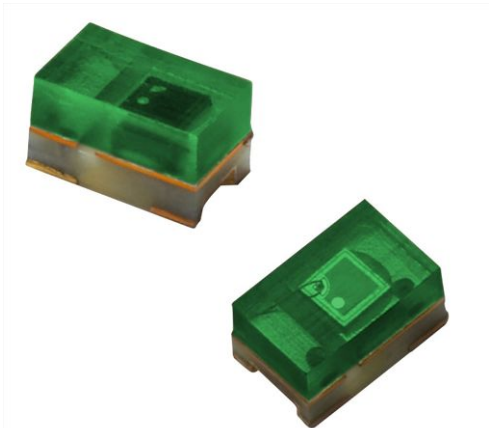


## Ambient Light Sensor



### DESCRIPTION

TEM6200FX01 is a high speed and high sensitive PIN photodiode in a miniature flat plastic package. Its spectral sensitivity is closely matched to the human eye.

### FEATURES

- Package type: Surface mount
- Package form: 0805
- Dimensions (L x W x H in mm): 2 x 1.25 x 0.85
- Radiant sensitive area (in mm<sup>2</sup>): 0.27
- AEC-Q101 qualified
- High photo sensitivity
- Adapted to human eye responsivity
- Angle of half sensitivity:  $\phi = \pm 60^\circ$
- Floor life: 168 h, MSL 3, acc. J-STD-020
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

 AUTOMOTIVE  
GRADE

**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

### APPLICATIONS

- Automotive sensors
- Ambient light sensors
- Backlight dimming
- Mobil phones
- Notebooks
- Computers

### PRODUCT SUMMARY

COMPONENT	$I_{ra}$ ( $\mu A$ )	$\phi$ (deg)	$\lambda_{0.5}$ (nm)
TEM6200FX01	0.04	$\pm 60$	430 to 610

#### Note

- Test condition see table "Basic Characteristics"

### ORDERING INFORMATION

ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TEM6200FX01	Tape and reel	MOQ: 3000 pcs, 3000 pcs/reel	0805

#### Note

- MOQ: Minimum order quantity

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25^\circ C$ , unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		$V_R$	16	V
Power dissipation	$T_{amb} \leq 55^\circ C$	$P_V$	100	mW
Junction temperature		$T_j$	100	$^\circ C$
Operating temperature range		$T_{amb}$	-40 to +100	$^\circ C$
Storage temperature range		$T_{stg}$	-40 to +100	$^\circ C$
Soldering temperature	In accordance with fig. 6	$T_{sd}$	260	$^\circ C$
Thermal resistance junction/ambient		$R_{thJA}$	270	K/W

<b>BASIC CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Breakdown voltage	$I_R = 100\text{ }\mu\text{A}$ , $E = 0\text{ lx}$	$V_{(BR)}$	16			V
Reverse dark current	$V_R = 10\text{ V}$ , $E = 0\text{ lx}$	$I_{ro}$		0.1	5	nA
Diode capacitance	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0\text{ lx}$	$C_D$		60		pF
	$V_R = 5\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0\text{ lx}$	$C_D$		24		pF
Reverse light current	$E_e = 1\text{ mW/cm}^2$ , $\lambda = 550\text{ nm}$ , $V_R = 5\text{ V}$	$I_{ra}$		1		$\mu\text{A}$
	$E_V = 100\text{ lx}$ , CIE illuminant A	$I_{ra}$	0.03	0.04	0.09	$\mu\text{A}$
Angle of half sensitivity		$\phi$		$\pm 60$		deg
Wavelength of peak sensitivity		$\lambda_p$		540		nm
Range of spectral bandwidth		$\lambda_{0.5}$		430 to 610		nm
Rise time	$U_R = 5\text{ V}$ , $R_L = 50\text{ }\Omega$ , TLMW3300	$t_r$		150		ns
Fall time	$U_R = 5\text{ V}$ , $R_L = 50\text{ }\Omega$ , TLMW3300	$t_f$		150		ns

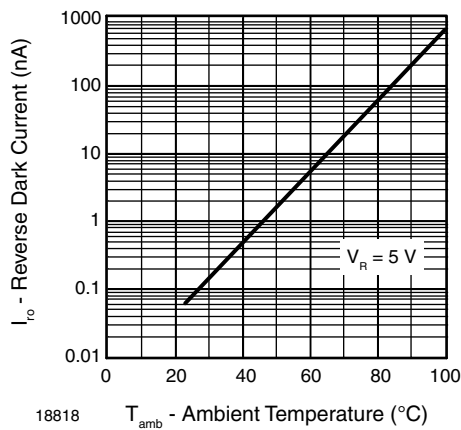
**BASIC CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

