GREEN (5-2008)**



Vishay Semiconductors

High Speed Infrared Emitting Diodes, 850 nm, Surface Emitter Technology



DESCRIPTION

VSMY1850 is an infrared, 850 nm emitting diode based on GaAlAs surface emitter chip technology with high radiant intensity, high optical power and high speed, molded in clear, untinted 0805 plastic package for surface mounting (SMD).

FEATURES

· Package type: surface mount

• Package form: 0805

• Dimensions (L x W x H in mm): 2 x 1.25 x 0.85

Peak wavelength: λ_p = 850 nm

High reliability

• High radiant power

• High radiant intensity

• High speed

• Angle of half sensitivity: $\varphi = \pm 60^{\circ}$

• Suitable for high pulse current operation

• 0805 standard surface-mountable package

• 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

APPLICATIONS

- IrDA compatible data transmission
- Miniature light barrier
- Photointerrupters
- · Optical switch
- Emitter source for proximity sensors
- IR touch panels
- IR Flash
- IR illumination
- 3D TV

PRODUCT SUMMARY				
COMPONENT	I _e (mW/sr)	φ (deg)	λ _p (nm)	t _r (ns)
VSMY1850	10	± 60	850	10

Note

· Test conditions see table "Basic Characteristics"

ORDERING INFORMATI	ON		
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
VSMY1850	Tape and reel	MOQ: 3000 pcs, 3000 pcs/reel	0805

Note

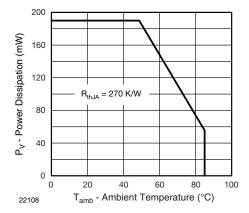
· MOQ: minimum order quantity

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



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ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Reverse voltage		V _R	5	V	
Forward current		I _F	100	mA	
Peak forward current	$t_p/T = 0.1, t_p = 100 \mu s$	I _{FM}	200	mA	
Surge forward current	t _p = 100 μs	I _{FSM}	1	Α	
Power dissipation		P _V	190	mW	
Junction temperature		Tj	100	°C	
Operating temperature range		T _{amb}	- 40 to + 85	°C	
Storage temperature range		T _{stg}	- 40 to + 100	°C	
Soldering temperature	acc. figure 7, J-STD-020	T _{sd}	260	°C	
Thermal resistance junction/ambient	J-STD-051, leads 7 mm, soldered on PCB	R _{thJA}	270	K/W	



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Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

Fig. 2 - Forward Current Limit vs. Ambient Temperature

BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	V _F		1.65	1.9	V
	I _F = 1 A, t _p = 100 μs	V _F		2.9		V
Temperature coefficient of V _F	I _F = 1 mA	TK _{VF}		- 1.4		mV/K
	I _F = 10 mA	TK _{VF}		- 1.18		mV/K
Reverse current		I _R	not designed for reverse operation		μA	
Junction capacitance	$V_R = 0 \text{ V, f} = 1 \text{ MHz,}$ $E = 0 \text{ mW/cm}^2$	CJ		125		pF
Dedient intensity	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	I _e	5	10	15	mW/sr
Radiant intensity	$I_F = 1 \text{ A}, t_p = 100 \mu \text{s}$	l _e		85		mW/sr
Radiant power	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	фе		50		mW
Temperature coefficient of radiant power	I _F = 100 mA	TKφ _e		- 0.35		%/K
Angle of half intensity		φ		± 60		deg
Peak wavelength	I _F = 100 mA	λ_{p}	840	850	870	nm
Spectral bandwidth	I _F = 30 mA	Δλ		30		nm
Temperature coefficient of λ_p	I _F = 30 mA	TK_{\lambdap}		0.25		nm
Rise time	I _F = 100 mA, 20 % to 80 %	t _r		10		ns
Fall time	I _F = 100 mA, 20 % to 80 %	t _f		10		ns
Virtual source diameter		d		0.5		mm



