

TEMT6200FX01

Vishay Semiconductors

勝特力材料 886-3-5753170
 胜特力电子(上海) 86-21-34970699
 胜特力电子(深圳) 86-755-83298787
 Http://www.100y.com.tw



Ambient Light Sensor in 0805 Package



20043

DESCRIPTION

TEMT6200FX01 ambient light sensor is a silicon NPN epitaxial planar phototransistor in a miniature transparent 0805 package for surface mounting. It is sensitive to visible light much like the human eye and has peak sensitivity at 550 nm.

FEATURES

- Package type: surface mount
- Package form: 0805
- Dimensions (L x W x H in mm): 2 x 1.25 x 0.85
- AEC-Q101 qualified
- High photo sensitivity
- Adapted to human eye responsivity
- Supression filter for near infrared radiation
- Angle of half sensitivity: $\varphi = \pm 60^\circ$
- Floor life: 168 h, MSL 3, acc. J-STD-020
- Lead (Pb)-free reflow soldering
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT



APPLICATIONS

- Automotive sensors
- Ambient light sensor for display backlight dimming in:
 - Mobile phones
 - Notebook computers
 - PDAs
 - Cameras
 - Dashboards

PRODUCT SUMMARY

COMPONENT	I_{PCE} (μA)	φ (deg)	$\lambda_{0.5}$ (nm)
TEMT6200FX01	7.5 to 39	± 60	450 to 610

Note

Test condition see table "Basic Characteristics"

ORDERING INFORMATION

ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TEMT6200FX01	Tape and reel	MOQ: 3000 pcs, 3000 pcs/reel. Label with I_{PCE} group on each reel. Specifications of group A/B/C see table "Type Dedicated Characteristics"	0805

Note

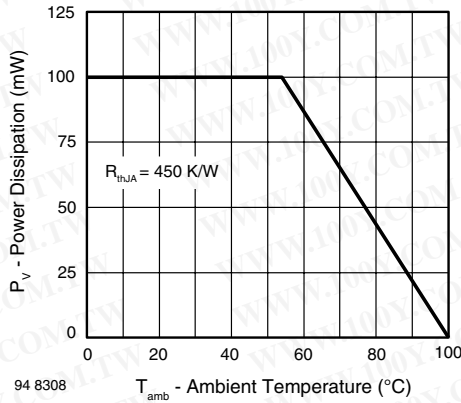
MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Collector emitter voltage		V_{CEO}	6	V
Emitter collector voltage		V_{ECO}	1.5	V
Collector current		I_C	20	mA
Power dissipation		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	Acc. reflow profile fig. 9	T_{sd}	260	$^\circ C$
Thermal resistance junction/ambient	Soldered on PCB with pad dimensions: 4 mm x 4 mm	R_{thJA}	450	K/W

Note

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



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Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

BASIC CHARACTERISTICS						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector emitter breakdown voltage	I _C = 0.1 mA	V _{CEO}	6			V
Collector dark current	V _{CE} = 5 V, E = 0 lx	I _{CEO}		3	50	nA
Collector emitter capacitance	V _{CE} = 0 V, f = 1 MHz, E = 0 lx	C _{CEO}		16		pF
Photo current	E _V = 20 lx, CIE illuminant A, V _{CE} = 5 V	I _{PCE}		4.6		μA
	E _V = 100 lx, CIE illuminant A, V _{CE} = 5 V	I _{PCE}	7.5		39	μA
Temperature coefficient of I _{PCE}	CIE illuminant A	TK _{I_{PCE}}		1.18		%/K
	LED, white	TK _{I_{PCE}}		0.9		%/K
Angle of half sensitivity		φ		± 60		deg
Wavelength of peak sensitivity		λ _p		550		nm
Range of spectral bandwidth		λ _{0.5}		450 to 610		nm
Collector emitter saturation voltage	E _V = 20 lx, 0.45 μA	V _{CEsat}		0.1		V

Note

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

TYPE DEDICATED CHARACTERISTICS						
PARAMETER	TEST CONDITION	SELECTION TYPE	SYMBOL	MIN.	MAX.	UNIT
Photo current	E _V = 100 lx, CIE illuminant A, V _{CE} = 5 V	TEMT6200FX01A	I _{PCE}	7.5	15	μA
		TEMT6200FX01B	I _{PCE}	12	24	μA
		TEMT6200FX01C	I _{PCE}	19.5	39	μA

