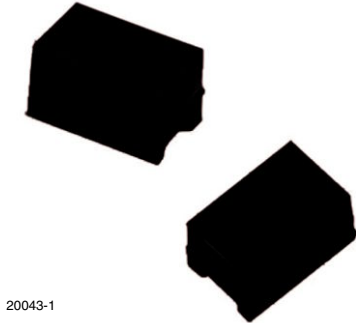




Silicon Phototransistor in 0805 Package



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
- Daylight blocking filter matches with 830 nm to 950 nm IR emitters
- Angle of half sensitivity: $\phi = \pm 60^\circ$
- Package matched with IR emitter series VSMB1940X01
- 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



DESCRIPTION

TEMT7100X01 is a silicon NPN epitaxial planar phototransistor with daylight blocking filter in a miniature, black 0805 package for surface mounting. Filter bandwidth is matched with 830 nm to 950 nm IR emitters.

Note

** Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902

APPLICATIONS

- Detector in automotive applications
- Photo interrupters
- Miniature switches
- Counters
- Encoders
- Position sensors

PRODUCT SUMMARY

COMPONENT	I _{caE} (μA)	φ (deg)	λ _{0.5} (nm)
TEMT7100X01	225 to 675	± 60	750 to 1010

Note

- Test condition see table "Basic Characteristics"

ORDERING INFORMATION

ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TEMT7100X01	Tape and reel	MOQ: 3000 pcs, 3000 pcs/reel	0805

Note

- MOQ: minimum order quantity

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

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Collector emitter voltage		V _{CEO}	20	V
Emitter collector voltage		V _{ECO}	7	V
Collector current		I _C	20	mA
Power power dissipation	T _{amb} ≤ 55 °C	P _V	100	mW
Junction temperature		T _j	100	°C
Operating temperature range		T _{amb}	- 40 to + 100	°C
Storage temperature range		T _{stg}	- 40 to + 100	°C
Soldering temperature	Acc. reflow profile fig. 8	T _{sd}	260	°C
Thermal resistance junction/ambient	Acc. J-STD-051	R _{thJA}	270	K/W

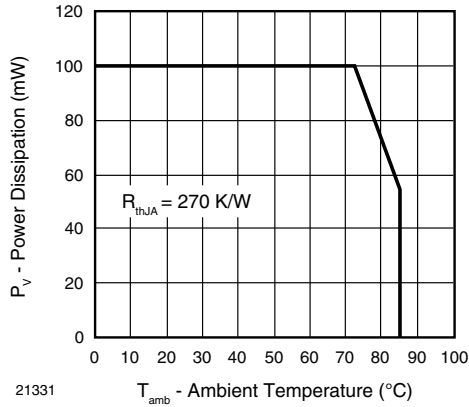


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector emitter breakdown voltage	I _C = 0.1 mA	V _{CEO}	20			V
Collector dark current	V _{CE} = 5 V, E = 0	I _{CEO}		1	100	nA
Collector emitter capacitance	V _{CE} = 0 V, f = 1 MHz, E = 0	C _{CEO}		25		pF
Collector light current	E _e = 1 mW/cm ² , λ = 950 nm, V _{CE} = 5 V	I _{CA}	225	450	675	μA
Angle of half sensitivity		φ		± 60		deg
Wavelength of peak sensitivity		λ _p		870		nm
Range of spectral bandwidth		λ _{0.5}		750 to 1010		nm
Collector emitter saturation voltage	I _C = 0.05 mA	V _{CEsat}			0.4	V
Temperature coefficient of I _{ca}	E _e = 1 mW/cm ² , λ = 950 nm, V _{CE} = 5 V	Tk _{Ica}		1.1		%/K

