



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



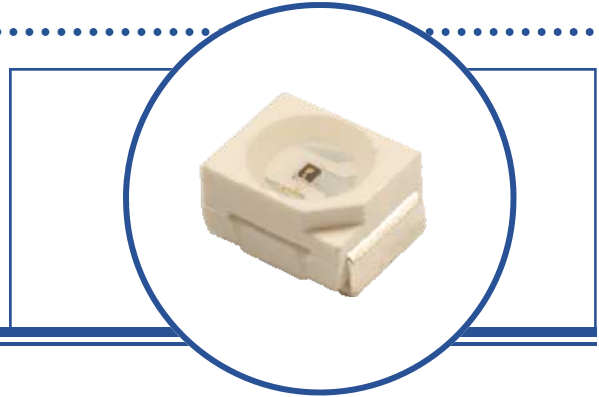
Infrared Light Emitting Diode

OP180 & OP280 Series



Features:

- High power GaAs—OP180, 940 nm center wavelength
- High power GaAlAs—OP280K and OP280KT, 875 nm center wavelength
- VCSEL GaAlAs—OP280V, 850 nm center wavelength
- Point Source GaAlAs—OP280PS, 850 nm center wavelength
- PLCC-2 package style with silicon encapsulation
- Half Power Beam angle from 18° to 100°
- Suitable for single device or array applications



Description:

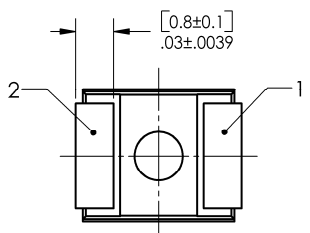
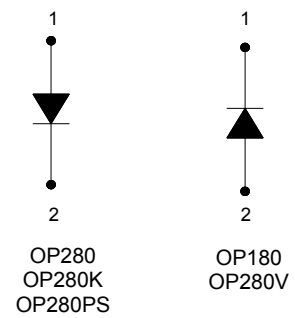
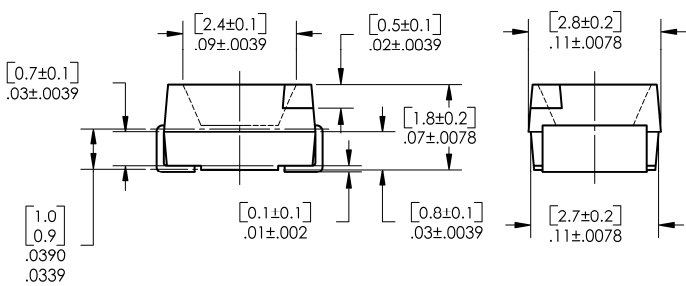
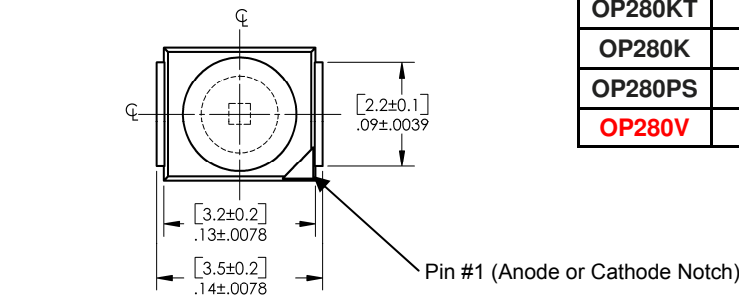
The **OP180** is a GaAs and the **OP280K**, **OP280KT** is a GaAlAs infrared LED mounted in plastic leadless PLCC-2 SMD package with a flat lens window that allows a wide beam angle. The major differentiator from the two High power GaAlAs LEDs is that **OP280KT** has reversed polarity terminals. The **OP280V** is incorporated into the group with a high performance 850nm invisible VCSEL (Class 1M) with silicon encapsulant. Its high speed, high output and narrow beam pattern (18°) makes it very suitable for high-speed data equipment applications. The **OP280PS** has a GaAlAs diode in a PLCC-2 package that features a narrow irradiance pattern. The PLCC-2 packaging is suitable for single device or array applications.

The 180 and 280 Series LEDs are mechanically and spectrally matched to OP580 series phototransistors.

