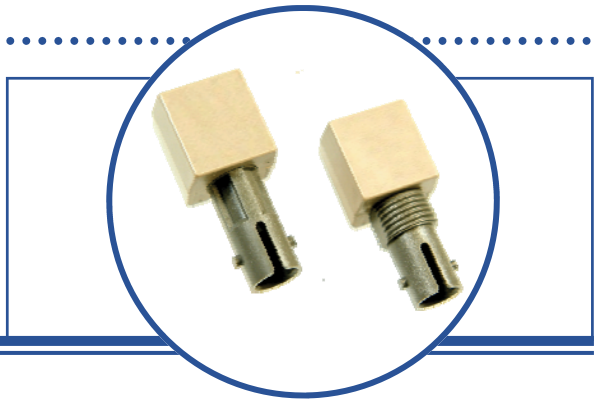
# Fiber Optic Receiver

## OPF2418, OPF2418T, OPF2418TC

### OPF2418 Family

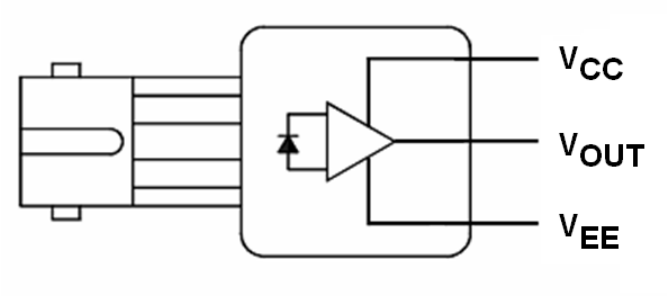
- Up to 194 Mbps operation
- 850nm wavelength
- ST® style port
- Wave solderable
- Wide temperature range

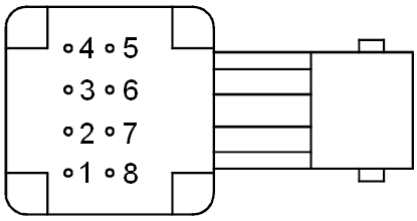


The OPF2418 family is a low cost solution for high speed fiber optic communications designs. The internal lensing of this receiver's design allows optimal response for fiber sizes of 100µm and below. The receiver is comprised of a high speed, low noise, photodiode coupled to a transimpedance amplifier (TIA). The photodiode/TIA combination produces an output voltage that is proportional to the input light amplitude. This hybrid approach solves many of the problems of high speed data link designs by placing the photodiode close to the TIA. The amplification of the TIA makes the output much less susceptible to EMI. The output of the OPF2418 is an analog, low impedance, emitter follower voltage source. Subsequent circuitry can be utilized to convert the analog voltage to ECL/TTL for digital data rates up to 155 Mbps. The OPF2418 is available with either standard or threaded panel mount ST® receptacles. The threaded version is also available in conductive plastic.

### Applications

- Industrial Ethernet equipment
- Copper-to-fiber media conversion
- Intra-system fiber optic links
- Video surveillance systems




| PIN | FUNCTION |
|---|---|
| 1 | Not Connected |
| 2 | $V_{OUT}$ |
| 3 | $V_{EE}$ |
| 4 | Not Connected |
| 5 | Not Connected |
| 6 | $V_{CC}$ |
| 7 | $V_{EE}$ |
| 8 | Not Connected |

Pins 3 & 7 are electrically connected to the header.
Pins 1,4,5 & 8 are mechanically connected together.

"T" suffix = Threaded ST® package
"TC" suffix = Threaded, conductive ST® package

**RoHS**

**ESD Class 2**

ST® is a registered trademark of AT&T.



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## Absolute Maximum Ratings

$T_A$ = 25° C unless otherwise noted

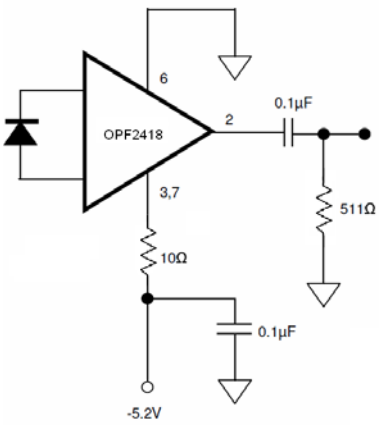
| | |
|---|---|
| Storage Temperature Range | -55° C to +85° C |
| Operating Temperature Range | -40° C to +85° C |
| Lead Soldering Temperature[1] | 260° C |
| Supply Voltage | -0.5 V to 6.0 V |
| Output Current | 25 mA |
| Output Pin Voltage | -0.5 V |