Note

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BASIC CHARACTERISTICS

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

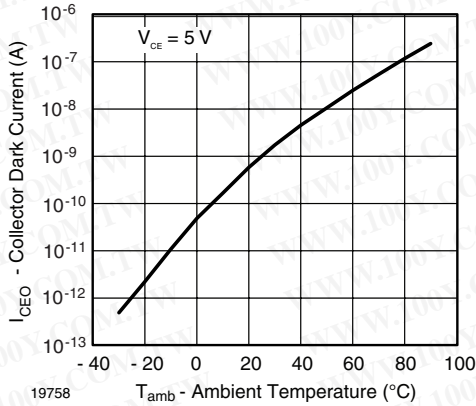


Fig. 2 - Collector Dark Current vs. Ambient Temperature

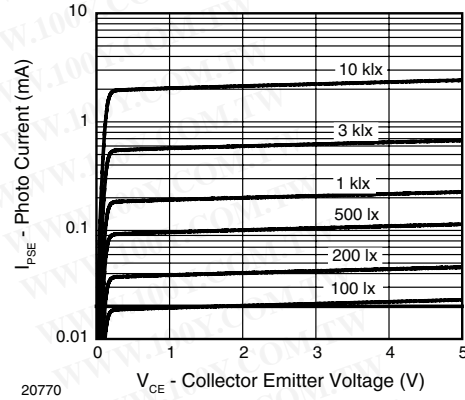


Fig. 5 - Photo Current vs. Collector Emitter Voltage

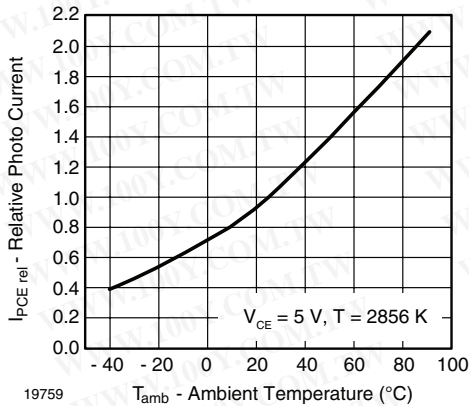


Fig. 3 - Relative Photo Current vs. Ambient Temperature

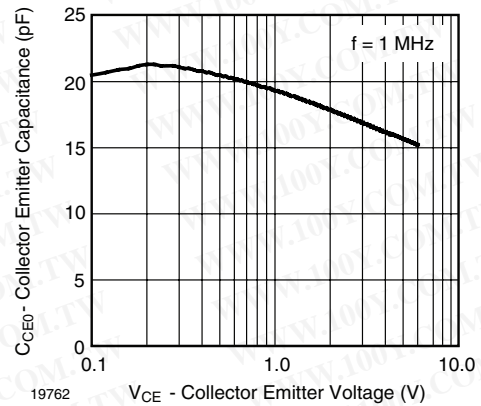


Fig. 6 - Collector Emitter Capacitance vs. Collector Emitter Voltage

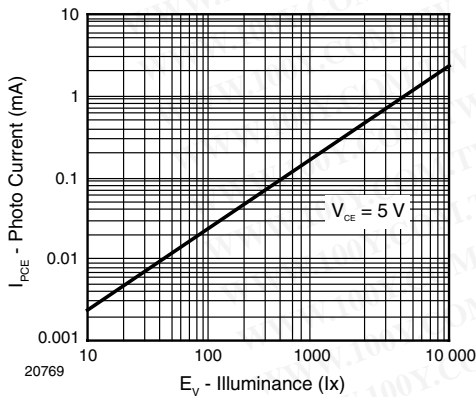


Fig. 4 - Photo Current vs. Illuminance

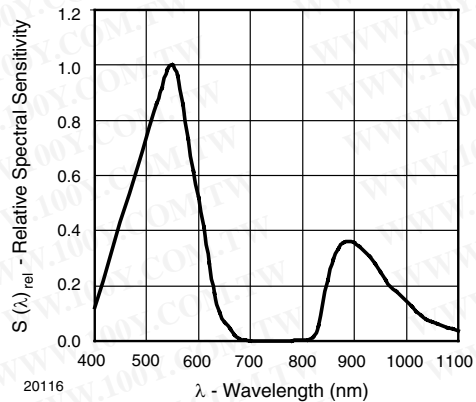


Fig. 7 - Relative Spectral Sensitivity vs. Wavelength

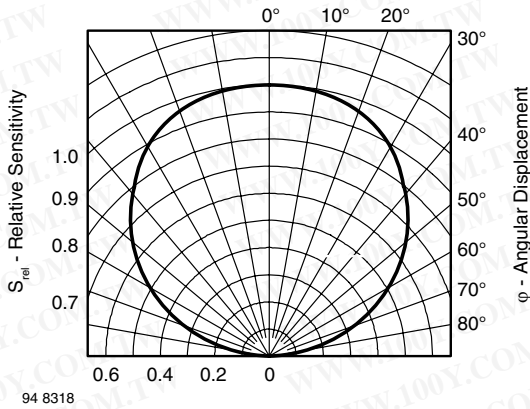