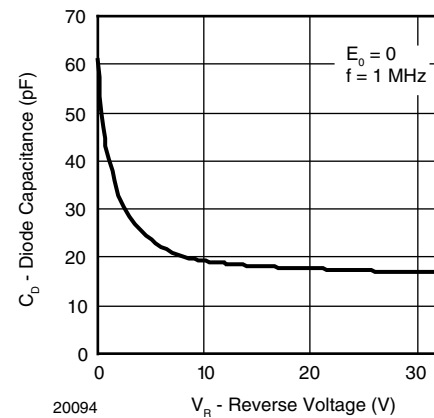


Fig. 3 - Diode Capacitance vs. Reverse Voltage

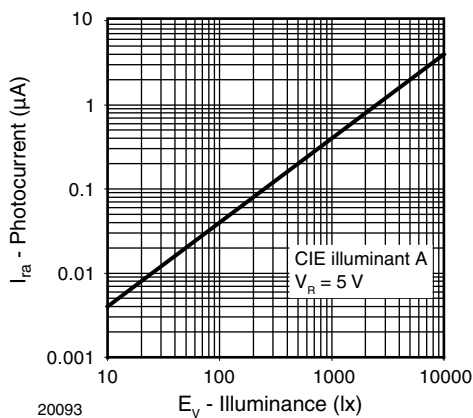


Fig. 2 - Reverse Light Current vs. Illuminance

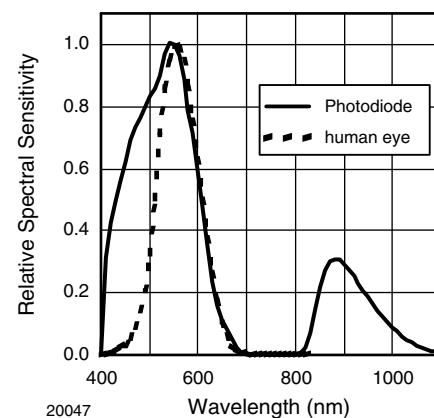


Fig. 4 - Relative Spectral Sensitivity vs. Wavelength

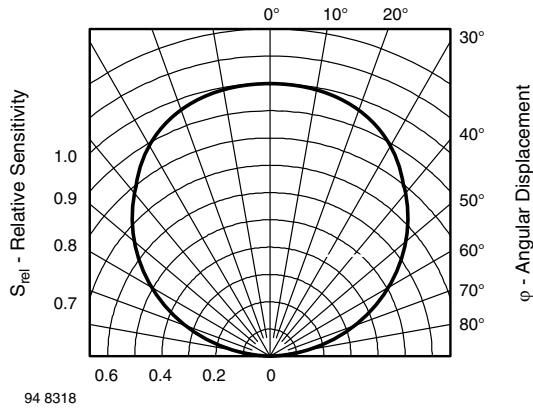


Fig. 5 - Relative Radiant Sensitivity vs. Angular Displacement

**SOLDER PROFILE**

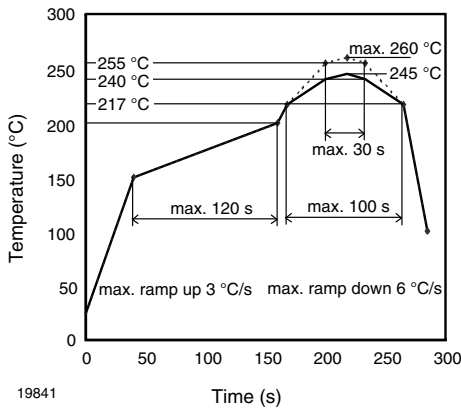


Fig. 6 - Lead (Pb)-free Reflow Solder Profile acc. J-STD-020

**DRYPACK**

Devices are packed in moisture barrier bags (MBB) to prevent the products from moisture absorption during transportation and storage. Each bag contains a desiccant.