Applications:

- Non-contact position sensing
- Machine automation
- Datum detection
- Optical encoding

Ordering Information				
Part Number	Apertured Power (mW/cm ²)	I _F (mA)	LED Peak Wavelength	Half Power Angle
OP180	0.50	20	940 nm	100°
OP280KT	0.85	20	850 nm	90°
OP280K	0.85	20	875 nm	90°
OP280PS	0.15	20	850 nm	50°
OP280V	2.50	7	850 nm	18°



Pin #	OP180	OP280KT	OP280K	OP280PS	OP280V
1	Cathode	Cathode	Anode	Anode	Cathode
2	Anode	Anode	Cathode	Cathode	Anode



RoHS

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

DIMENSIONS ARE IN INCHES AND [MILLIMETERS].

Infrared Light Emitting Diode

OP180 & OP280 Series



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

Storage Temperature Range	-40° C to +100° C
Operating Temperature Range—OP180, OP280K, OP280KT, OP280PS OP280V	-25° C to +85° C 0° C to +70° C
Reverse Voltage OP180, OP280PS, OP280V OP280K, OP280KT	5.0 V 4.0 V
Peak Forward Current [1µs pulse width, 300 pps]	1.0 A
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron]	260° C ⁽¹⁾
Power Dissipation	130 mW ⁽²⁾

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
--------	-----------	-----	-----	-----	-------	-----------------

Input Diode

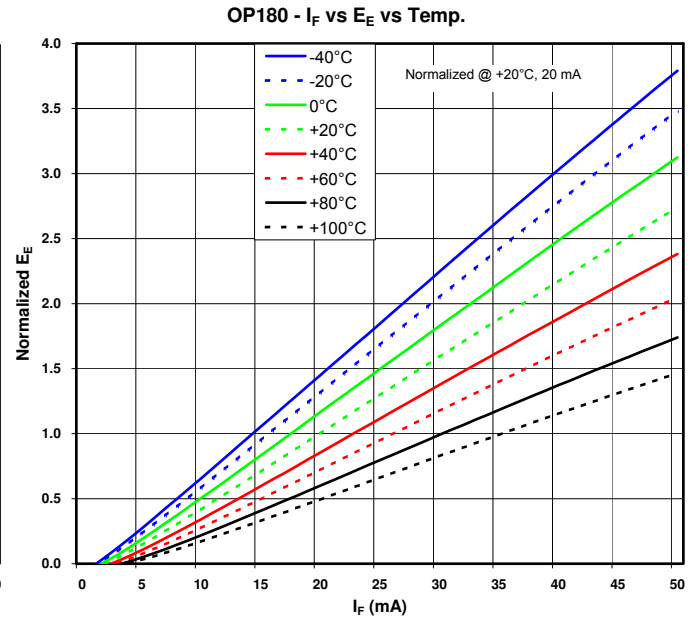
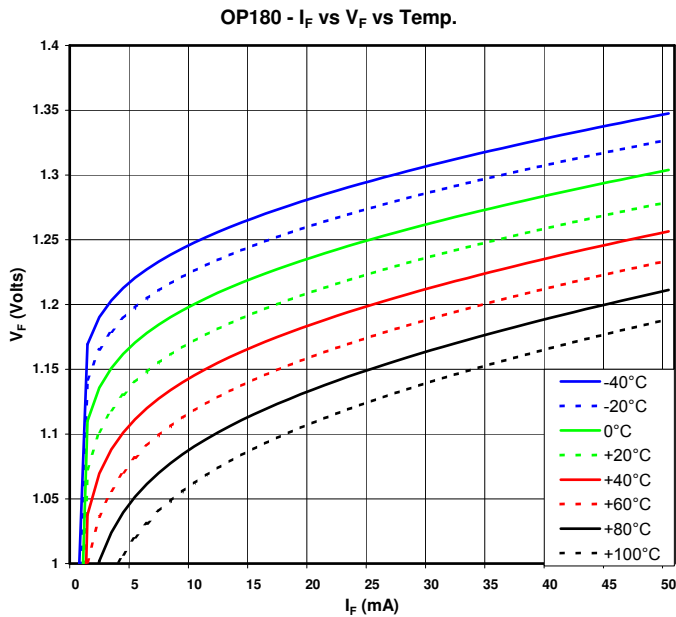
$E_{E(APT)}$	Radiant Incidence OP180 OP280 OP280K OP280PS OP280V	1.5 0.5 20.0 2.8 1.05	- - 24.0 3.5 -	- - - - -	mW/cm ²	$I_F = 20\text{ mA}$ $I_F = 20\text{ mA}^{(3)}$ $I_F = 20\text{ mA}$ $I_F = 20\text{ mA}$ $I_F = 7\text{ mA}$
V_F	Forward Voltage OP180 OP280K OP280KT OP280V OP280PS	- - - - -	1.28 1.50 1.55 1.95 1.50	1.60 1.80 1.80 2.50 1.80	V	$I_F = 20\text{ mA}$ $I_F = 20\text{ mA}$ $I_F = 50\text{ mA}$ $I_F = 7\text{ mA}$ $I_F = 20\text{ mA}$
I_R	Reverse Current	-	-	100	µA	$V_R = 5.0\text{ V}$
λ_P	Wavelength at Peak Emission OP180 OP280KT OP280PS, OP280K OP280V	- - - -	940 875 850	- - -	nm	$I_F = 20\text{ mA}$ $I_F = 7\text{ mA}$
θ_{HP}	Emission Angle at Half Power Points OP180, OP280K, OP280KT OP280PS OP280V	- - -	100 90 18	- - -	Degree	$I_F = 20\text{ mA}$ $I_F = 20\text{ mA}$ $I_F = 7\text{ mA}$
t_r	Output Rise Time OP180, OP280K, OP280KT, OP280PS	-	25	-	ns	$I_{F(PK)}=50\text{ mA}$, $PW=10\text{ }\mu\text{s}$, and D.C.=10.0%
t_f	Output Fall Time OP180, OP280K, OP280KT, OP280PS	-	25	-	ns	

