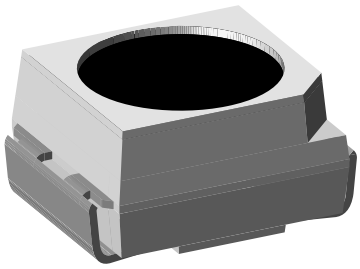
Silicon PIN Photodiode



FEATURES

- Package type: surface-mount
- Package form: PLCC-2
- Dimensions (L x W x H in mm): 3.5 x 2.8 x 1.75
- Daylight blocking filter
- AEC-Q101 qualified
- Excellent I_{ra} linearity
- Fast response times
- Angle of half sensitivity: φ = ± 60°
- Floor life: 168 h, MSL 3, according to J-STD-020
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

DESCRIPTION

VEMD3160FX01 is a high speed and high sensitive PIN photodiode with a highly linear photoresponse.

APPLICATIONS

- High speed photo detector
- Small signal detection
- Proximity sensors

PRODUCT SUMMARY			
COMPONENT	**I_{ra} (µA)**	**φ (°)**	**$\lambda_{0.5}$ (nm)**
VEMD3160FX01	1.6	± 60	860 to 1030

Note

- Test conditions see table “Basic Characteristics”

ORDERING INFORMATION			
ORDERING CODE	**PACKAGING**	**REMARKS**	**PACKAGE FORM**
VEMD3160FX01-GS08	Tape and reel	MOQ: 7500 pcs, 1500 pcs/reel	PLCC-2

Note

- MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	**TEST CONDITION**	**SYMBOL**	**VALUE**	**UNIT**
Reverse voltage		V_R	5	V
Junction temperature		T_J	110	°C
Ambient temperature range		T_{amb}	-40 to +110	°C
Storage temperature range		T_{stg}	-40 to +110	°C
Soldering temperature	According to reflow solder profile	T_{sd}	260	°C

BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Forward voltage	I_F = 50 mA	V_F	-	0.9	-	V
Breakdown voltage	I_R = 100 µA, E = 0	$V_{(BR)}$	20	-	-	V
Reverse dark current	V_R = 5 V, E = 0	I_{ro}	-	1	3	nA
Diode capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_D	-	1.9	-	pF
	V_R = 3 V, f = 1 MHz, E = 0	C_D	-	1	-	pF
Temperature coefficient of I_{ra}	E_e = 1 mW/cm², λ = 940 nm	TK_{Ira}	-	0.26	-	%/K
Reverse light current	E_e = 1 mW/cm², λ = 940 nm, V_R = 5 V	I_{ra}	1.14	1.6	2.25	µA
	E_e = 1 mW/cm², λ = 890 nm, V_R = 5 V	I_{ra}	-	1.5	-	µA
Angle of half sensitivity		φ	-	± 60	-	°
Wavelength of peak sensitivity		λ_p	-	920	-	nm
Range of spectral bandwidth		$\lambda_{0.5}$	-	860 to 1030	-	nm
Rise time	V_R = 10 V, R_L = 50 Ω, λ = 950 nm	t_r	-	180	-	ns
Fall time	V_R = 10 V, R_L = 50 Ω, λ = 950 nm	t_f	-	180	-	ns

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

Basic characteristics graphs to be extended to 110 °C ambient temperatures where applicable.

