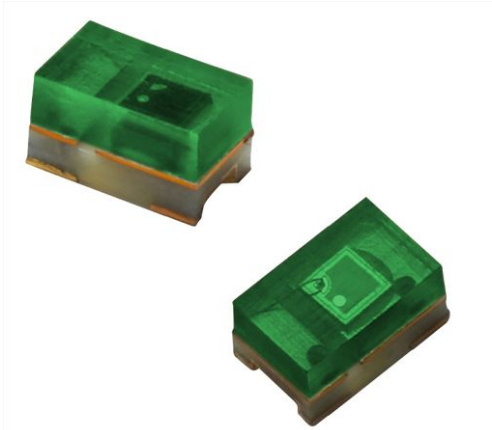


Ambient Light Sensor



DESCRIPTION

TEMD6200FX01 is a high speed and high sensitive PIN photodiode in a miniature flat plastic package. It's 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 mm²): 0.27
- AEC-Q101 qualified
- High photo sensitivity
- Adapted to human eye responsivity
- Angle of half sensitivity: $\varphi = \pm 60^\circ$
- Floor life: 168 h, MSL 3, acc. J-STD-020
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

 AUTOMOTIVE
GRADE

RoHS
COMPLIANT
GREEN
(5-2009)

APPLICATIONS

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

PRODUCT SUMMARY

| COMPONENT | I_{ra} (μA) | φ (deg) | $\lambda_{0.5}$ (nm) |
|--------------|----------------------|-----------------|----------------------|
| TEMD6200FX01 | 0.04 | ± 60 | 430 to 610 |

Note

- Test condition see table "Basic Characteristics"

ORDERING INFORMATION

| ORDERING CODE | PACKAGING | REMARKS | PACKAGE FORM |
|---------------|---------------|------------------------------|--------------|
| TEMD6200FX01 | 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 |

| BASIC CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, 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 | | μA |
| | $E_V = 100\text{ lx}$, CIE illuminant A | I_{ra} | 0.03 | 0.04 | 0.09 | μA |
| Angle of half sensitivity | | ϕ | | ± 60 | | deg |
| Wavelength of peak sensitivity | | λ_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 |

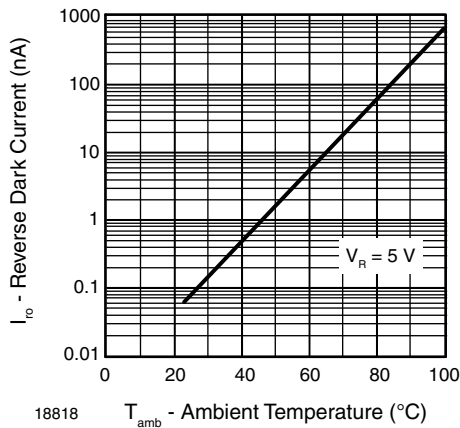
BASIC CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


