

# Fiber Optic Transmitter

## OPF694 Series

### OPF694 Series

- Low Cost 850 nm LED technology
- High thermal stability
- High optical coupling efficiency to multimode fiber
- Metal ST\* style receptacle
- Industrial temperature range



The OPF694 series fiber optic transmitters are high performance devices packaged for data communication links. This transmitter is an 850 nm GaAlAs LED and is specifically designed to efficiently launch optical power into either 50/125 $\mu\text{m}$  or 62.5/125 $\mu\text{m}$  diameter multimode fiber. Two power ranges with upper and lower limits are offered which allows the designer to select a device best suited for the application.

This product's combination of features including high speed and efficient coupled power makes it an ideal transmitter for integration into all types of data communications equipment.

### Applications

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

Typical Coupled Power $I_F = 100\text{mA}, 25^\circ\text{C}$				
Fiber Size	Type	N.A.	OPF694-1	OPF694-2
50/125 $\mu\text{m}$	Graded Index	0.20	-19dBm	-16dBm
62.5/125 $\mu\text{m}$	Graded Index	0.28	-15dBm	-12dBm
100/140 $\mu\text{m}$	Graded Index	0.29	-11dBm	-8dBm
200/300 $\mu\text{m}$	Step Index	0.41	-5dBm	-2dBm



\* - ST is a registered trademark of Fitel USA Corp.

RoHS

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

### Absolute Maximum Ratings

$T_A = 25^\circ\text{C}$  unless otherwise noted

Storage Temperature Range	-55° C to +100° C
Operating Temperature Range	-40° C to +85° C
Lead Soldering Temperature <sup>(1)</sup>	260° C
Continuous Forward Current <sup>(2)</sup>	100 mA
Maximum Reverse Voltage	1.0 V

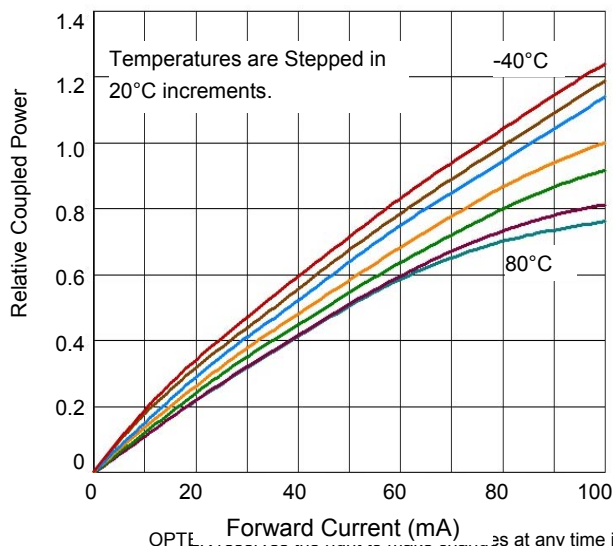
### Electrical/Optical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER		MIN	TYP	MAX	UNITS	CONDITIONS
$P_{T50}$	Total Coupled Power	OPF694-1	-19.0		-14.0	dBm	$I_F = 100\text{ mA}$
	50/125 mm Fiber NA = 0.20	OPF694-2	-16.0		-11.0	dBm	
$V_F$	Forward Voltage		1.5		2.1	V	$I_F = 100\text{ mA}$
$V_R$	Reverse Voltage		1.8			V	$I_R = 100\text{ }\mu\text{A}$
$\lambda$	Wavelength		830	850	870	nm	$I_F = 50\text{ mA}$
$\Delta\lambda$	Optical Bandwidth			35		nm	$I_F = 50\text{ mA}$
$t_r, t_f$	Rise and Fall Time			4.5	6.5	ns	$I_F = 100\text{ mA}; 10\% \text{ to } 90\%^{(3)}$

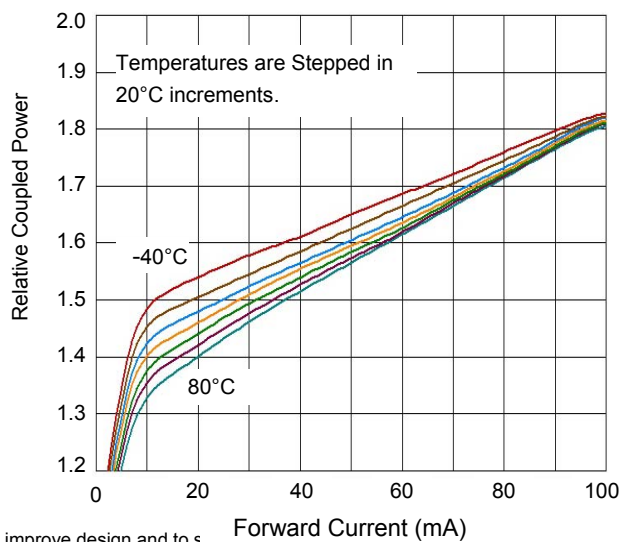
#### Notes:

- Maximum of 5 seconds with soldering iron. Duration can be extended to 10 seconds when flow soldering. RMA flux is recommended.
- De-rate linearly at 1.0mA /°C above 25°C .
- No Pre-bias.
- All Optek fiber optic LED products are subjected to 100% burn-in as part of its quality control process. The burn-in conditions are 96 hours at 100mA drive current and 25°C ambient temperature.

