

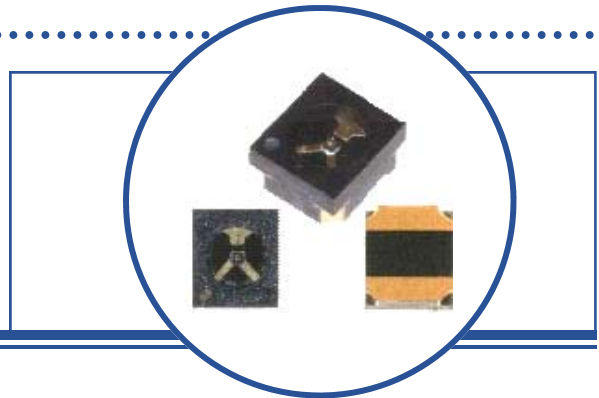
Infrared Light Emitting VCSEL

OPR2800V



Features:

- High speed VCSEL
- High output power
- Narrow beam angle
- Suitable for all types of high-speed data communications equipment
- Also available as diode (OPR2800, OPR2800T)



Description:

The **OPR2800V** is a high performance 850 nm invisible VCSEL (Class 1M) with a flat lens window. Its high speed, high output power and concentric beam pattern make it an ideal transmitter for all types of high-speed data equipment applications.

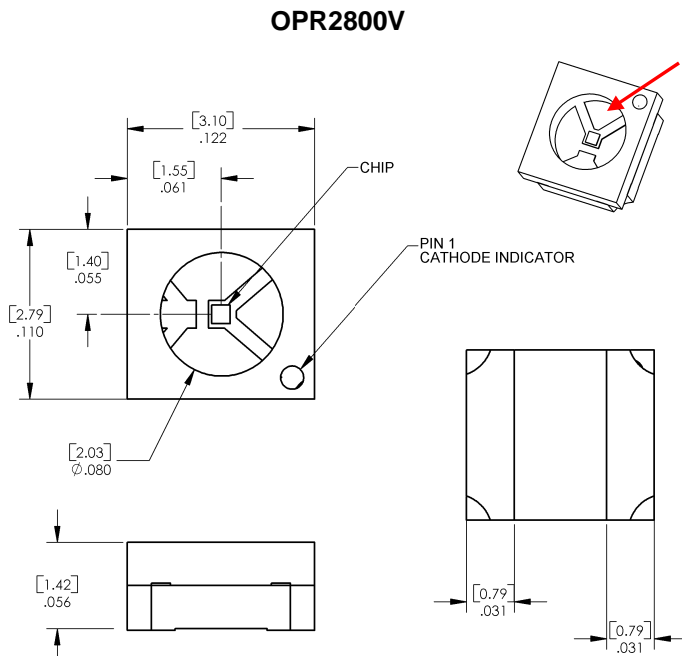
Please refer to Application Bulletins 221 and 224 for additional design information and reliability (degradation) data.

Refer to Application Bulletin 237

Applications:

- Fibre channel
- Gigabit Ethernet
- ATM
- VSR (Very Short Reach)
- Intra-system links
- Optical backplane interconnects

Ordering Information				
Part Number	LED Peak Wavelength	Total Beam Angle	Laser Class	Packaging
OPR2800V	850 nm	24°	Class 1M	Chip Tray



Warning: Front Window is pressure sensitive. Do not apply pressure or high vacuum to window.



Pin #	LED
1	Cathode
2	Anode



RoHS

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Storage Temperature Range	-40° C to +100° C
Operating Temperature Range	-20° C to +85° C
Maximum Forward Peak Current	20 mA
Maximum Reverse Voltage	10 V
Maximum Continuous Optical Power at 70° C	1.1 mW
Solder reflow time within 5° C of peak temperature is 20 to 40 seconds	250° C ⁽¹⁾

Notes:

1. Solder time less than 5 seconds at temperature extreme.

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

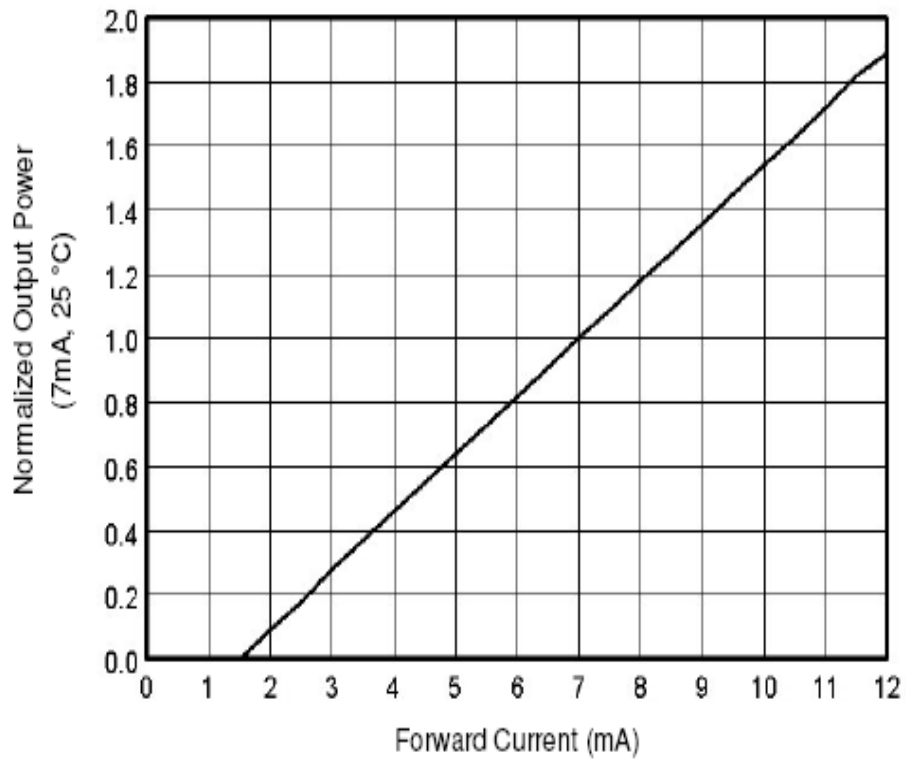
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
V_F	Forward Voltage	1.60	-	2.20	V	$I_F = 7\text{ mA}$
I_R	Reverse Current	-	-	35	μA	-
t_r, t_f	Output Rise Time, Output Fall Time	-	100	-	ps	20% to 80%
P_{OT}	Total Power Out	1.50	-	-	mW	$I_F = 7\text{ mA}$
I_{TH}	Threshold Current ⁽¹⁾	0.80	-	3	mA	
R_S	Series Resistance ⁽²⁾	20	-	55	ohms	
η	Slope Efficiency ⁽³⁾	0.28	-	-	mW/mA	
-	Linearity ⁽⁴⁾	0.00	-	-	-	
λ_P	Wavelength at Peak Emission	840	850	860	nm	-
$\Delta\lambda$	Optical Bandwidth	-	-	0.85	nm	-
θ	Beam Divergence	-	24	-	Degree	$I_F = 7\text{ mA}$
N_{RI}	Relative Intensity Noise	-	-123	-	db/Hz	-
$\Delta I_{TH}/\Delta T$	Temp Coefficient of Threshold Current	-	± 1.0	-	mA	0° - 70° ⁽¹⁾
$\Delta\lambda/\Delta T$	Temp Coefficient of Wavelength	-	0.06	-	%/°C	0° - 70°, $I_F = 7\text{ mA}$
$\Delta V_F/\Delta T$	Temperature Coefficient for V_F	-	-2.5	-	mW%/°C	0° - 70°, $I_F = 7\text{ mA}$
$\Delta\eta/\Delta T$	Temperature Coefficient for Efficiency ⁽³⁾	-	-0.5	-	%/C	0° - 70°

Notes:

1. Threshold current is based on the two line intersection method specified in Telcordia GR468-Core. Line 1 from 4 mA to 6mA. Line 2 from 0 mA to 0.5 mA.
2. Series resistance is the slope of the voltage-current line from 5 to 8 mA.
3. Slope efficiency is the slope of the best-fit LI line from 5 mA to 8 mA, using no larger than 0.25 mA test interval points.
4. Using data points taken for slope efficiency above, $\Delta L / \Delta I$ shall be calculated for each adjacent pair of points.

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OP2800V - Normalized Output Power
vs Forward Current



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