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

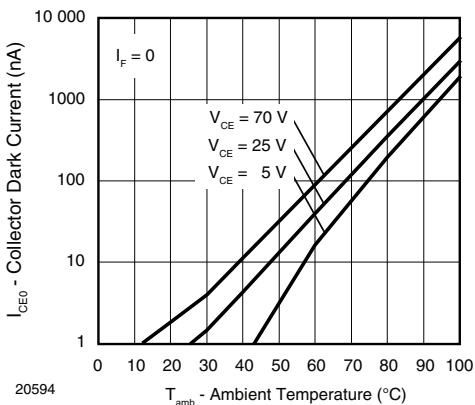


Fig. 2 - Collector Dark Current vs. Ambient Temperature

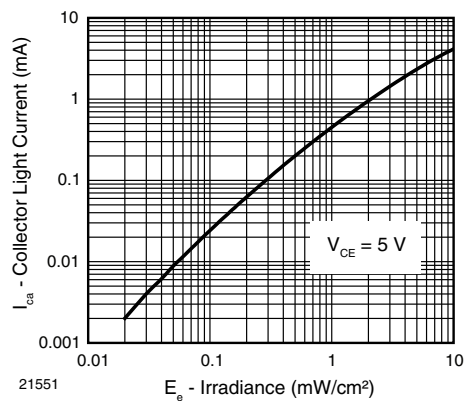


Fig. 3 - Collector Light Current vs. Irradiance

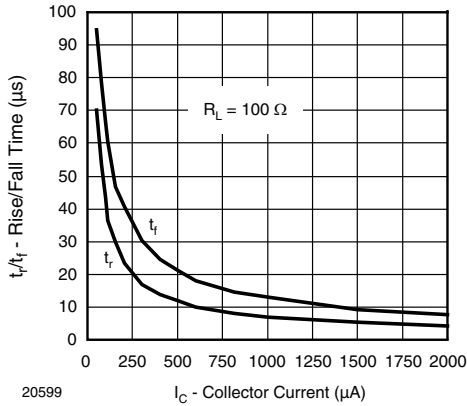


Fig. 4 - Rise/Fall Time vs. Collector Current

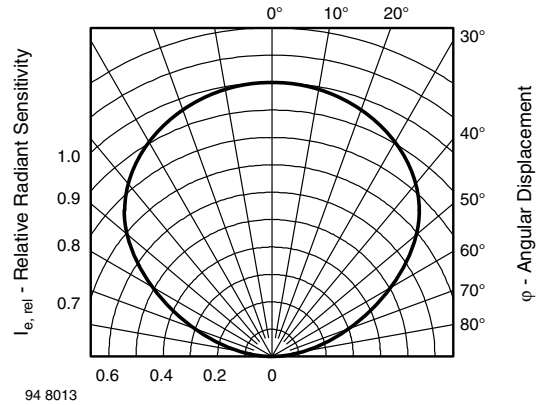


Fig. 6 - Relative Radiant Sensitivity vs. Angular Displacement

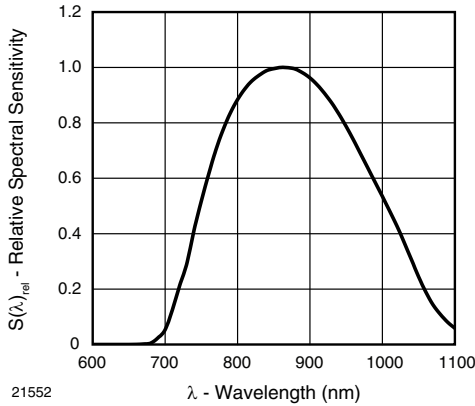


Fig. 5 - Relative Spectral Sensitivity vs. Wavelength

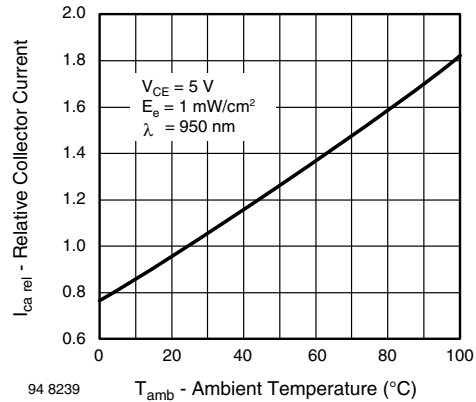


Fig. 7 - Relative Collector Current vs. Ambient Temperature

REFLOW SOLDER PROFILE

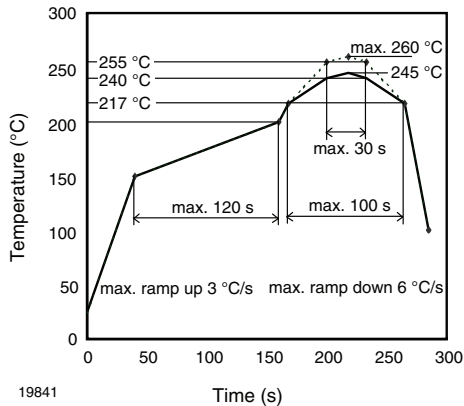


Fig. 8 - Lead (Pb)-free Reflow Solder Profile acc. J-STD-020

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

Floor life (time between soldering and removing from MBB) must not exceed the time indicated on MBB label:

