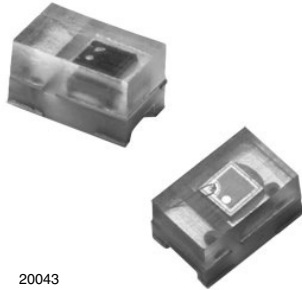


## Ambient Light Sensor



20043

### 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 mm<sup>2</sup>): 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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



### APPLICATIONS

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

### PRODUCT SUMMARY

COMPONENT	I <sub>PCE</sub> (μA)	φ (deg)	λ <sub>0.5</sub> (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

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V <sub>R</sub>	16	V
Power dissipation	T <sub>amb</sub> ≤ 55 °C	P <sub>V</sub>	100	mW
Junction temperature		T <sub>j</sub>	100	°C
Operating temperature range		T <sub>amb</sub>	- 40 to + 100	°C
Storage temperature range		T <sub>stg</sub>	- 40 to + 100	°C
Soldering temperature	In accordance with fig. 6	T <sub>sd</sub>	260	°C
Thermal resistance junction/ambient		R <sub>thJA</sub>	270	K/W

#### Note

T<sub>amb</sub> = 25 °C, unless otherwise specified



BASIC CHARACTERISTICS						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Breakdown voltage	$I_R = 100 \mu A, E = 0 \text{ lx}$	$V_{(BR)}$	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		$\mu A$
	$E_v = 100 \text{ lx}, \text{ CIE illuminant A}$	$I_{ra}$	0.03	0.04		$\mu A$
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	$U_R = 5 \text{ V}, R_L = 50 \Omega, \text{ TLMW3300}$	$t_r$		150		ns
Fall time	$U_R = 5 \text{ V}, R_L = 50 \Omega, \text{ TLMW3300}$	$t_f$		150		ns