Fig. 8 - Relative Radiant Sensitivity vs. Angular Displacement

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REFLOW SOLDER PROFILE

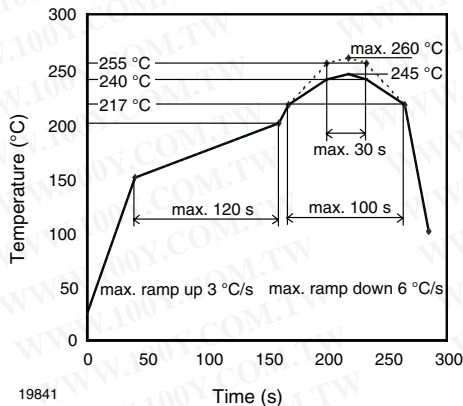


Fig. 9 - Lead (Pb)-free Reflow Solder Profile acc. J-STD-020D

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 $40\text{ }^{\circ}\text{C}$ ($+ 5\text{ }^{\circ}\text{C}$), $\text{RH} < 5\%$.

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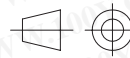
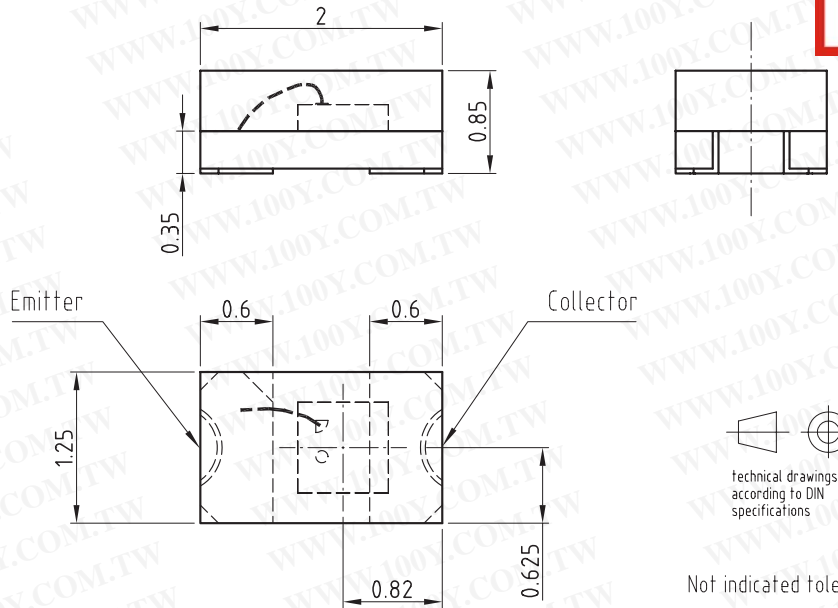
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Package



PACKAGE DIMENSIONS in millimeters

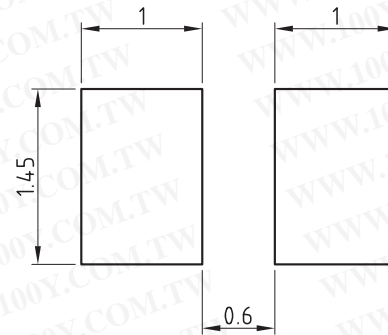
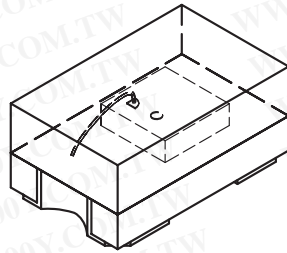
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technical drawings
according to DIN
specifications