Fig. 1 - Diode Capacitance vs. Reverse Voltage

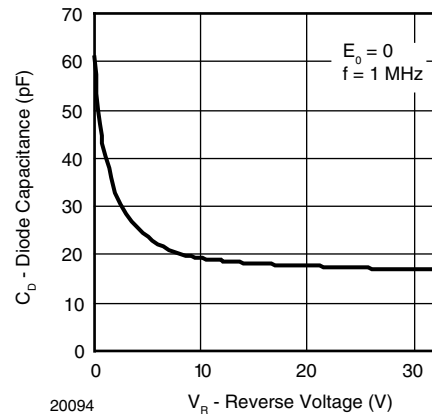


Fig. 3 - Diode Capacitance vs. Reverse Voltage

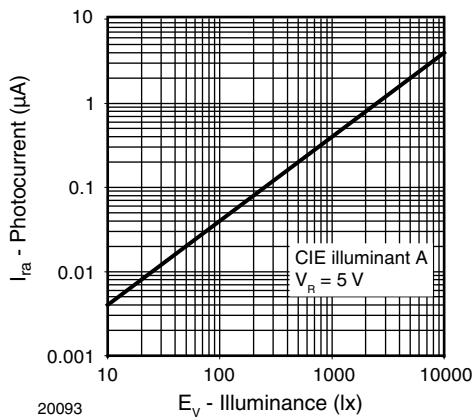


Fig. 2 - Reverse Light Current vs. Illuminance

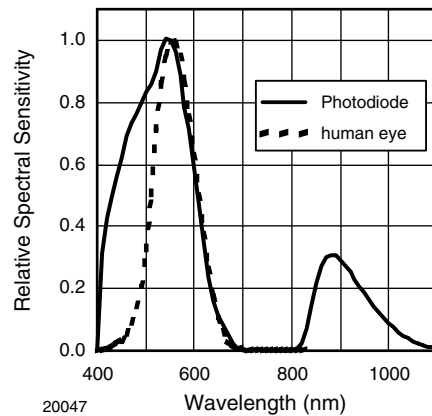


Fig. 4 - Relative Spectral Sensitivity vs. Wavelength

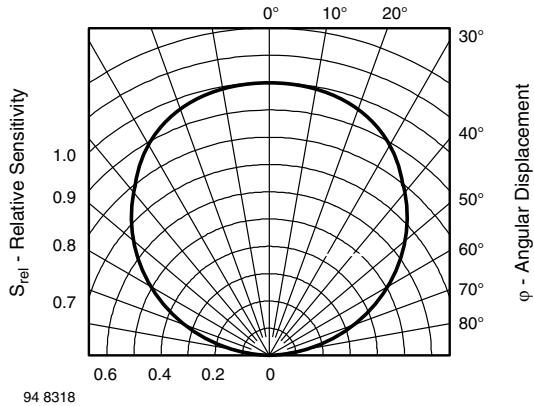


Fig. 5 - Relative Radiant Sensitivity vs. Angular Displacement

SOLDER PROFILE

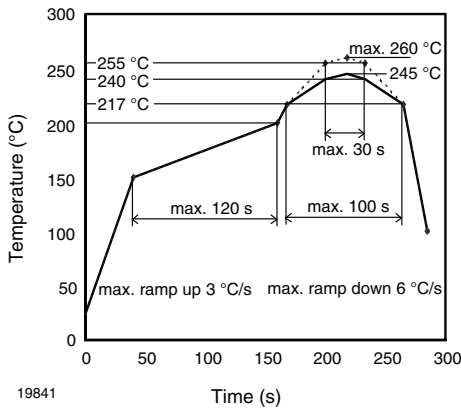


Fig. 6 - Lead (Pb)-free Reflow Solder Profile acc. J-STD-020

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.

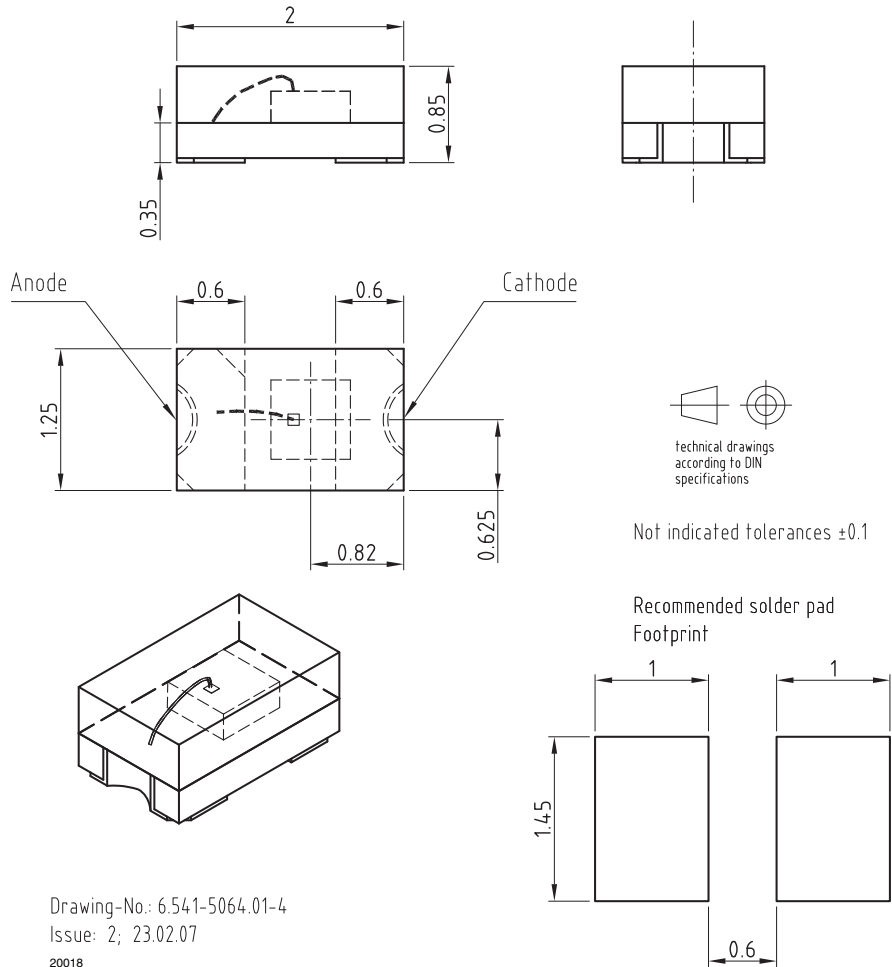
FLOOR LIFE

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: $T_{amb} < 30\text{ }^{\circ}\text{C}$, $\text{RH} < 60\%$