**Note**

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

**BASIC CHARACTERISTICS**

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

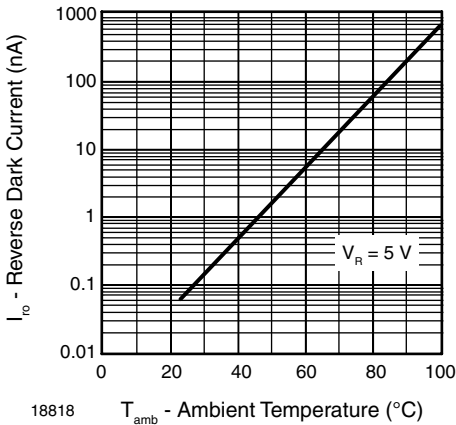


Fig. 1 - Diode Capacitance vs. Reverse Voltage

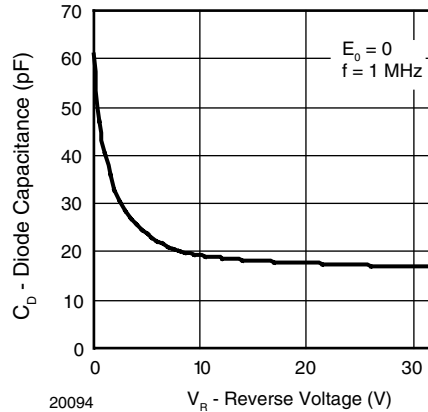


Fig. 3 - Diode Capacitance vs. Reverse Voltage

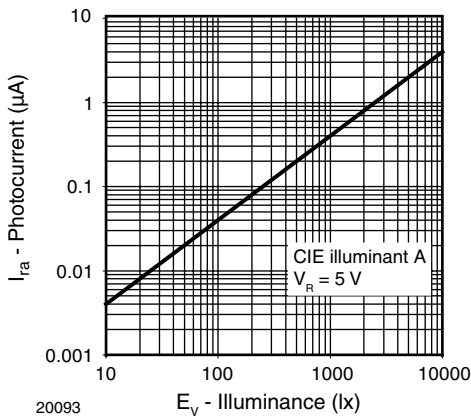


Fig. 2 - Reverse Light Current vs. Illuminance

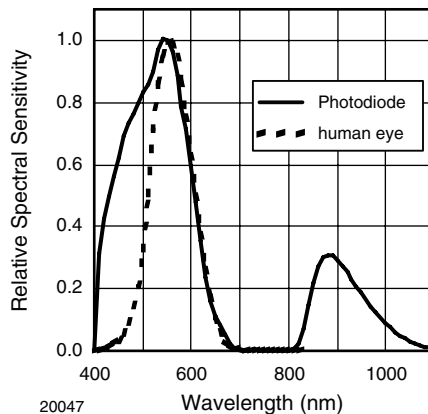


Fig. 4 - Relative Spectral Sensitivity vs. Wavelength

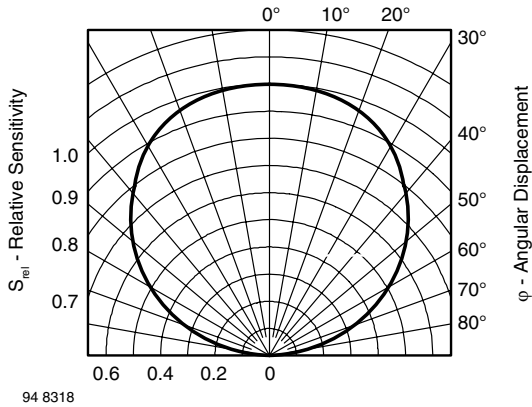


Fig. 5 - Relative Radiant Sensitivity vs. Angular Displacement

**SOLDER PROFILE**

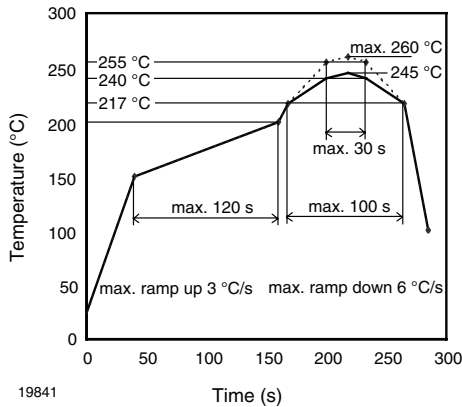


Fig. 6 - Lead (Pb)-free Reflow Solder Profile acc. J-STD-020

**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**

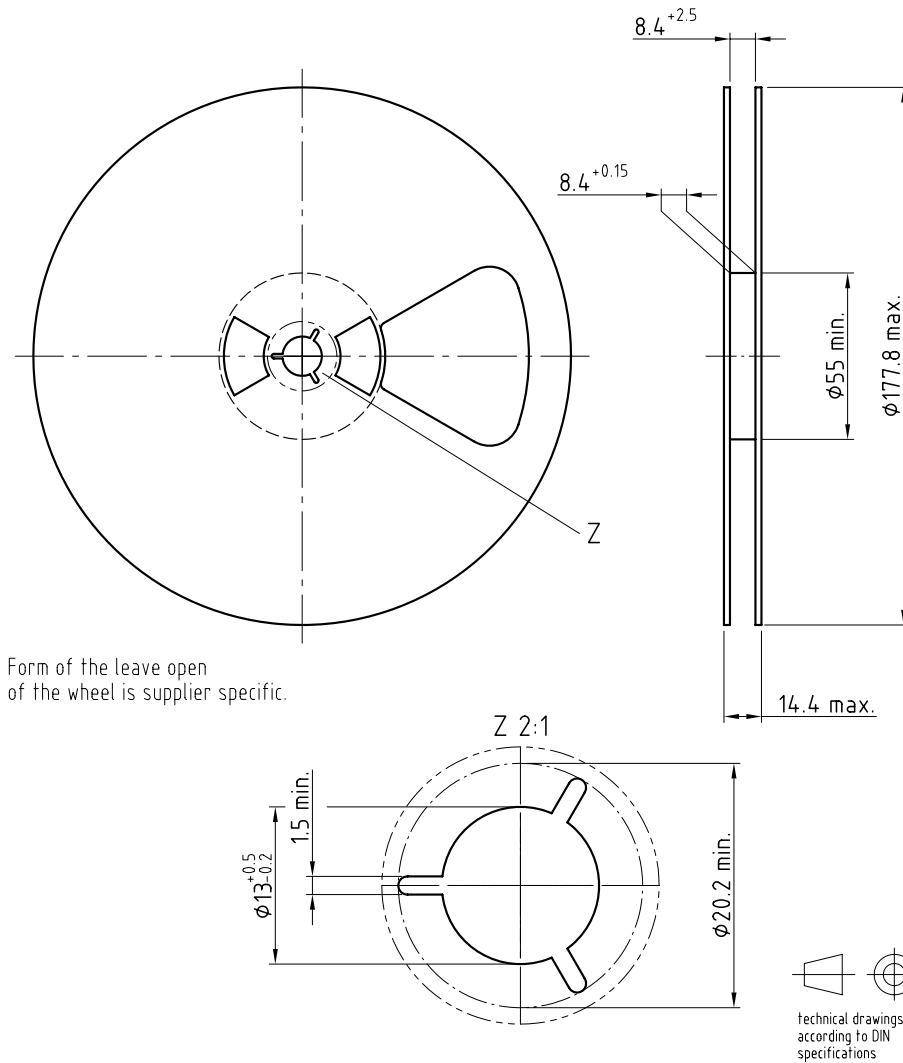
Time between soldering and removing from MBB must not exceed the time indicated in J-STD-020:  
Moisture sensitivity: level 3  
Floor life: 168 h  
Conditions:  $T_{amb} < 30\text{ }^{\circ}\text{C}$ ,  $RH < 60\%$

**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),  $RH < 5\%$   
or  
96 h at  $60\text{ }^{\circ}\text{C}$  (+ 5 °C),  $RH < 5\%$ .



**REEL DIMENSIONS** in millimeters



Drawing-No.: 9.800-5096.01-4

Issue: 1; 05.05.08

20875



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