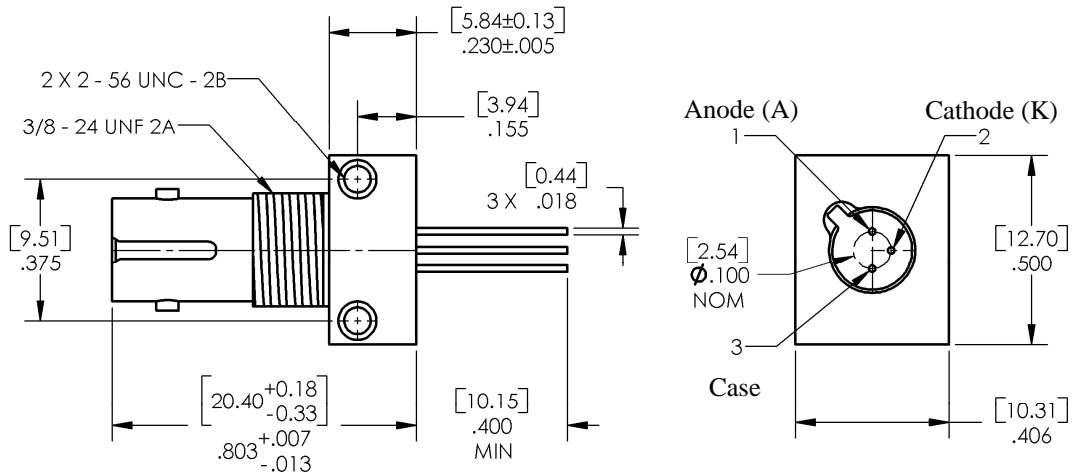
**Relative Coupled Power vs. Forward Current**



**Typical Forward Voltage vs. Forward Current**

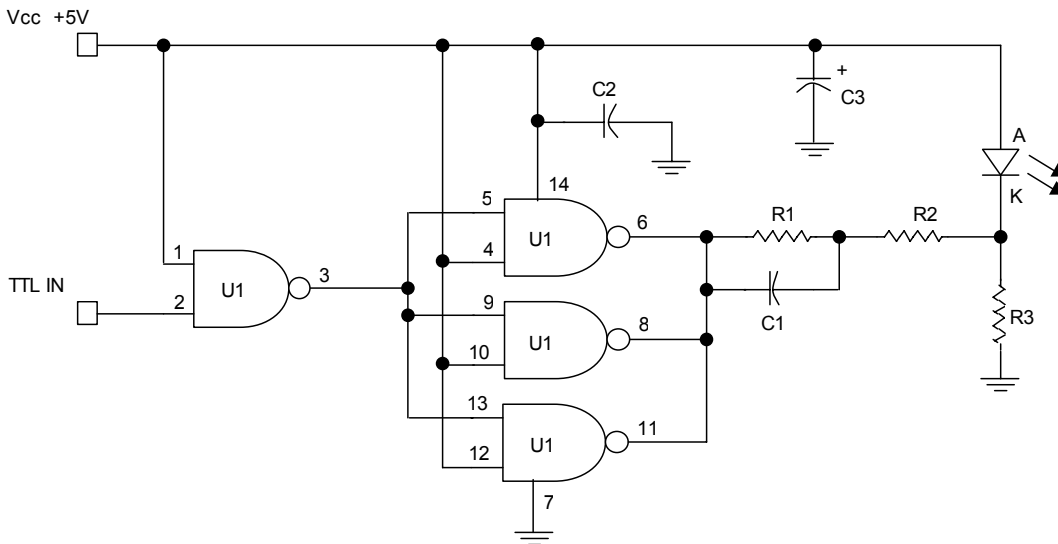


### Mechanical Data



DIMENSIONS ARE IN INCHES AND [MILLIMETERS].

### Application Circuit: 155Mbps TTL Drive Circuit



Part	Description	Value/ Type	Symbol	Tol.
C1	Capacitor	75	pF	20%
C2	Capacitor	100	pF	20%
C3	Capacitor	10	μF	20%
R1	Resistor	33	Ω	5%
R2	Resistor	33	Ω	5%
R3	Resistor	270	Ω	5%
U1	IC, Quad NAND	74ACTQ00	-	-

Refer to Application Bulletin 220 for complete details.

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