DRYING

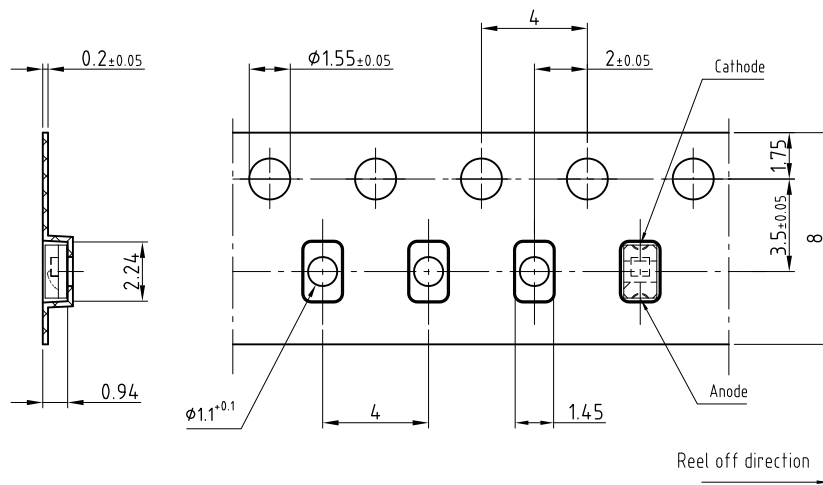
In case of moisture absorption devices should be baked before soldering. Conditions see J-STD-020 or label. Devices taped on reel dry using recommended conditions:
 192 h at $40\text{ }^{\circ}\text{C}$ (+ 5 °C), $\text{RH} < 5\%$
 or
 96 h at $60\text{ }^{\circ}\text{C}$ (+ 5 °C), $\text{RH} < 5\%$.

PACKAGE DIMENSIONS in millimeters



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

BLISTER TAPE DIMENSIONS in millimeters



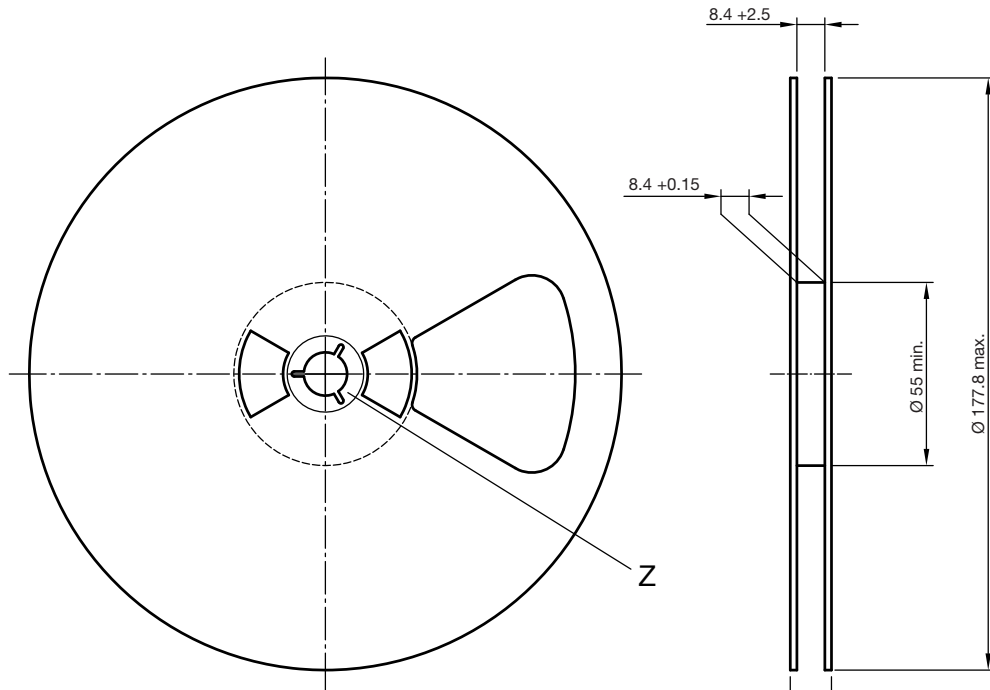
Drawing-No: 9.700-5311.01-4
 Issue: 1; 23.02.07
 21501

Technical drawings according to DIN specifications

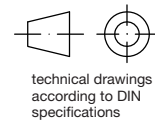
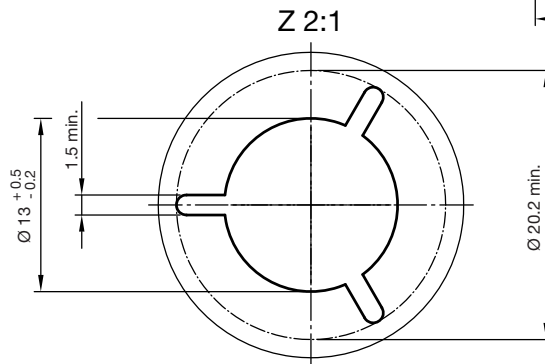
Not indicated tolerances ± 0.1



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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