Floor life: 168 h

Conditions: $T_{amb} < 30\text{ °C}$, $RH < 60\%$

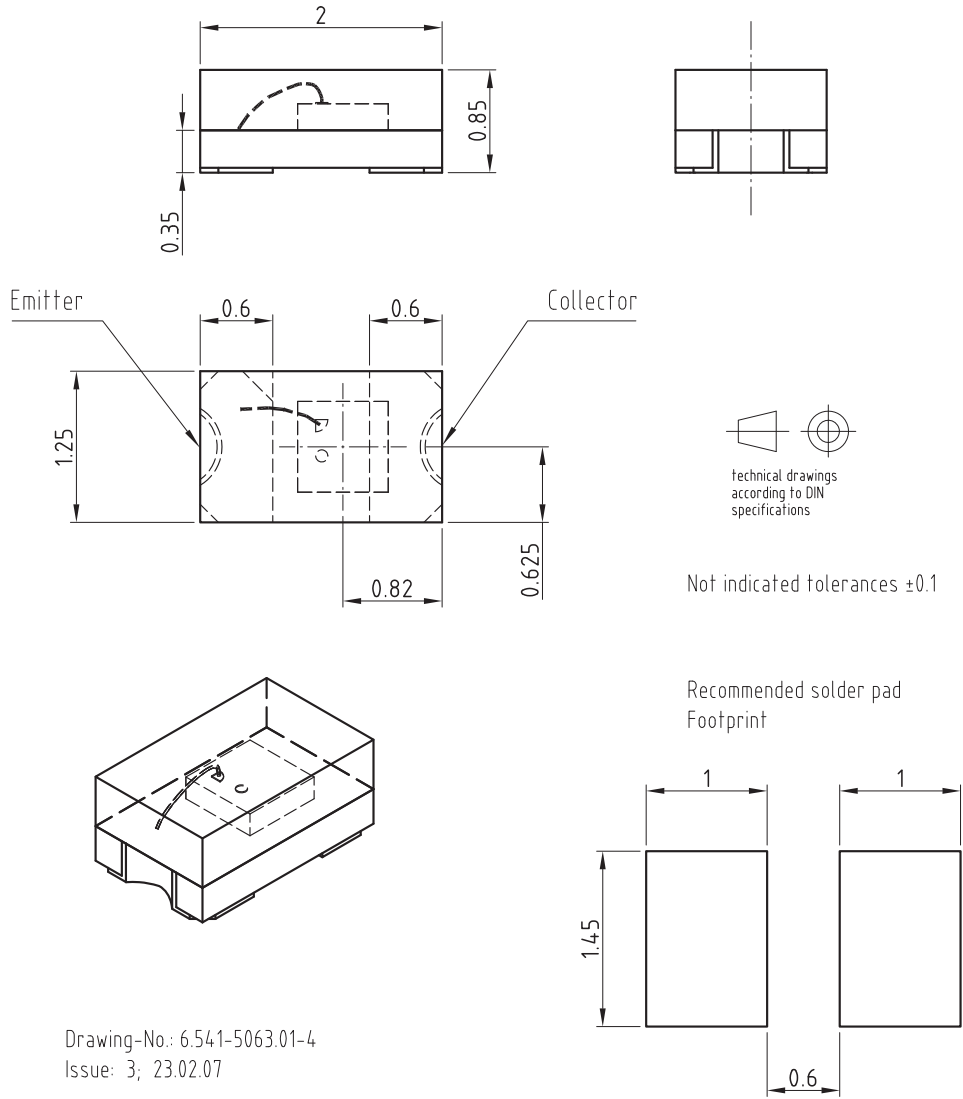
Moisture sensitivity level 3, acc. to J-STD-020.