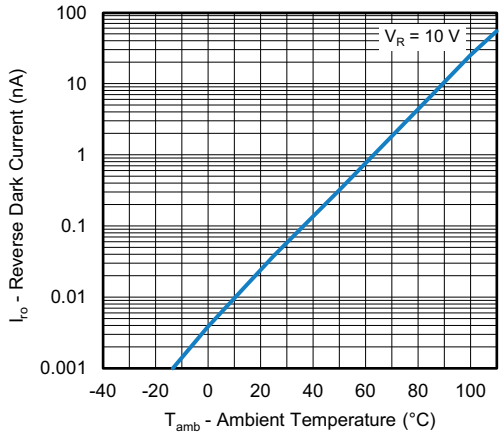


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

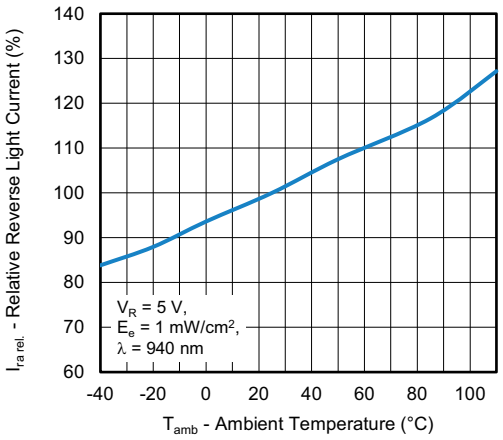


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature

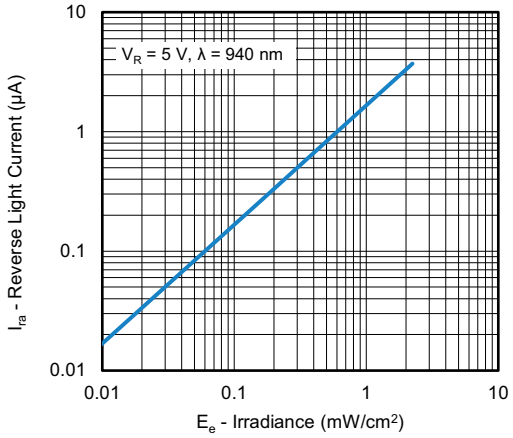


Fig. 3 - Reverse Light Current vs. Irradiance

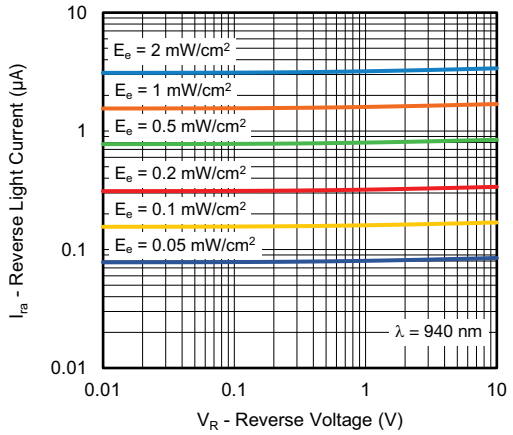


Fig. 4 - Reverse Light Current vs. Reverse Voltage

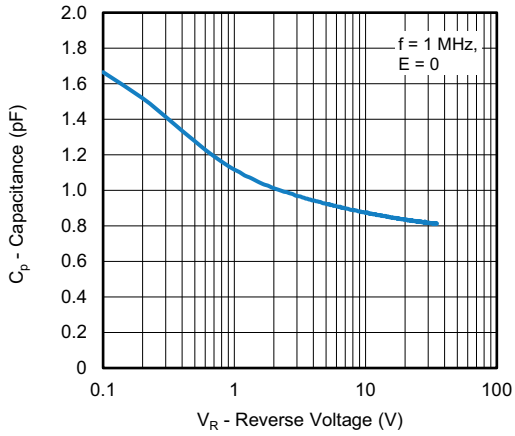


Fig. 5 - Diode Capacitance vs. Reverse Voltage

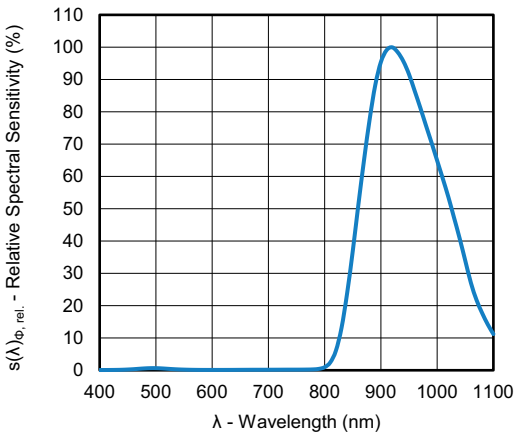


Fig. 6 - Relative Spectral Sensitivity vs. Wavelength

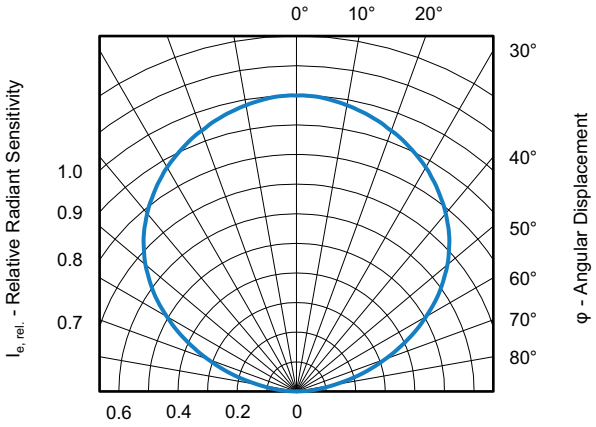


Fig. 7 - Relative Radiant Sensitivity vs. Angular Displacement

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 °C, RH < 60 %

Moisture sensitivity level 3, according to J-STD-033D.

DRYING

In case of moisture absorption devices should be baked before soldering. Conditions see J-STD-033D or label. Devices taped on reel dry using recommended conditions 192 h at 40 °C (+ 5 °C), RH < 5 %.