**FLOOR LIFE**

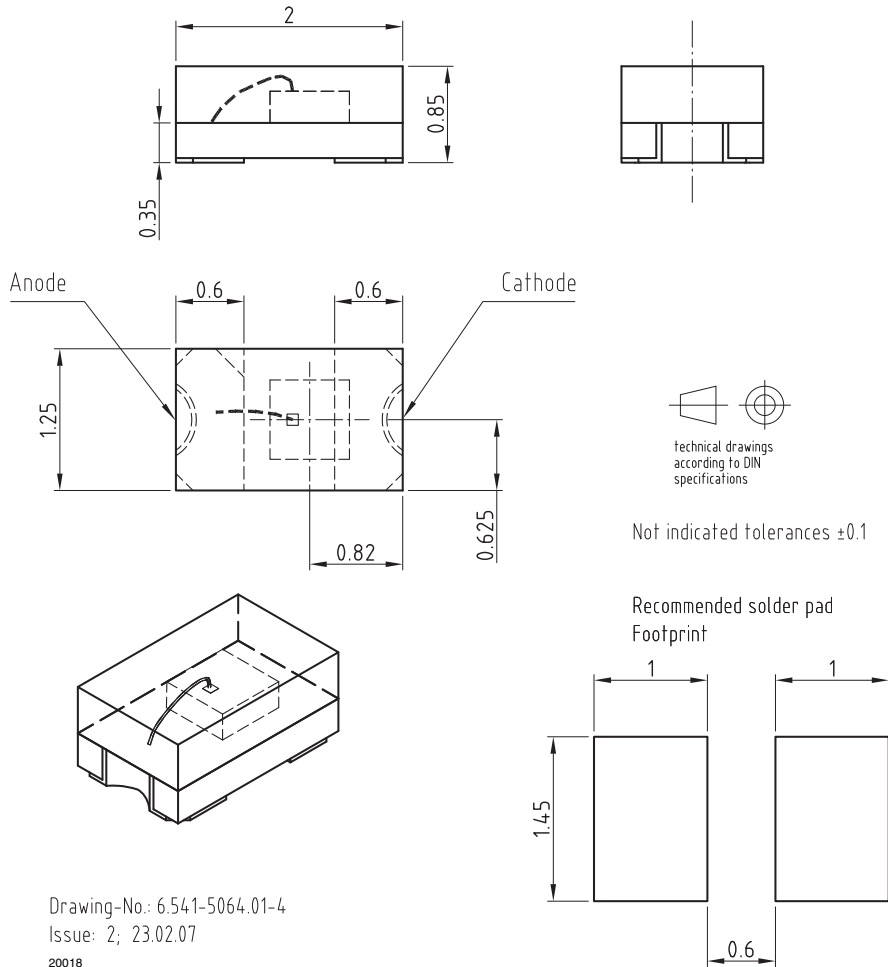
Time between soldering and removing from MBB must not exceed the time indicated in J-STD-020:  
 Moisture sensitivity: Level 3  
 Floor life: 168 h  
 Conditions:  $T_{amb} < 30\text{ }^{\circ}\text{C}$ ,  $RH < 60\%$

**DRYING**

In case of moisture absorption devices should be baked before soldering. Conditions see J-STD-020 or label. Devices taped on reel dry using recommended conditions:  
 192 h at  $40\text{ }^{\circ}\text{C}$  (+  $5\text{ }^{\circ}\text{C}$ ),  $RH < 5\%$   
 or  
 96 h at  $60\text{ }^{\circ}\text{C}$  (+  $5\text{ }^{\circ}\text{C}$ ),  $RH < 5\%$ .