Notes:

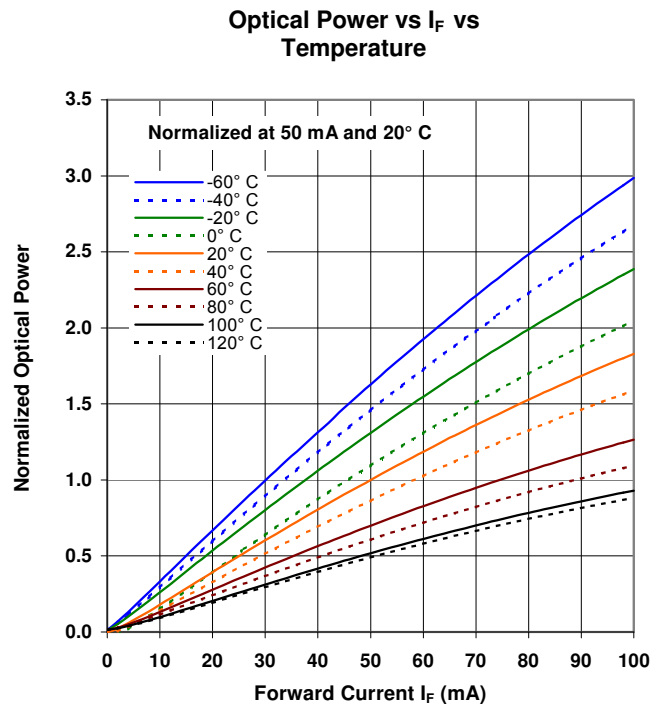
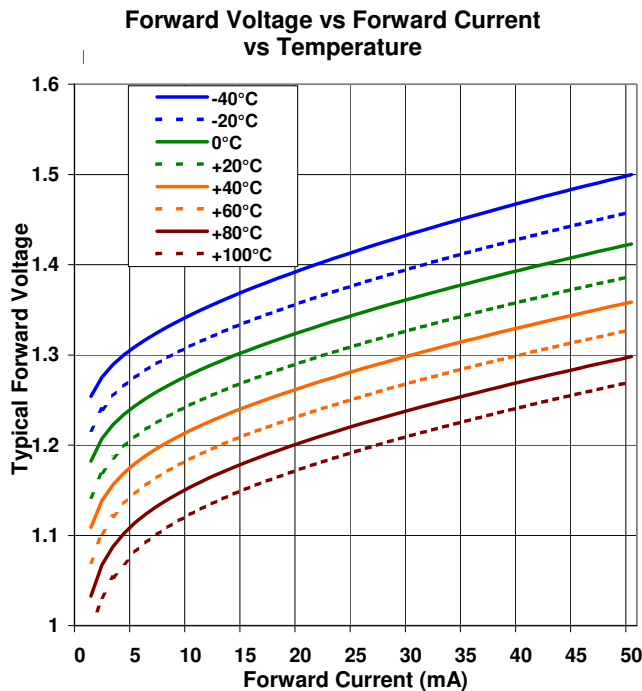
- Solder time less than 5 seconds at temperature extreme.
- Derate linearly at 2.17 mW/° C above 25° C.
- $E_{E(APT)}$ is a measurement of the apertured radiant incidence upon a sensing area 0.081" (2.06 mm) in diameter, perpendicular to and centered on the mechanical axis of the lens and 0.590" (14.99 mm) from the measurement surface. $E_{E(APT)}$ is not necessarily uniform within the measured area.