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

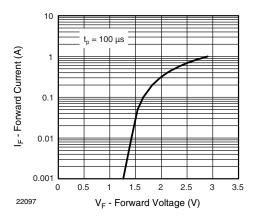


Fig. 3 - Forward Current vs. Forward Voltage

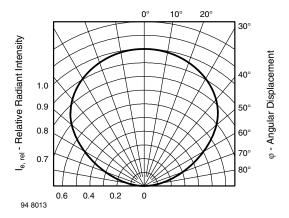


Fig. 6 - Relative Radiant Intensity vs. Angular Displacement

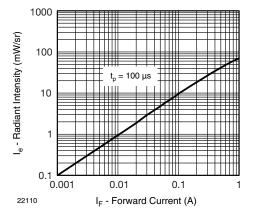


Fig. 4 - Radiant Intensity vs. Forward Current

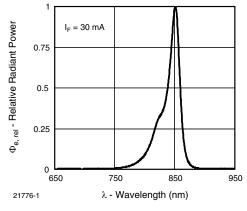


Fig. 5 - Relative Radiant Power vs. Wavelength

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REFLOW SOLDER PROFILE

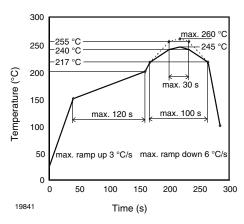


Fig. 7 - Lead (Pb)-free Reflow Solder Profile acc. J-STD-020

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

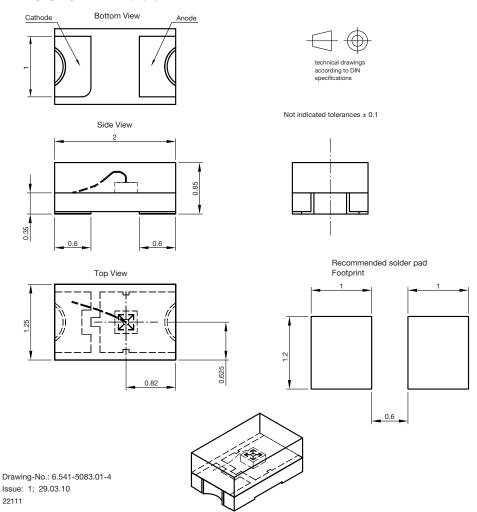
Floor life: 168 h

Conditions: T_{amb} < 30 °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 $^{\circ}$ C (+ 5 $^{\circ}$ C), RH < 5 $^{\circ}$ M.

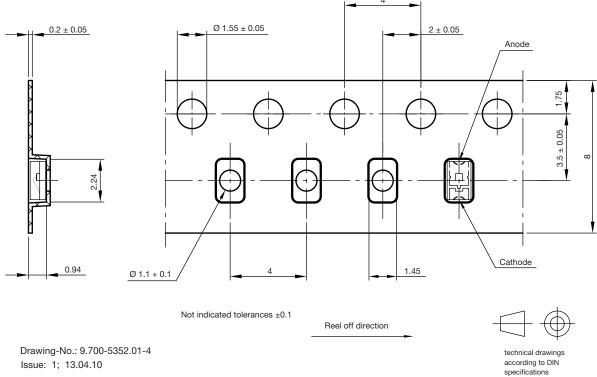
PACKAGE DIMENSIONS in millimeters





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BLISTER TAPE DIMENSIONS in millimeters

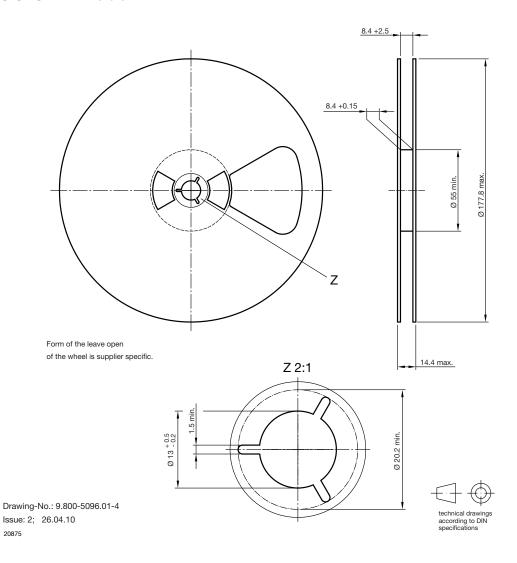


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REEL DIMENSIONS in millimeters





Legal Disclaimer Notice

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Material Category Policy

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