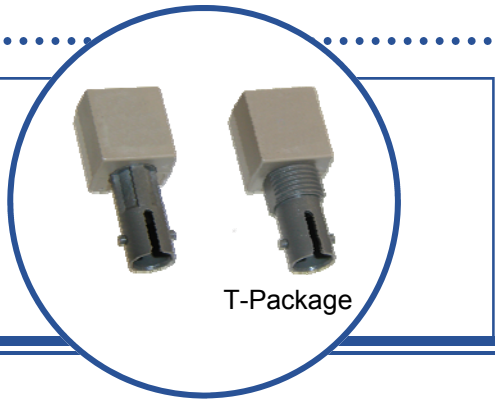
High Speed Fiber Optic Transmitter

OPF1412, OPF1412T, OPF1414, OPF1414T

TT electronics
OPTEK Technology

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

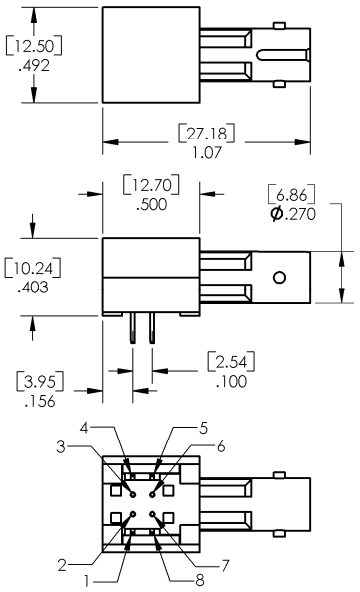


T-Package

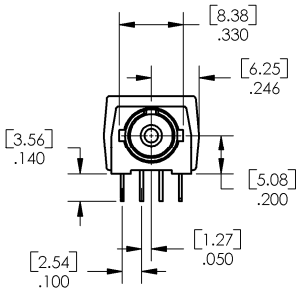
Description:

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 µm up to 200/230 µm. 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 µm) 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 µm fiber applications.

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



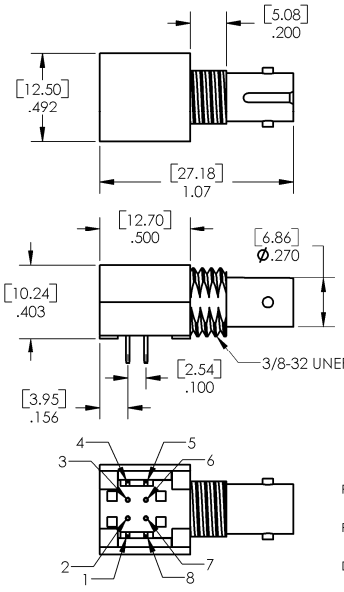
OPF1412
OPF1414



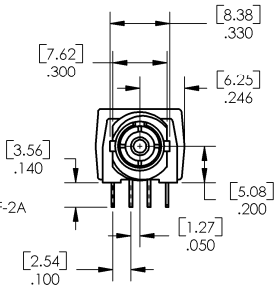
PINS 1, 4, 5, & 8 - .020 X .015 [0.51 X 0.38]

PINS 2, 3, 6, & 7 - Ø.018 [0.46]

DIMENSIONS ARE IN INCHES AND [MILLIMETERS].



OPF1412T
OPF1414T



PINS 1, 4, 5, & 8 - .020 X .015 [0.51 X 0.38]

PINS 2, 3, 6, & 7 - Ø.018 [0.46]

DIMENSIONS ARE IN INCHES AND [MILLIMETERS].

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 50/125µm @ 60mA	Typ. dBm into 100/140µm @ 60mA
OPF1412	-16.0	-12.0
OPF1412T	-16.0	-12.0
OPF1414	-12.0	-6.5
OPF1414T	-12.0	-6.5

Pb

RoHS

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

OPTEK Technology Inc. — 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 sensors@optekinc.com www.optekinc.com

Absolute Maximum Ratings (T_A=25°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)(1)	260° C

Notes:
(1) All parameters tested using pulse technique.

Electrical Characteristics (T_A = -40° 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 mA I_F = 100 mA
V_F/T	Forward Voltage Temperature Coefficient		-0.20		mV/°C	I_F = 60 mA
V_{BR}	Reverse Input Voltage	1.8	3.8		V	I_R = 100 µA
λp	Peak Emission Wavelength	820	840	865	nm	I_F = 60 mA
C_T	Diode Capacitance		55		pF	V = 0, f = 1 MHz
P_T/T	Optical Power Temperature Coefficient		-.008 -.020		dB/°C	I_F= 60 mA I_F = 100 mA
t_r, t_f	Rise Time, Fall Time (10% to 90%)		4.0	6.5	ns	I_F = 60 mA, no pre-bias

Peak Output Optical Power

Symbol	Parameter	1412			1414			Unit	Test Condition
		Min	Typ	Max	Min	Typ	Max		
P_{T100}	100/140 µm Fiber Cable N.A. = 0.30	-15.0 -16.0 -13.5 -15.1	-12.0 -10.0 	-10.0 -9.0 -7.6 -7.0	-9.5 -10.5 -8.0 -9.6	-6.5 -4.5 	-4.5 -3.5 -2.1 -1.5	dBm	I_F = 60 mA, T_A = 25°C I_F = 100 mA, T_A = 25°C
P_{T62}	62.5/125 µm Fiber Cable N.A. = 0.275	-19.0 -20.0 -17.5 -19.1	-16.0 -14.0 	-14.0 -13.0 -11.6 -11.0	-15.0 -16.0 -13.5 -15.1	-12.0 -10.0 	-10.0 -9.0 -7.6 -7.0	dBm	I_F = 60 mA, T_A = 25°C I_F = 100 mA, T_A = 25°C
P_{T50}	50/125 µm Fiber Cable N.A. = 0.20	-21.8 -22.8 -20.3 -21.9	-18.8 -16.8 	-16.8 -15.8 -14.4 -13.8	-18.8 -19.8 -17.3 -18.9	-15.8 -13.8 	-13.8 -12.8 -11.4 -10.8	dBm	I_F = 60 mA, T_A = 25°C I_F = 100 mA, T_A = 25°C

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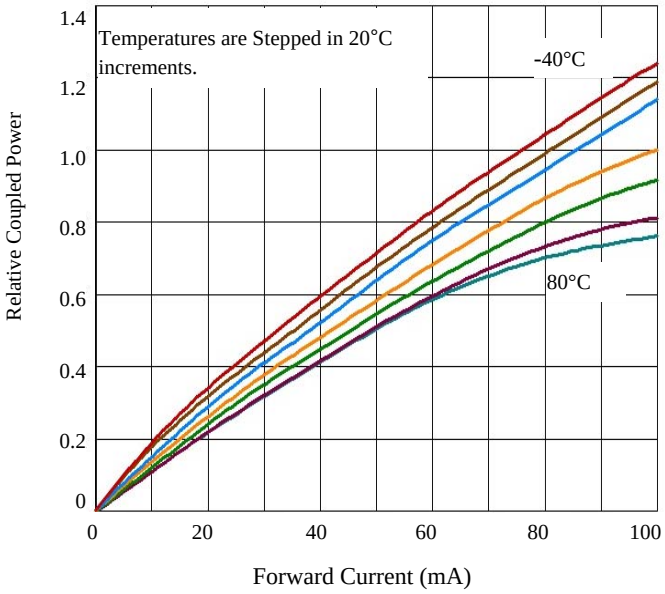
Relative Coupled Power vs Forward Current



Typical Forward Voltage vs Forward Current