2	2.67	70	AlInGaP on GaAs

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)

TLWR9900

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage	I_R = 100 µA	V_R	10	V
DC forward current	$T_{amb} \leq 85$ °C	I_F	70	mA
Surge forward current	$t_p \leq 10$ µs	I_{FSM}	0.1	A
Power dissipation	$T_{amb} \leq 85$ °C	P_V	187	mW
Junction temperature		T_j	125	°C
Operating temperature range		T_{amb}	-40 to +110	°C
Storage temperature range		T_{stg}	-55 to +110	°C
Soldering temperature	t ≤ 5 s, 1.5 mm from body preheat temperature 100 °C / 30 s	T_{sd}	260	°C
Thermal resistance junction / ambient	With anode heatsink of 70 mm^2	R_{thJA}	200	K/W

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)
TLWR9900, RED

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Total flux	I_F = 70 mA, R_{thJA} = 200 K/W	ϕ_V	2500	3900	-	mlm
Luminous intensity/total flux	I_F = 70 mA, R_{thJA} = 200 K/W	I_V/ϕ_V	-	0.5	-	mcd/mlm
Dominant wavelength	I_F = 70 mA, R_{thJA} = 200 K/W	λ_d	611	616	634	nm
Peak wavelength	I_F = 70 mA, R_{thJA} = 200 K/W	λ_p	-	624	-	nm
Angle of half intensity	I_F = 70 mA, R_{thJA} = 200 K/W	φ	-	± 45	-	deg
Total included angle	90 % of total flux captured	$\varphi_{0.9\ V}$	-	100	-	deg
Forward voltage	I_F = 70 mA, R_{thJA} = 200 K/W	V_F	1.83	2.2	2.67	V
Reverse voltage		V_R	10	20	-	V
Temperature coefficient of < λ_{dom}	I_F = 70 mA	$T_C\lambda_{dom}$	-	0.07	-	nm/K
Temperature coefficient of V_F	I_F = 70 mA, T > -25 °C	T_{CVF}	-	-2.9	-	mV/K

FORWARD VOLTAGE CLASSIFICATION

GROUP	FORWARD VOLTAGE (V)	
	MIN.	MAX.
Y	1.83	2.07
Z	1.95	2.19
0	2.07	2.31
1	2.19	2.55
2	2.31	2.55
3	2.43	2.67
4	2.55	2.79
5	2.67	2.91
6	2.79	3.03

Note

- Voltages are tested at a current pulse duration of 1 ms and a accuracy of ± 0.1 V.

COLOR CLASSIFICATION

GROUP	DOM. WAVELENGTH (nm)	
	MIN.	MAX.
1	611	618
2	614	622
3	616	634

Note

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

LUMINOUS FLUX CLASSIFICATION

GROUP	LUMINOUS FLUX (mlm)	
	MIN.	MAX.
E	2500	3600
F	3000	4200
G	3500	4800

Note

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

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

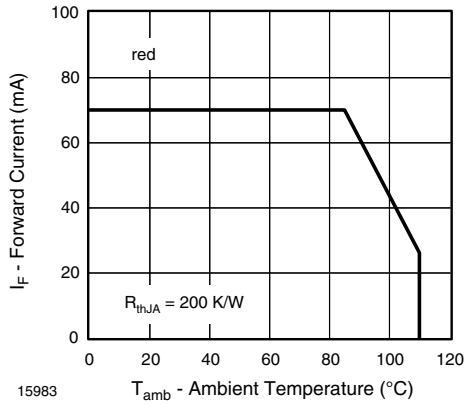


Fig. 1 - Forward Current vs. Ambient Temperature

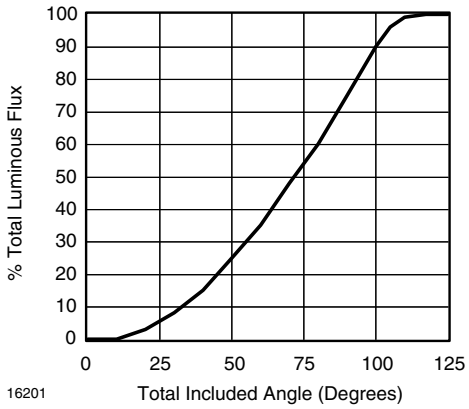


Fig. 4 - Percentage Total Luminous Flux vs. Total Included Angle for 90° Emission Angle