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

OP180



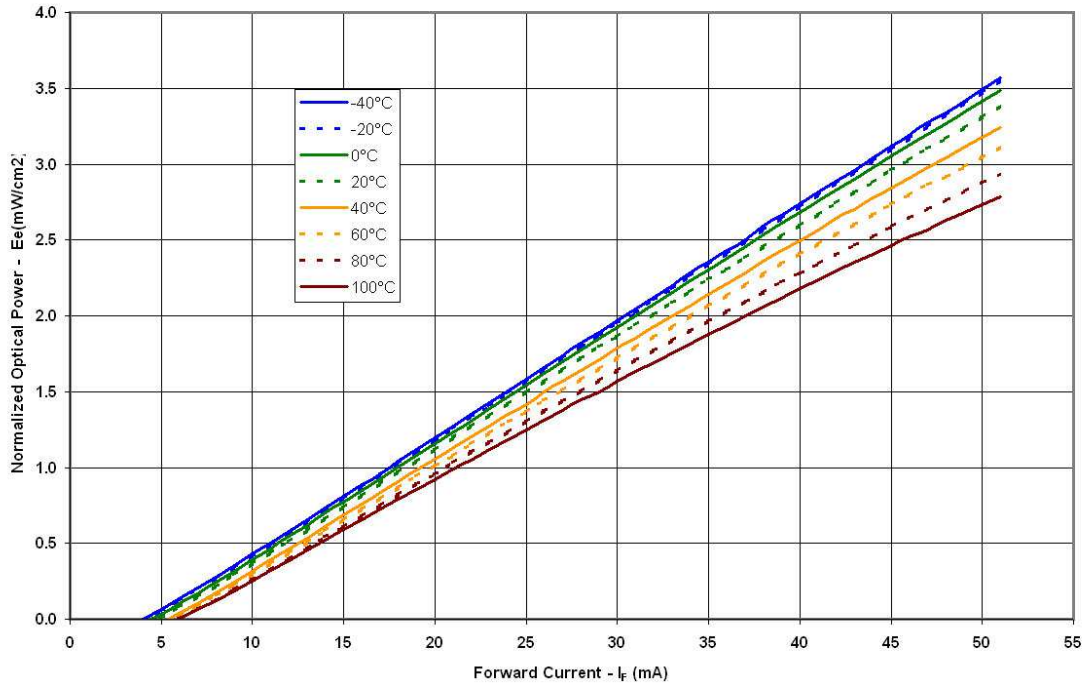
OP280



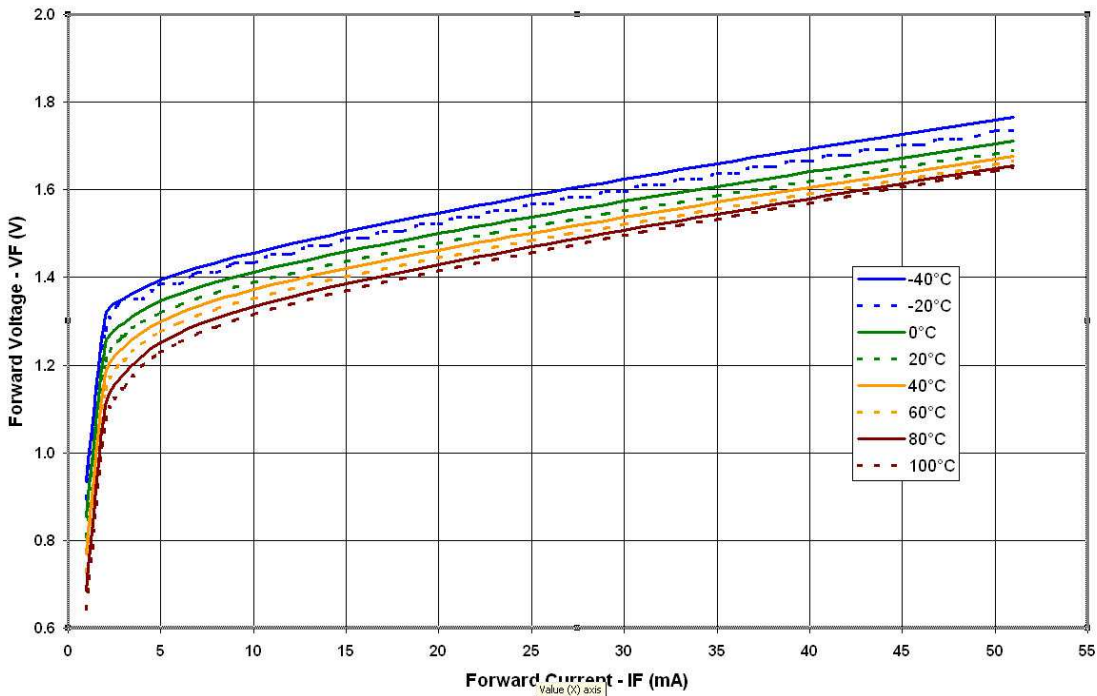
OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