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

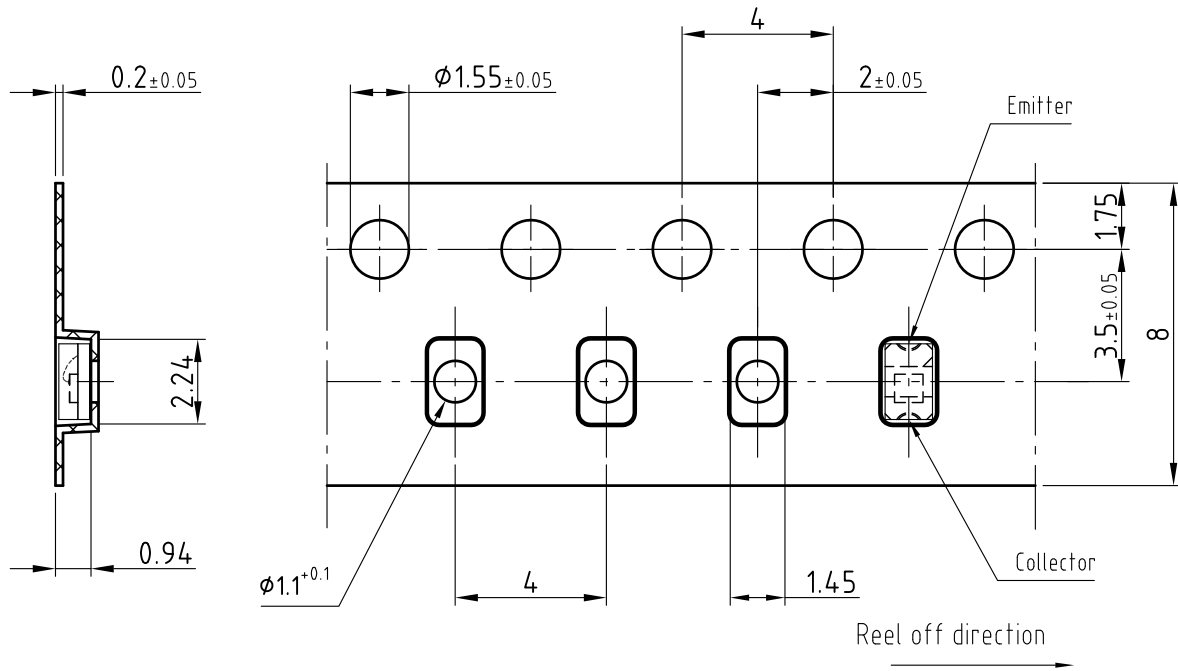


PACKAGE DIMENSIONS in millimeters





BLISTER TAPE DIMENSIONS in millimeters



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

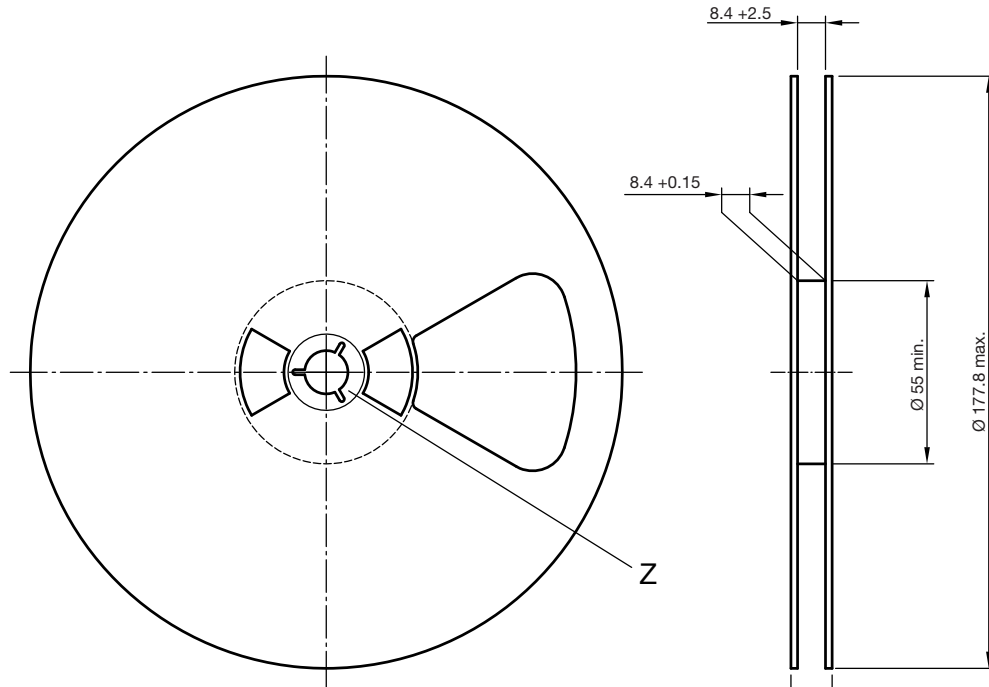
Not indicated tolerances ±0.1

Quantity per reel: 3000 pcs

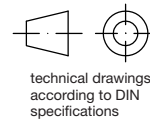
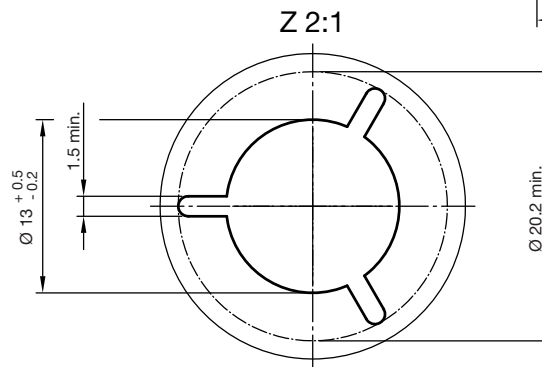
technical drawings according to DIN specifications



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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