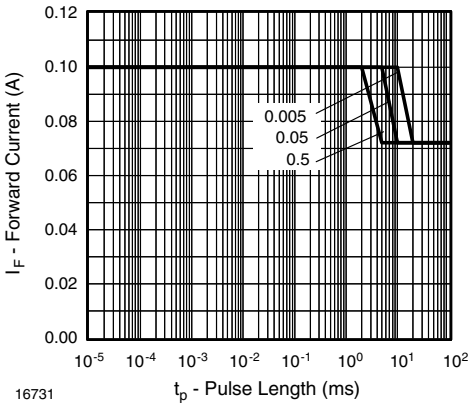


Fig. 2 - Forward Current vs. Pulse Length

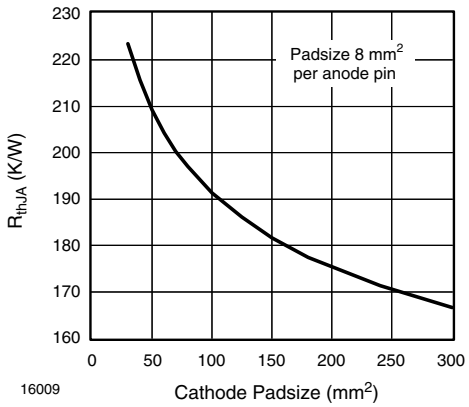


Fig. 5 - Thermal Resistance Junction Ambient vs. Cathode Padsize

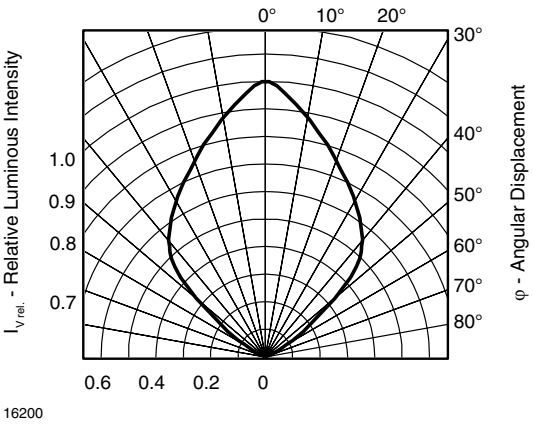
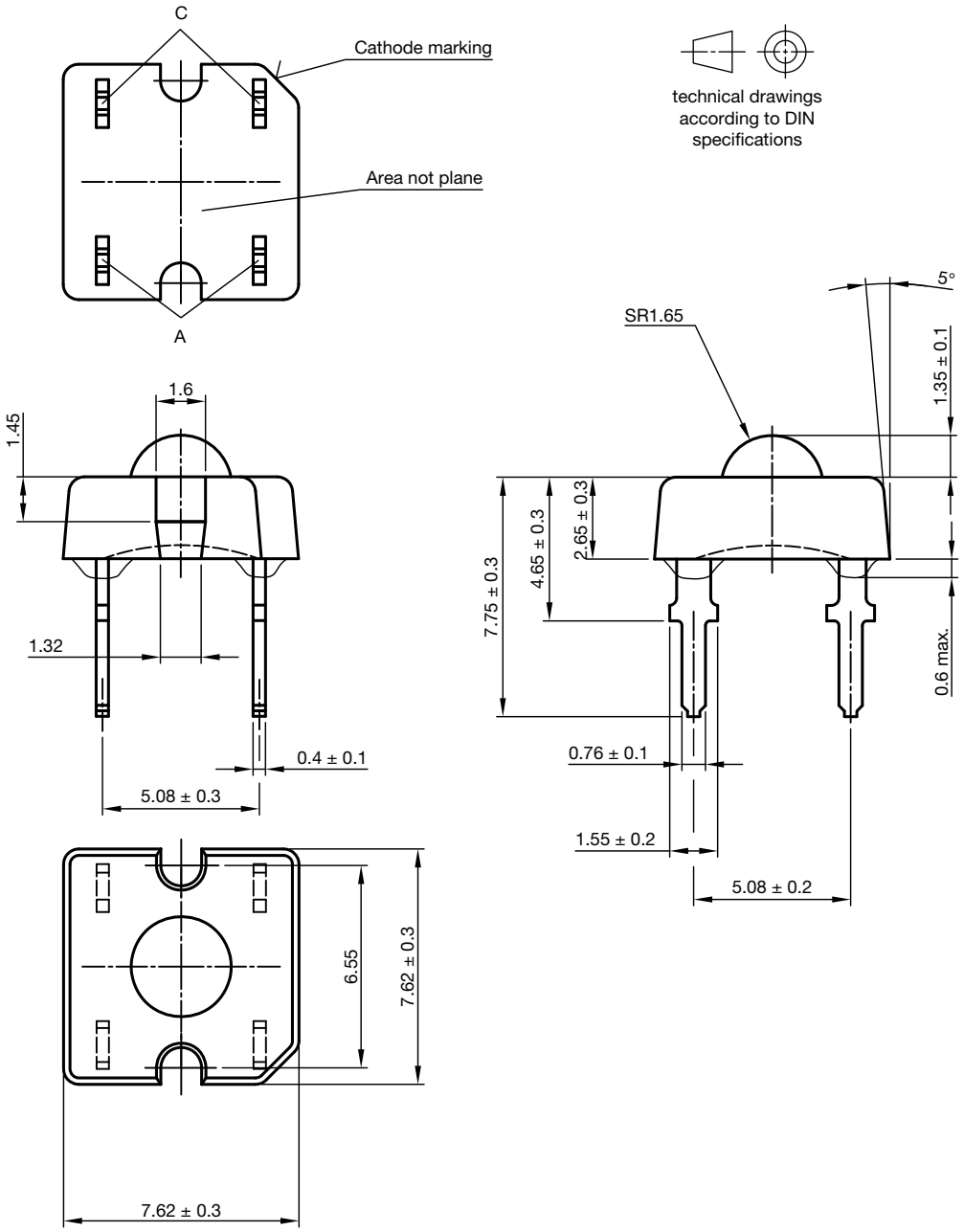


Fig. 3 - Rel. Luminous Intensity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.544-5321.01-4
Issue: 5; 25.07.14

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