OP280K

**Optical Power - E_e (mW/cm²) vs Forward Current - I_F
vs Temperature - T_A**



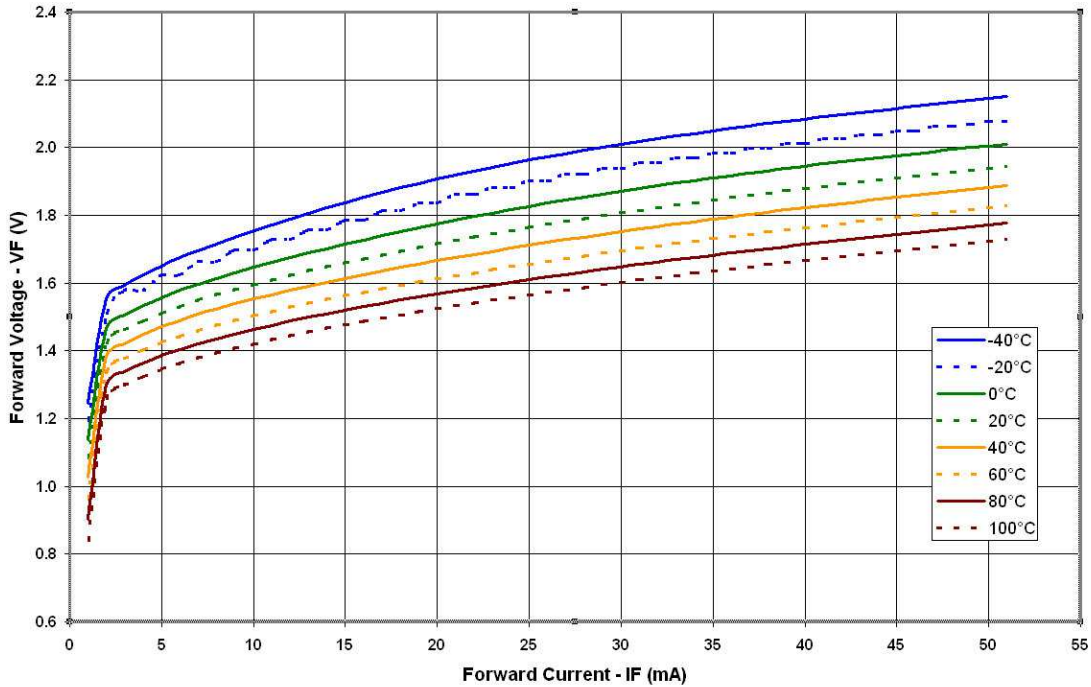
**Forward Voltage - V_F vs Forward Current - I_F vs
Temperature - T_A**



