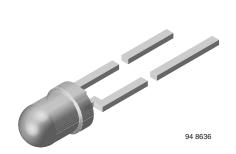
Vishay Semiconductors

VSLY3850





www.vishay.com

DESCRIPTION

VSLY3850 is an infrared, 850 nm emitting diode based on GaAlAs surface emitter chip technology with extreme high radiant intensity, high optical power and high speed, molded in a clear, untinted T1 plastic package.

FEATURES

- Package type: leaded
- Package form: T-1, clear epoxy
- Dimensions: Ø 3 mm
- Peak wavelength: $\lambda_p = 850 \text{ nm}$
- High speed
- High radiant power
- High radiant intensity
- Angle of half intensity: $\varphi = \pm 18^{\circ}$
- Suitable for high pulse current operation
- · Good spectral matching with CMOS cameras
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

Note

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

APPLICATIONS

- Infrared radiation source for operation with CMOS cameras
- High speed IR data transmission
- 3D TV application
- Light curtains

PRODUCT SUMMARY

COMPONENT	l _e (mW/sr)	φ (deg)	λ _p (nm)	t _r (ns)
VSLY3850	70	± 18	850	10

Note

Test conditions see table "Basic Characteristics"

ORDERING INFORMATION				
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM	
VSLY3850	Bulk	MOQ: 5000 pcs, 5000 pcs/bulk	T-1	

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	
Forward current		l _F	100	mA	
Peak forward current	$t_p/T = 0.5, t_p = 100 \ \mu s$	I _{FM}	200	mA	
Surge forward current	t _p = 100 μs	I _{FSM}	1	А	
Power dissipation		Pv	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	$t \leq$ 5 s, 2 mm from case	T _{sd}	260	°C	
Thermal resistance junction/ambient	J-STD-051, leads 7 mm, soldered on PCB	R _{thJA}	300	K/W	

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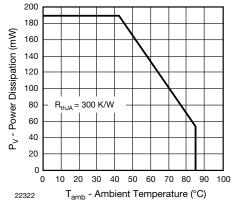


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

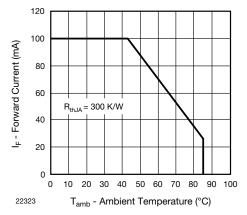


Fig. 2 - Forward Current Limit vs. Ambient Temperature

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
	I _F = 1 mA	TK _{VF}		- 1.45		mV/K
Temperature coefficient of V _F	I _F = 10 mA	TK _{VF}		- 1.25		mV/K
Reverse current		I _R	not designed for reverse operation		μA	
Junction capacitance	$V_R = 0 V$, f = 1 MHz, E = 0 mW/cm ²	CJ		125		pF
Dedient interesity	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	l _e	35	70	105	mW/sr
Radiant intensity	I _F = 1 A, t _p = 100 μs	l _e		600		mW/sr
Radiant power	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	фе		55		mW
Temperature coefficient of radiant power	I _F = 1 mA	TK_{\phie}		- 0.35		%/K
Angle of half intensity		φ		± 18		deg
Peak wavelength	I _F = 30 mA	λρ	840	850	870	nm
Spectral bandwidth	I _F = 30 mA	Δλ		30		nm
Temperature coefficient of λ_p	I _F = 30 mA	ΤΚ _{λρ}		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

For technical questions, contact: <u>emittertechsupport@vishay.com</u> THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT <u>www.vishay.com/doc?91000</u>



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

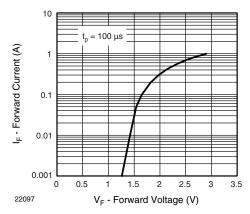


Fig. 3 - Forward Current vs. Forward Voltage

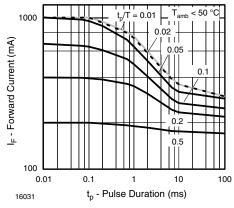


Fig. 4 - Pulse Forward Current vs. Pulse Duration

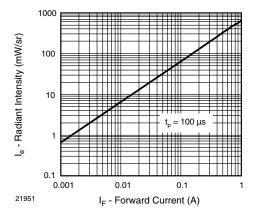


Fig. 5 - Radiant Intensity vs. Forward Current

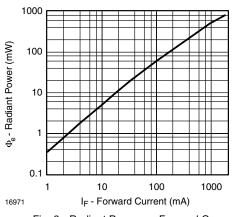


Fig. 6 - Radiant Power vs. Forward Current

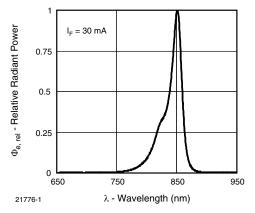


Fig. 7 - Relative Radiant Power vs. Wavelength

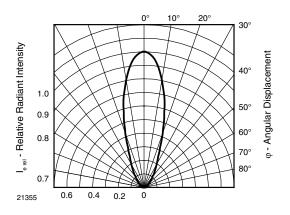


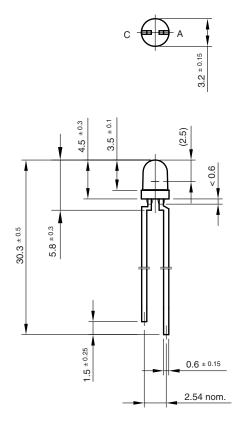
Fig. 8 - Relative Radiant Intensity vs. Angular Displacement

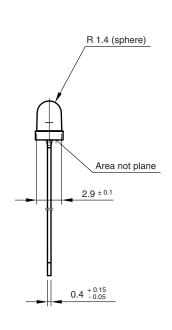
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PACKAGE DIMENSIONS in millimeters







technical drawings according to DIN specifications

Drawing-No.: 6.544-5264.01-4 Issue: 2; 23.04.98 95 10951



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