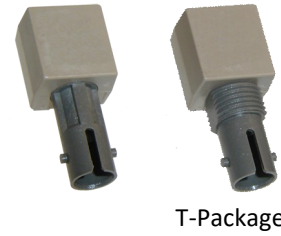




# High Speed Fiber Optic Transmitter

OPF1414, OPF1414T

Obsolete (OPF1412T)



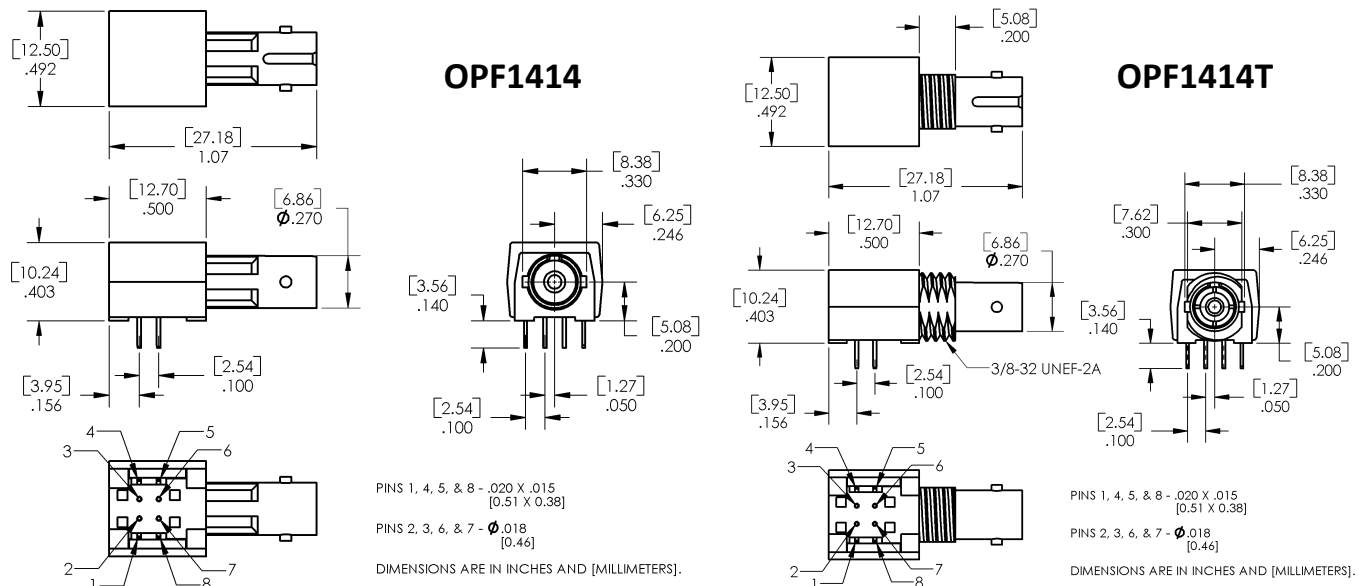
T-Package

## 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

## Description:

The OPF1414 series fiber optic transmitters contain a high speed 840 nm GaAIAs 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.



| 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 $\mu\text{m}$ @ 60 mA | Typ. dBm into 100/140 $\mu\text{m}$ @ 60 mA |
|-------------|--|---|
| 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.

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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<br>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  $+85^\circ\text{C}$  unless otherwise noted) Typ. values are at  $25^\circ\text{C}$ .

