

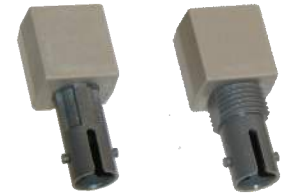
# High Speed Fiber Optic Transmitter



OPF1412, OPF1412T, OPF1414, OPF1414T

## Features:

- Low cost
- High speed
- No mounting hardware required
- Wide temperature range
- 100% LED burn-in (96 hours)
- SMA or ST style ports
- Wave solderable

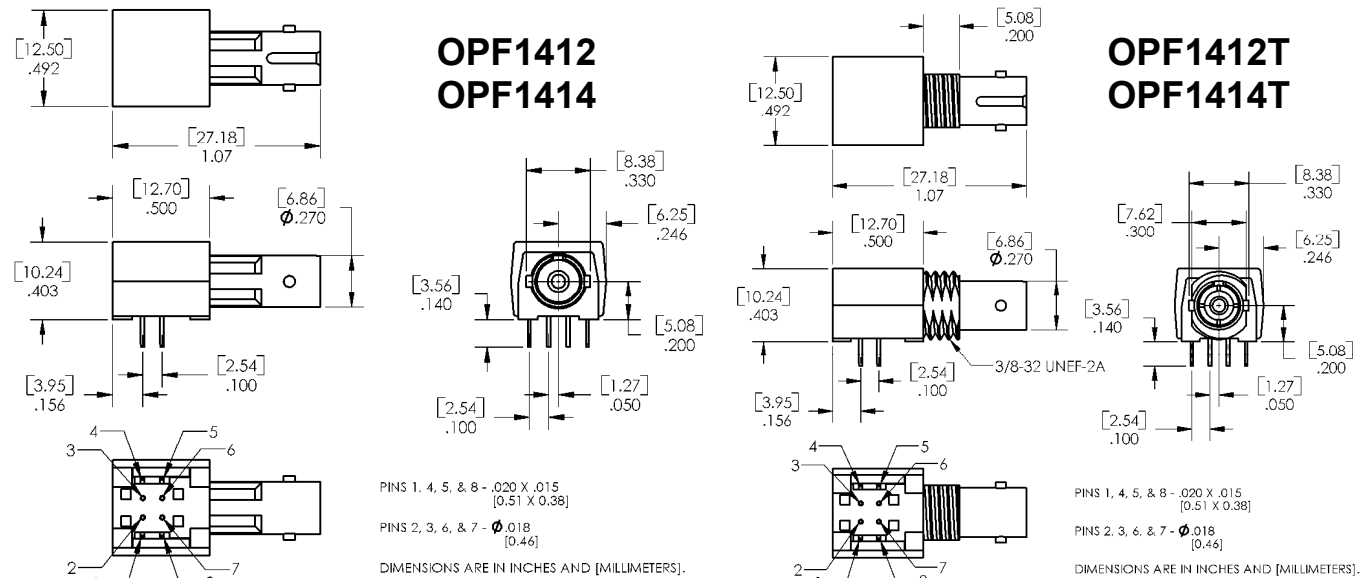


T-Package

## Description:

The OPF1412 and OPF1414 series fiber optic transmitters contain a high speed 840 nm GaAlAs LED. This LED in conjunction with the package lensing is designed to efficiently couple light into multimode optical fibers ranging in size from 50/125  $\mu\text{m}$  up to 200/230  $\mu\text{m}$ . The high coupling efficiency of the LED and lensing allows the devices to be used at low current drive levels thus decreasing the power consumption and increasing system reliability. The consistency of coupling varies by less than 5 dB from part to part which reduces the dynamic range requirements of the receiver. The high power (-16.0 dBm into 50/125  $\mu\text{m}$ ) OPF1414 was designed for small fiber applications or where there are large fixed losses such as in systems that contain star couplers or in line connectors. The OPF1412 (-12.0 dBm optical power) is ideal for 100/140  $\mu\text{m}$  fiber applications.

For custom electrical and optical requirements contact your local representative or OPTEK for more information.



Pin #	Description	Pin #	Description
1	No Connection	8	No Connection
2	Anode	7	Anode
3	Cathode	6	Anode
4	No Connection	5	No Connection

Part Number	Typ. dBm into 50/125 $\mu\text{m}$ @ 60mA	Typ. dBm into 100/140 $\mu\text{m}$ @ 60mA
OPF1412	-16.0	-12.0
OPF1412T	-16.0	-12.0
OPF1414	-12.0	-6.5
OPF1414T	-12.0	-6.5



General Note  
TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

OPTEK Technology, Inc.  
1645 Wallace Drive, Carrollton, TX 75006 | Ph: +1 972 323 2200  
www.optekinc.com | www.ttelectronics.com

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## Electrical Specifications

Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)	
Storage Temperature Range	-55°C to +85°C
Operating Temperature Range	-40°C to +85°C
Forward Input Current	Peak 200 mA DC 100 mA
Reverse Input Voltage	1.8 V
Lead Soldering Temperature (1/16" (1.6 mm) from case for 5 seconds with soldering iron) <sup>(1)</sup>	260° C

Notes:

(1) All parameters tested using pulse technique.