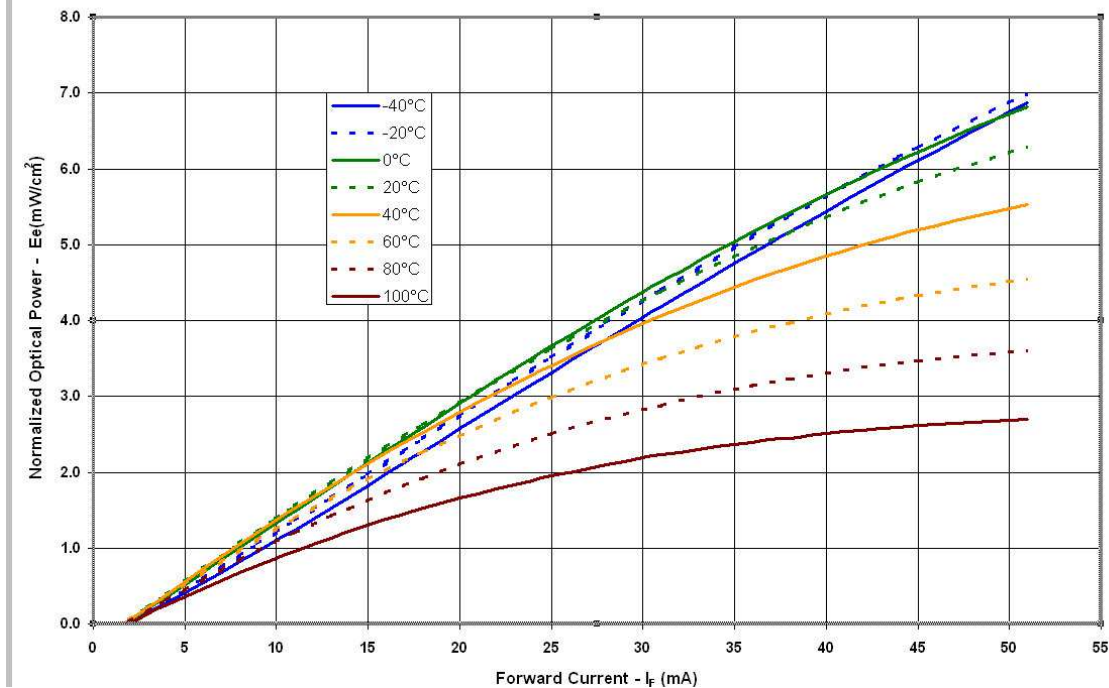
OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

OP280KT

Forward Voltage - V_F vs Forward Current - I_F vs Temperature - T_A



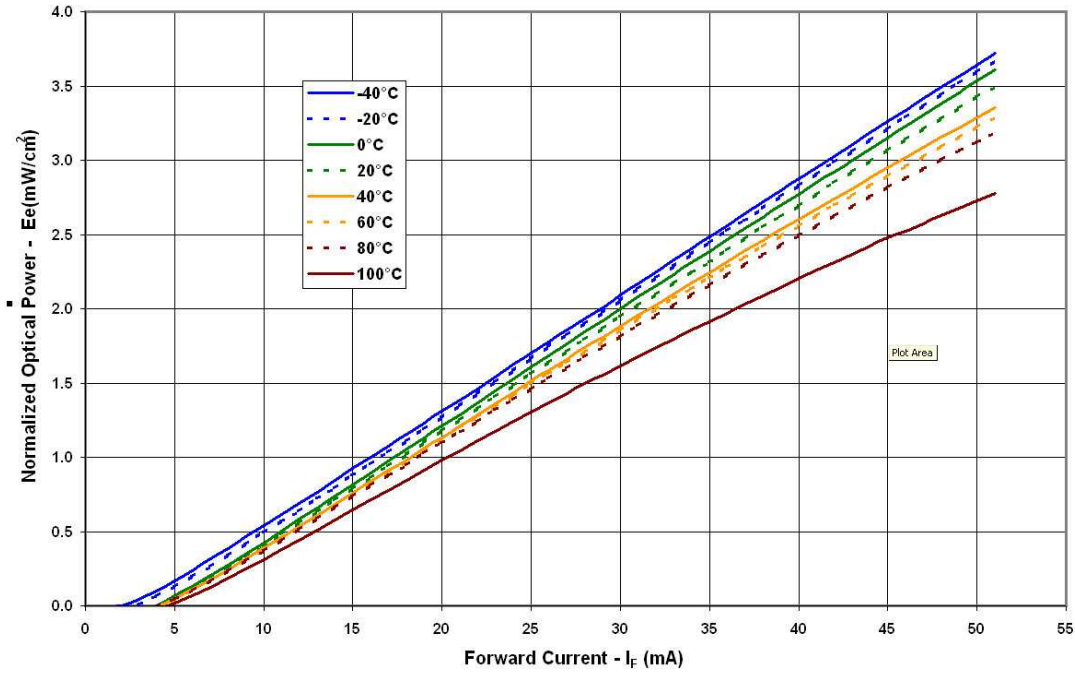
Optical Power - E_e (mW/cm²) vs Forward Current - I_F vs Temperature - T_A