| SYMBOL      | PARAMETER                               | MIN  | TYP              | MAX  | UNITS  | TEST CONDITIONS                               |
|-------------|---|------|------------------|------|--------|---|
| $V_F$       | Forward Voltage                         | 1.48 | 1.70<br>1.84     | 2.09 | V      | $I_F = 60\text{ mA}$<br>$I_F = 100\text{ mA}$ |
| $V_F/T$     | 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<br>-0.020 | —    | dB/° C | $I_F = 60\text{ mA}$<br>$I_F = 100\text{ mA}$ |
| $t_r, t_f$  | 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  | 1414  |       |       | UNITS | TEST CONDITIONS                               |
|------------|--|-------|-------|-------|-------|---|
|            |  | MIN   | TYP   | MAX   |       |   |
| $P_{T100}$ | 100/140 $\mu\text{m}$ Fiber Cable<br>N.A. = 0.30   | -9.5  | -6.5  | -4.5  | dBm   | $I_F = 60\text{ mA}, T_A = 25^\circ\text{C}$  |
|            |  | -8.0  | -4.5  | -2.1  |       | $I_F = 100\text{ mA}, T_A = 25^\circ\text{C}$ |
| $P_{T62}$  | 62.5/125 $\mu\text{m}$ Fiber Cable<br>N.A. = 0.275 | -15.0 | -12.0 | -10.0 | dBm   | $I_F = 60\text{ mA}, T_A = 25^\circ\text{C}$  |
|            |  | -13.5 | -10.0 | -7.6  |       | $I_F = 100\text{ mA}, T_A = 25^\circ\text{C}$ |
| $P_{T50}$  | 50/125 $\mu\text{m}$ Fiber Cable<br>N.A. = 0.20    | -18.8 | -15.8 | -13.8 | dBm   | $I_F = 60\text{ mA}, T_A = 25^\circ\text{C}$  |
|            |  | -17.3 | -13.8 | -11.4 |       | $I_F = 100\text{ mA}, T_A = 25^\circ\text{C}$ |

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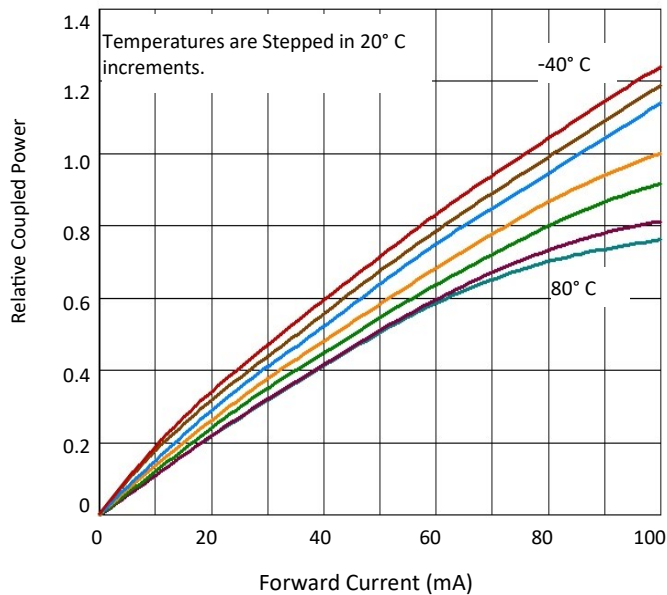
OPF1414, OPF1414T

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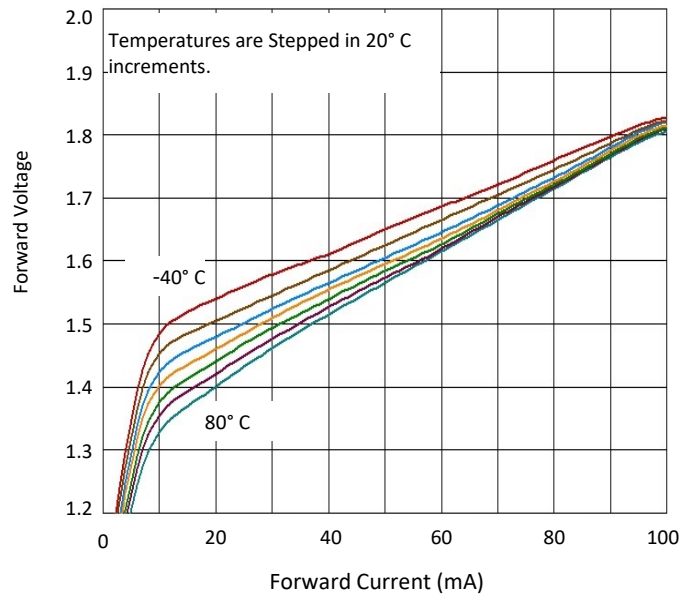


## Performance

Relative Coupled Power vs Forward Current



Typical Forward Voltage vs Forward Current




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