Electrical Characteristics ( $T_A = -40^\circ\text{C}$ to +85° C unless otherwise noted) Typ. values are at 25° C.						
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$V_F$	Forward Voltage	1.48	1.70 1.84	2.09	V	$I_F = 60\text{ mA}$ $I_F = 100\text{ mA}$
$V_F/T$	Forward Voltage Temperature Coefficient		-0.20		mV/°C	$I_F = 60\text{ mA}$
$V_{BR}$	Reverse Input Voltage	1.8	3.8		V	$I_R = 100\ \mu\text{A}$
$\lambda_p$	Peak Emission Wavelength	820	840	865	nm	$I_F = 60\text{ mA}$
$C_T$	Diode Capacitance		55		pF	$V = 0, f = 1\text{ MHz}$
$P_T/T$	Optical Power Temperature Coefficient		-0.008 -0.020		dB/°C	$I_F = 60\text{ mA}$ $I_F = 100\text{ mA}$
$t_r, t_f$	Rise Time, Fall Time (10% to 90%)		4.0	6.5	ns	$I_F = 60\text{ mA}$ , no pre-bias

Peak Output Optical Power									
SYMBOL	PARAMETER	1412			1414			UNITS	TEST CONDITIONS
		MIN	TYP	MAX	MIN	TYP	MAX		
$P_{T100}$	100/140 $\mu\text{m}$ Fiber Cable N.A. = 0.30	-15.0	-12.0	-10.0	-9.5	-6.5	-4.5	dBm	$I_F = 60\text{ mA}, T_A = 25^\circ\text{C}$ $I_F = 100\text{ mA}, T_A = 25^\circ\text{C}$
		-16.0		-9.0	-10.5		-3.5		
		-13.5	-10.0	-7.6	-8.0	-4.5	-2.1		
		-15.1		-7.0	-9.6		-1.5		
$P_{T62}$	62.5/125 $\mu\text{m}$ Fiber Cable N.A. = 0.275	-19.0	-16.0	-14.0	-15.0	-12.0	-10.0	dBm	$I_F = 60\text{ mA}, T_A = 25^\circ\text{C}$ $I_F = 100\text{ mA}, T_A = 25^\circ\text{C}$
		-20.0		-13.0	-16.0		-9.0		
		-17.5	-14.0	-11.6	-13.5	-10.0	-7.6		
		-19.1		-11.0	-15.1		-7.0		
$P_{T50}$	50/125 $\mu\text{m}$ Fiber Cable N.A. = 0.20	-21.8	-18.8	-16.8	-18.8	-15.8	-13.8	dBm	$I_F = 60\text{ mA}, T_A = 25^\circ\text{C}$ $I_F = 100\text{ mA}, T_A = 25^\circ\text{C}$
		-22.8		-15.8	-19.8		-12.8		
		-20.3	-16.8	-14.4	-17.3	-13.8	-11.4		
		-21.9		-13.8	-18.9		-10.8		

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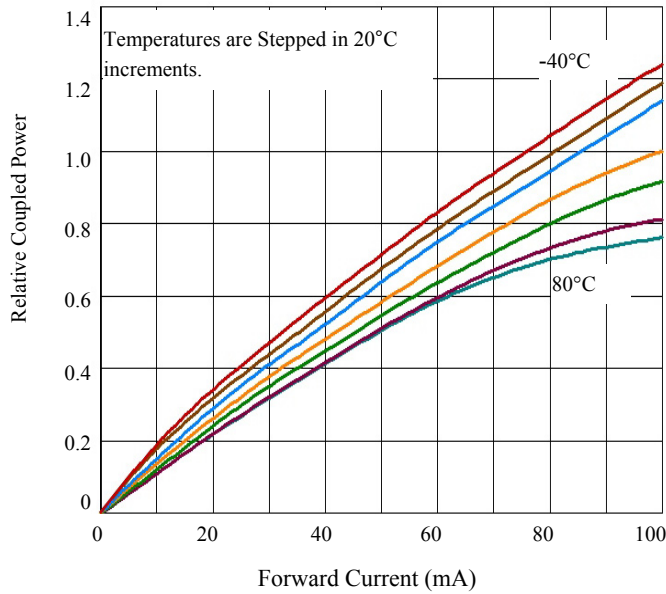
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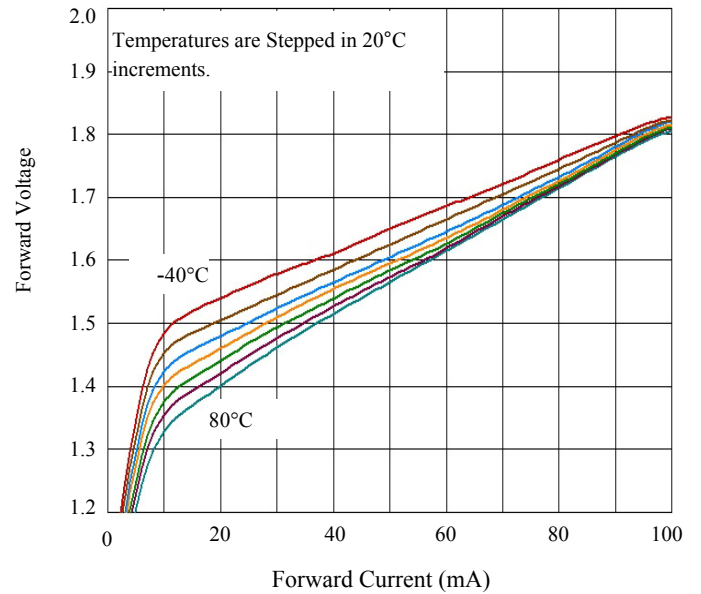
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## Performance

### Relative Coupled Power vs Forward Current



### Typical Forward Voltage vs Forward Current



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