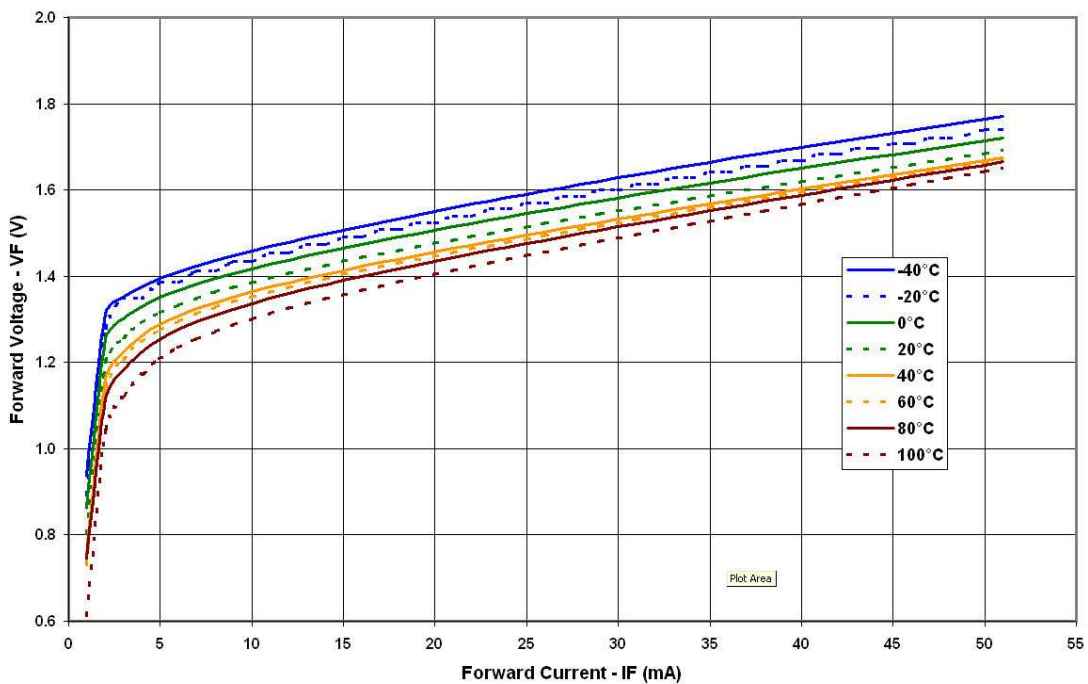
OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

OP280PS

**Optical Power - E_e (mW/cm²) vs Forward Current - I_F
vs Temperature - T_A**



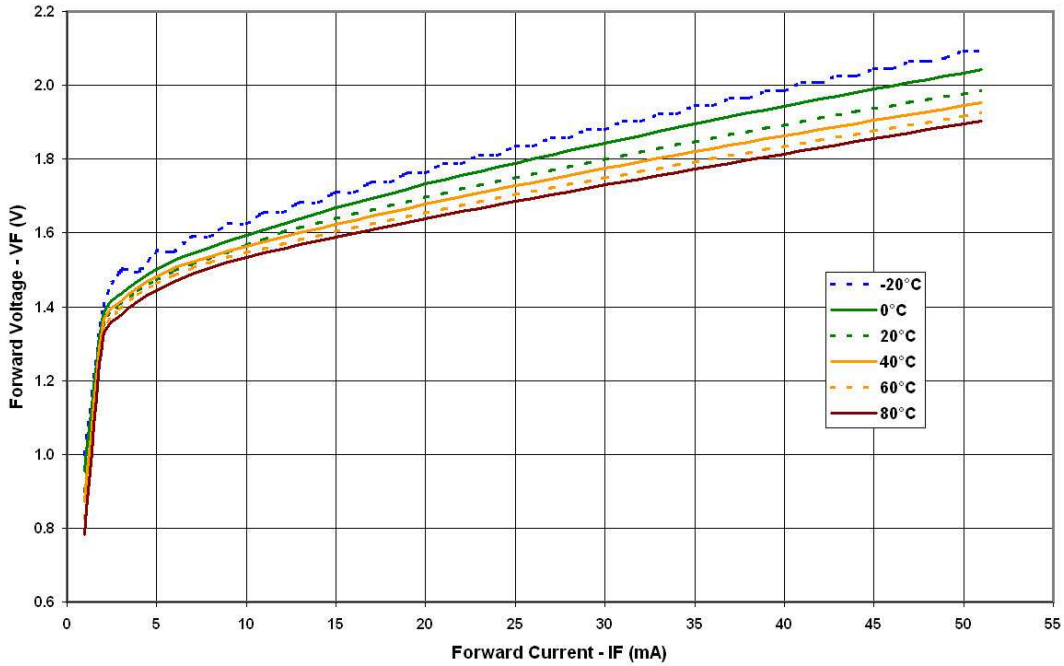
**Forward Voltage - V_F vs Forward Current - I_F vs
Temperature - T_A**