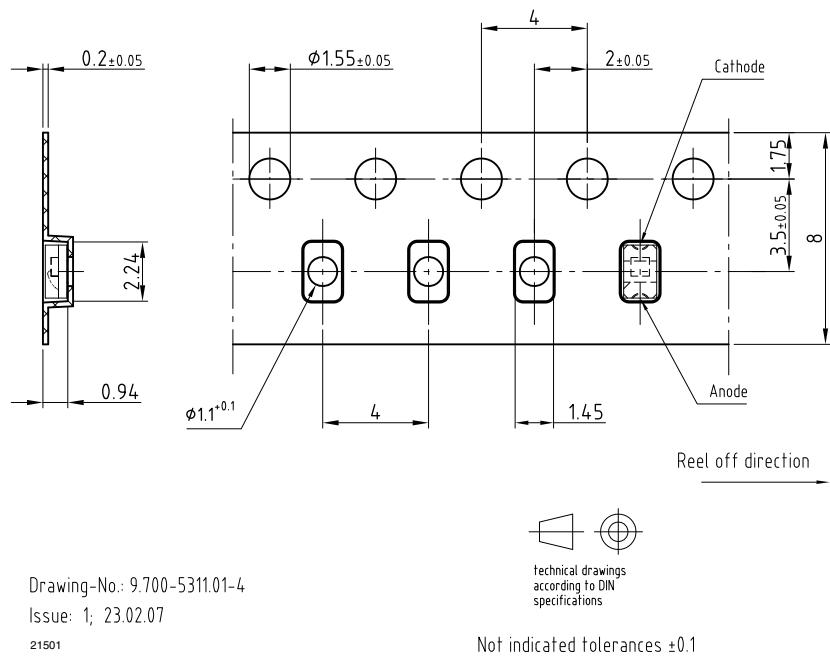


PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.541-5064.01-4  
Issue: 2; 23.02.07  
20018

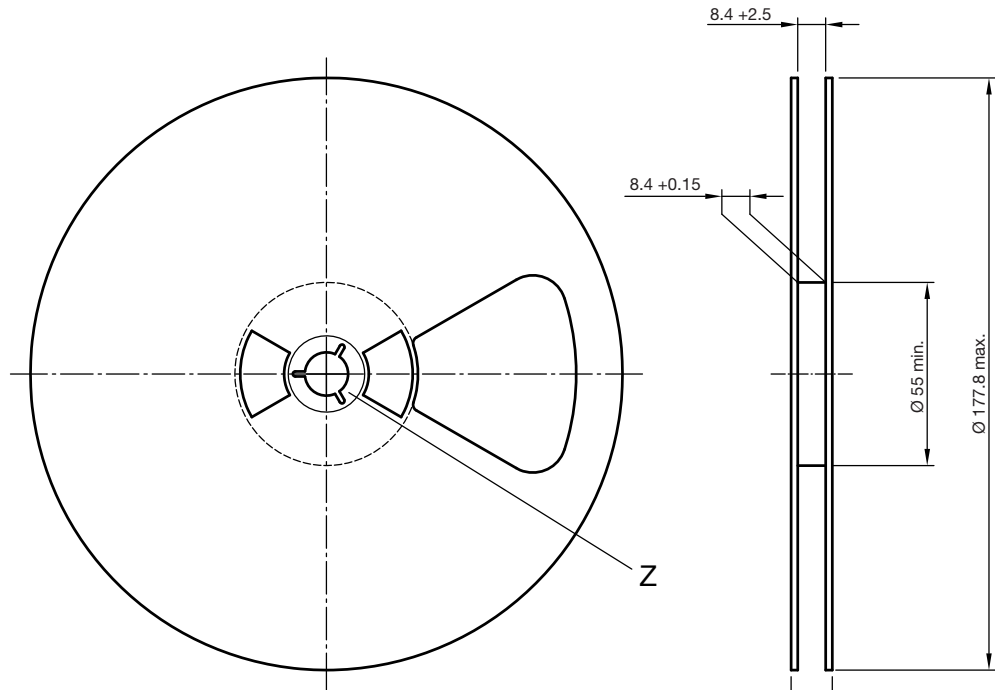
BLISTER TAPE DIMENSIONS in millimeters



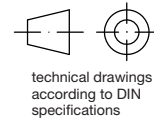
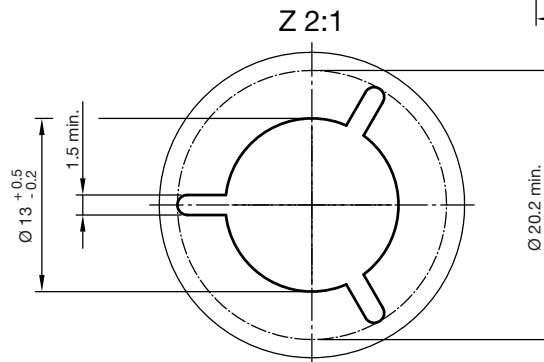
Drawing-No.: 9.700-5311.01-4  
Issue: 1; 23.02.07  
21501



REEL DIMENSIONS in millimeters



Form of the leave open of the wheel is supplier specific.



Drawing-No.: 9.800-5096.01-4  
 Issue: 2; 26.04.10  
 20875



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