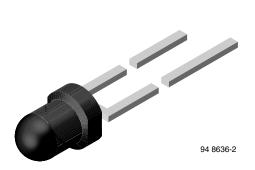
VSLB4940

www.vishay.com

Vishay Semiconductors

High Speed Infrared Emitting Diode, 940 nm, GaAlAs, MQW



DESCRIPTION

VSLB4940 is a high speed infrared emitting diode in GaAlAs, MQW technology, molded in a clear plastic package.

FEATURES

- Package type: leaded
- Package form: T-1, clear epoxy
- Dimensions: Ø 3 mm
- High speed
- · High radiant power
- Low forward voltage
- Suitable for high pulse current operation
- Angle of half intensity: $\phi = \pm 22^{\circ}$
- Peak wavelength: $\lambda_p = 940 \text{ nm}$
- · Good spectral matching to Si photodetectors
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

APPLICATIONS

- Infrared remote control units
- Reflective sensors
- Light barriers

PRODUCT SUMMARY				
COMPONENT	l _e (mW/sr)	φ (deg)	λ _p (nm)	t _r (ns)
VSLB4940	65	± 22	940	15

Note

Test conditions see table "Basic Characteristics"

ORDERING INFORMATION			
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
VSLB4940	Bulk	MOQ: 5000 pcs, 5000 pcs/bulk	T-1

Note

• MOQ: minimum order quantity

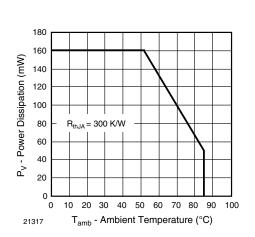
ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Reverse voltage		V _R	5	V	
Forward current		I _F	100	mA	
Peak forward current	$t_p/T = 0.1, t_p = 100 \ \mu s$	I _{FM}	500	mA	
Surge forward current	t _p = 100 μs	I _{FSM}	1	A	
Power dissipation		Pv	160	mW	
Junction temperature		Тj	100	°C	
Operating temperature range		T _{amb}	-25 to +85	°C	
Storage temperature range		T _{stg}	-40 to +100	°C	
Soldering temperature	$t \le 5$ 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	

For technical questions, contact: emittertechsupport@vishay.com

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Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

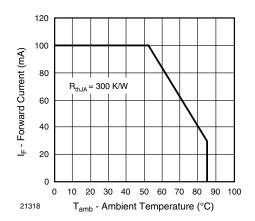


Fig. 2 - Forward Current Limit vs. Ambient Temperature

BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 100 mA, t _p = 20 ms	V _F	1.22	1.42	1.62	V
Temperature coefficient of V_F	I _F = 1 mA	TK _{VF}	-	-1.5	-	mV/K
Reverse current	$V_R = 5 V$	I _R	-	-	10	μA
Junction capacitance	$V_{R} = 0 V, f = 1 MHz, E = 0 mW/cm^{2}$	CJ	-	21	-	pF
Radiant intensity	I _F = 100 mA, t _p = 20 ms	l _e	32	65	110	mW/sr
Radiant power	I _F = 100 mA, t _p = 20 ms	фе	-	40	-	mW
Temperature coefficient of radiant power	I _F = 1 mA	ΤΚφ _e	-	-1.1	-	%/K
	I _F = 100 mA	ΤΚφ _e	-	-0.51	-	%/K
Angle of half intensity		φ	-	± 22	-	deg
Peak wavelength	I _F = 30 mA	λρ	-	940	-	nm
Spectral bandwidth	I _F = 30 mA	Δλ	-	30	-	nm
Temperature coefficient of Ip	I _F = 30 mA	TK _{λp}	-	0.25	-	nm
Rise time	I _F = 100 mA, 20 % to 80 %	t _r	-	15	-	ns
Fall time	I _F = 100 mA, 20 % to 80 %	t _f	-	15	-	ns
Virtual source diameter		d	-	2	-	mm



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

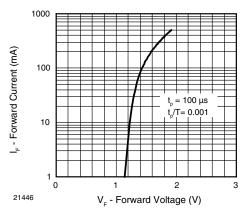


Fig. 3 - Forward Current vs. Forward Voltage

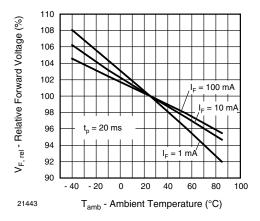


Fig. 4 - Relative Forward Voltage vs. Ambient Temperature

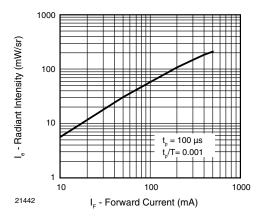


Fig. 5 - Radiant Intensity vs. Forward Current

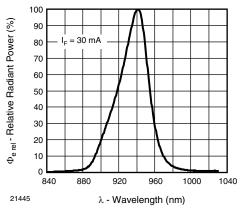


Fig. 6 - Relative Radiant Power vs. Wavelength

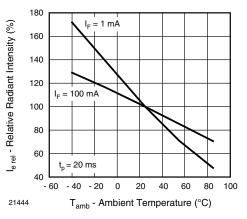


Fig. 7 - Relative Radiant Intensity vs. Ambient Temperature

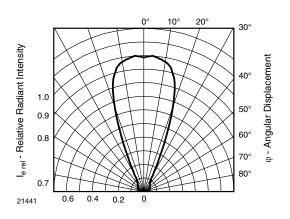


Fig. 8 - Relative Radiant Intensity vs. Angular Displacement

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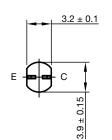
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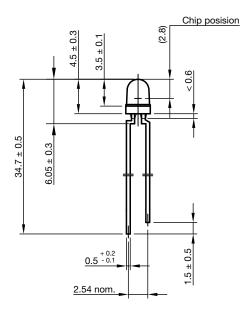
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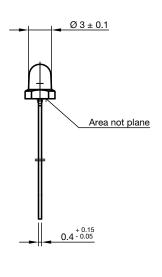


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PACKAGE DIMENSIONS in millimeters









technical drawings according to DIN specifications



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