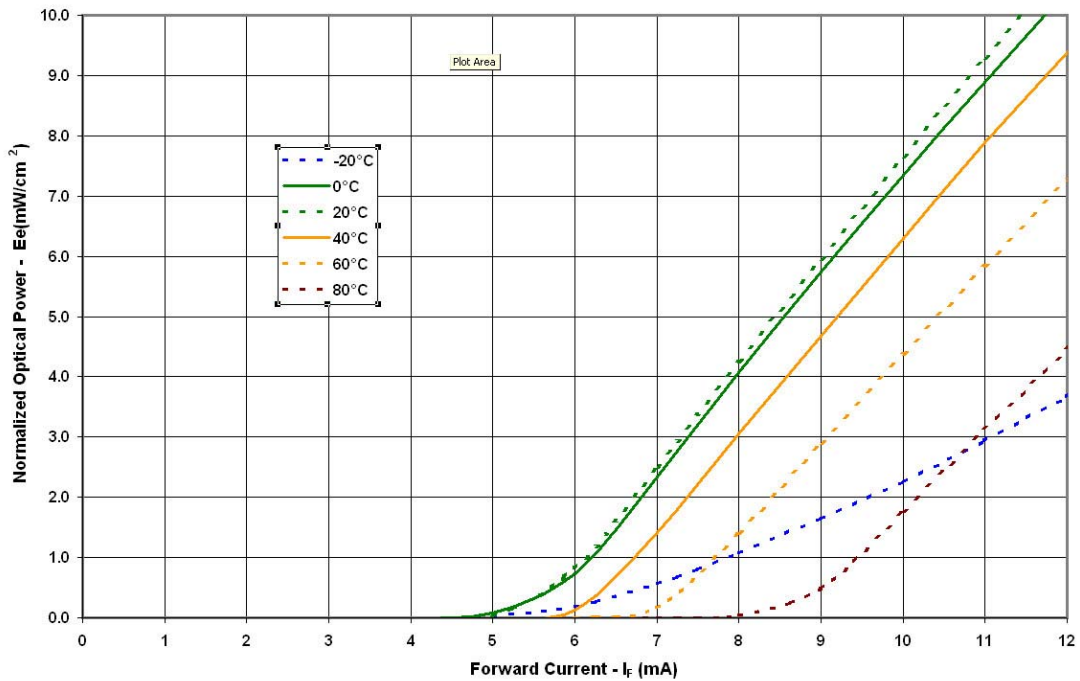
OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

OP280V

Forward Voltage - V_F vs Forward Current - I_F vs Temperature - T_A



Optical Power - E_e (mW/cm²) vs Forward Current - I_F vs Temperature - T_A



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

Infrared Light Emitting Diode OP180 & OP280 Series



Issue	Change Description	Approval	Date
1.1			07/05
A	Taken from PDF Catalog: OP280 (Issue 1.1, dated 07/05). Added INF226 charts.	Trevor Schelp	05/25/06
A.1	Moved 1st and 2nd charts to page 2. Removed 3rd and 4th charts. Removed polysulfone warning box from page 1. Repositioned items on page 1. Changed Forward Voltage to 50 mA in Electrical Characteristics table on page 2. Removed page 3. Removed comma from line 1 under Description, page 1.	Trevor Schelp	06/01/06
A.2	Added OP180 with Charts.	Chima Ehiem	08/01/07
A.3		Chima Ehiem	08/01/07

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