REFLOW SOLDER PROFILE

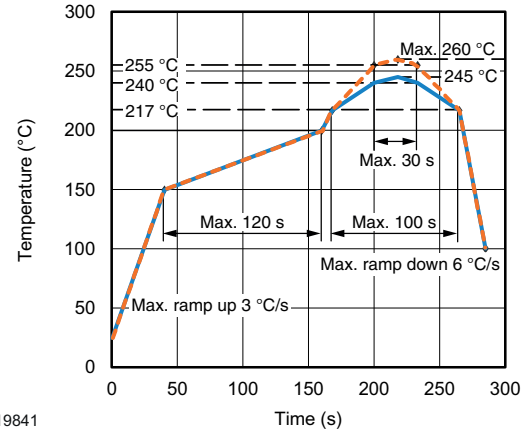
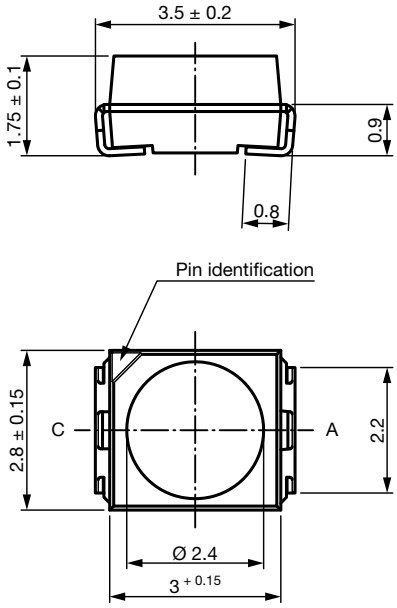


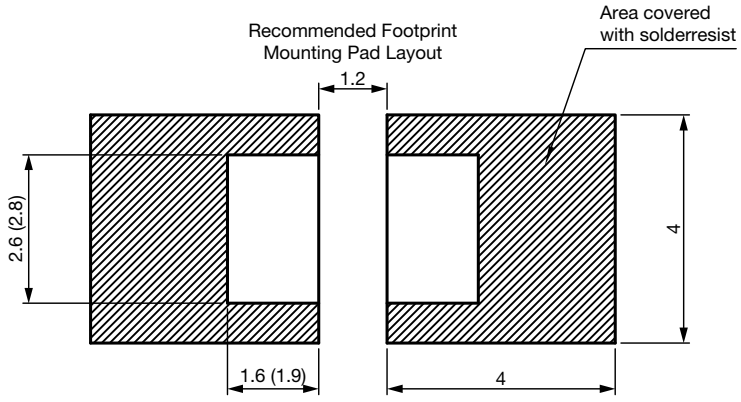
Fig. 8 - Lead (Pb)-free Reflow Solder Profile According to J-STD-020

PACKAGE DIMENSIONS in millimeters

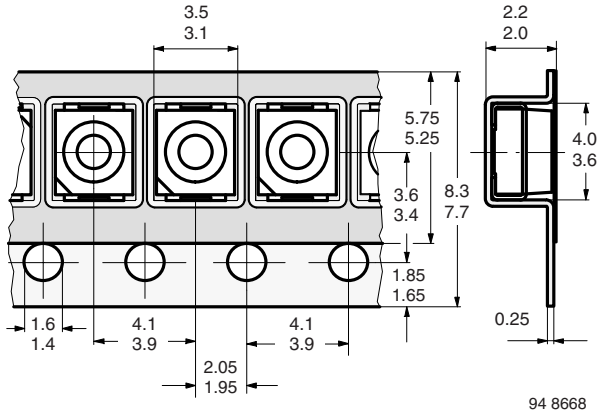


technical drawings according to DIN specifications

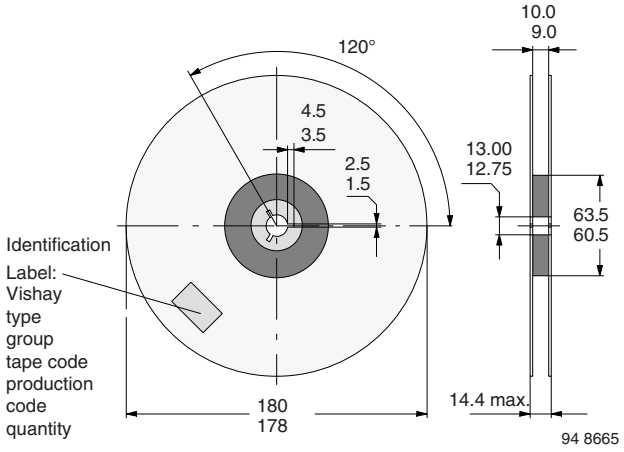
Drawing-No.: 6.541-5067.01-4
Issue: 7; 12.03.14



BLISTER TAPE DIMENSIONS in millimeters



REEL DIMENSIONS in millimeters



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