Not indicated tolerances ± 0.1

Recommended solder pad
Footprint



Drawing-No.: 6.541-5063.01-4

Issue: 3; 23.02.07

19757



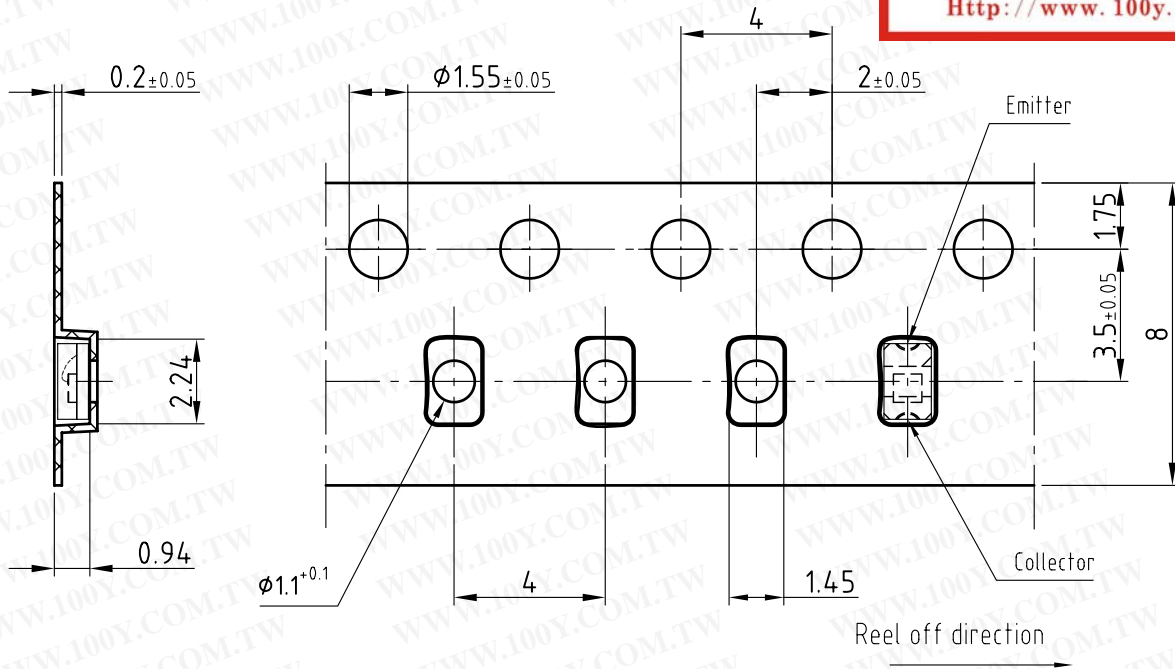
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BLISTER TAPE DIMENSIONS in millimeters

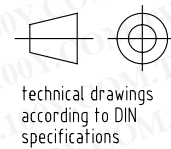
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Drawing-No.: 9.700-5310.01-4
Issue: 2; 14.08.07
20690

Not indicated tolerances ± 0.1

Quantity per reel: 3000 pcs



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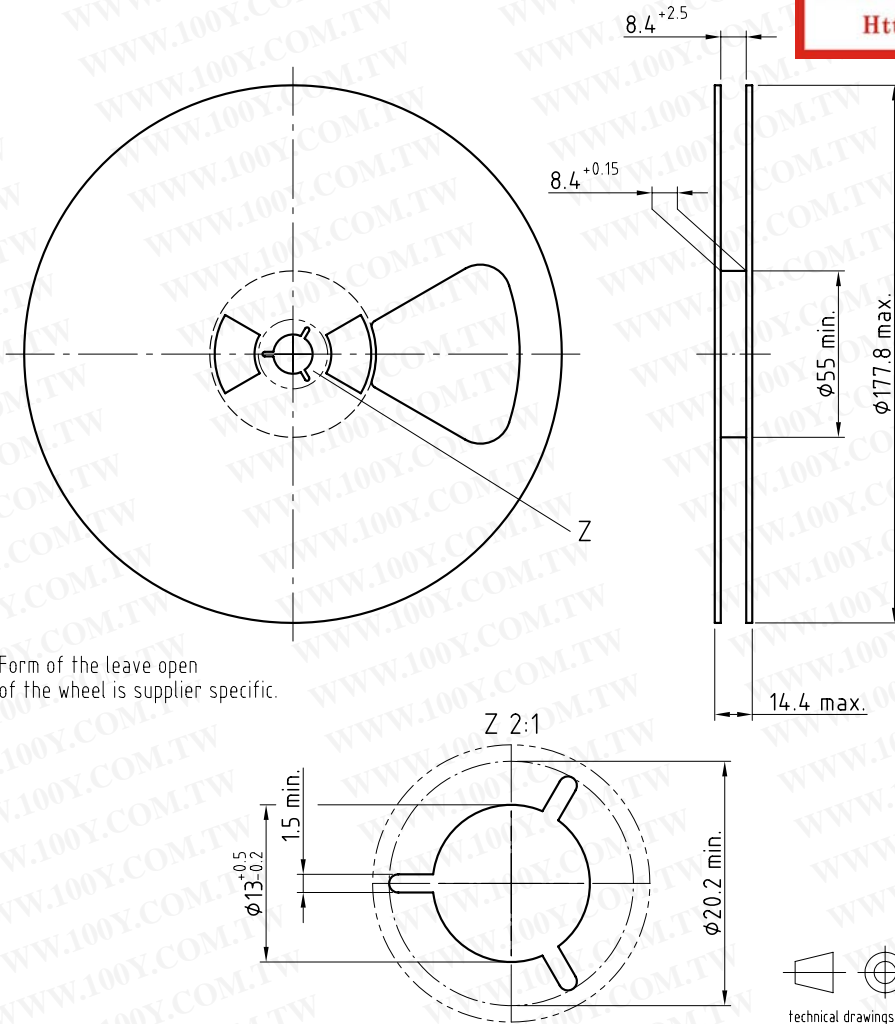
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REEL DIMENSIONS in millimeters

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Drawing-No.: 9.800-5096.01-4

Issue: 1; 05.05.08

20875



Disclaimer

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