## Electrical/Optical Characteristics ($T_A$ = 25°C unless otherwise noted)

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | CONDITIONS |
|---|---|---|---|---|---|---|
| R | Responsivity | 5.3<br>4.5 | 7.0 | 9.6<br>11.5 | mV/µW | $\lambda_p$ = 850 nm, f = 50 MHz<br>-40 °C ≤ $T_A$ ≤ +85 °C |
| $V_{NOISE}$ | RMS Output Noise Voltage | | 0.40 | 0.59<br>0.70 | mV | 75 MHz Bandwidth Filtered, $P_R$ = 0<br>Unfiltered Bandwidth Filtered $P_R$ = 0 |
| $P_N$ | RMS Equivalent Optical Noise Input Power | | 0.050 | 0.065 | µW | 100 MHz Bandwidth Filtered, $P_R$ = 0 |
| $P_R$ | Peak Received Optical Power | | | 175<br>150 | µW | 40 °C ≤ $T_A$ ≤ +85 °C |
| $V_{ODC}$ | DC Output Voltage | -4.2 | -3.1 | -2.4 | V | $P_R$ = 0 |
| $I_{EE}$ | Supply Current | | 9 | 15 | mA | $R_L$ = ∞ |
| BW | Bandwidth | 155 | 200 | | MHz | -3dB electrical |
| $t_r$, $t_f$ | Rise Time, Fall Time | | 2.0 | 2.6 | ns | f = 50 MHz, $P_R$ = 100 µW peak, $R_L$ = 511 Ω, $C_{LOAD}$ = 5 pF |
| PWD | Pulse Width Distortion | | 0.4 | 2.5 | ns | f = 50 MHz, $P_R$ = 150 µW peak |
| PSRR | Power Supply Rejection Ratio | | 20 | | dB | f = 10 MHz |

Notes:
1. Maximum of 5 seconds with soldering iron. Duration can be extended to 10 seconds when flow soldering. RMA flux is recommended.

**Application Circuit**




Note that the 10Ω resistor and bypass capacitor are





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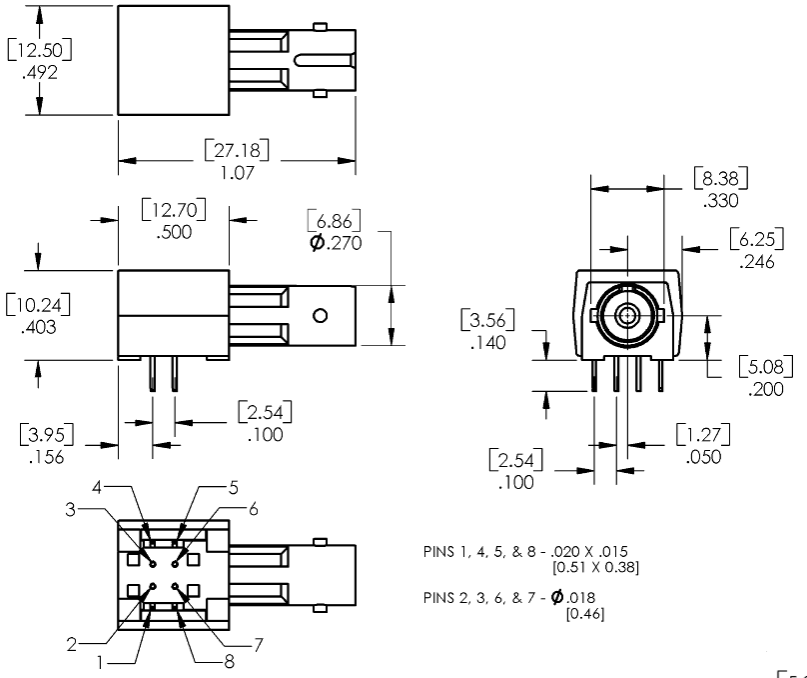
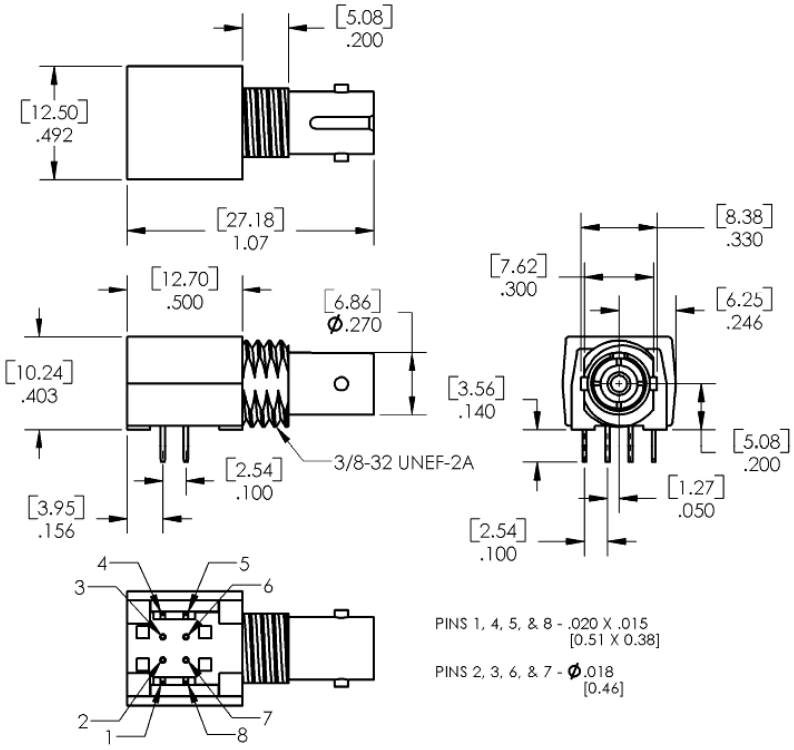
## Mechanical Data




**OPF2418**

**OPF2418T**
**OPF2418TC**




DIMENSIONS ARE IN INCHES [MILLIMETERS]