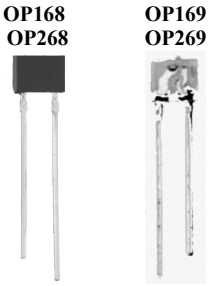
Plastic Infrared Emitting Diode

OP168F, OP169, OP268F, OP269 Series



Features:

- Flat lens for wide radiation angle (OP168, OP268)
- Integral lens for narrow beam angle (OP169, OP269)
- Easily stackable on 0.100" (2.54 mm) hole centers
- Mechanically and spectrally matched to other OPTEK devices

Description:

Each diode in this series is molded into an end-looking plastic package. The package for all **OP168F** and **OP268F** devices is black, whereas the package for all **OP169** and **OP269** packages is clear. **OP168F** and **OP169** devices are GaAs. **OP268F** and **OP269** devices are GaAlAs.

Due to their small size, all diodes in this series offer considerable design flexibility.

The OP168F and OP268F series are mechanically and spectrally matched to the OP508F series phototransistor and the OP538F series photodarlingtons. The OP169 and OP269 series are mechanically and spectrally matched to the OP509 series phototransistors.

Please refer to Application Bulletins 208 and 210 for additional design information and reliability (degradation) data.

For custom screening contact your OPTEK representative.

Applications:

- Space-limited applications
- Excellent design flexibility
- PCBoard mounted slotted switch
- PCBoard interrupter

Ordering Information			
Part Number	**LED Peak Wavelength**	**Total Beam Angle**	**Lead Length**
OP168FA	935 nm	104°	0.50"
OP168FB			
OP169B	935 nm	18°	
OP169C			
OP268FA	890 nm	104°	
OP268FB			
OP268FC			
OP269A	890 nm	18"	

RoHS

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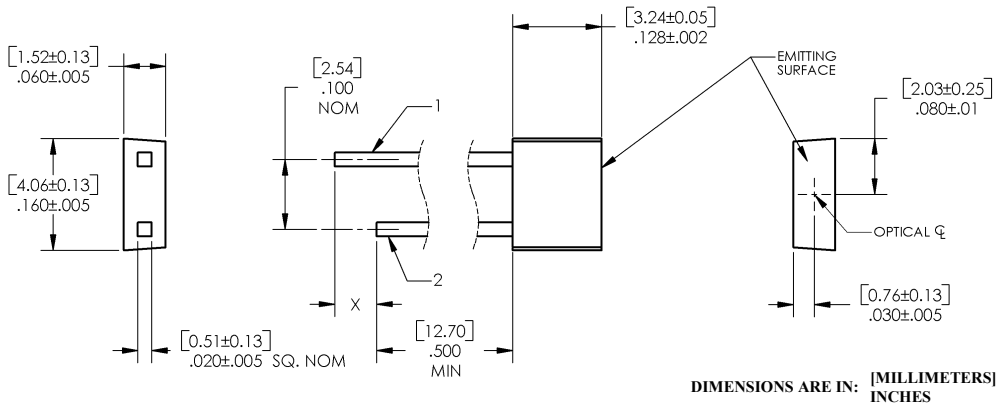
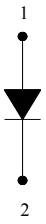
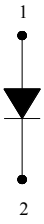
OP168F (B, C), OP268F (A)

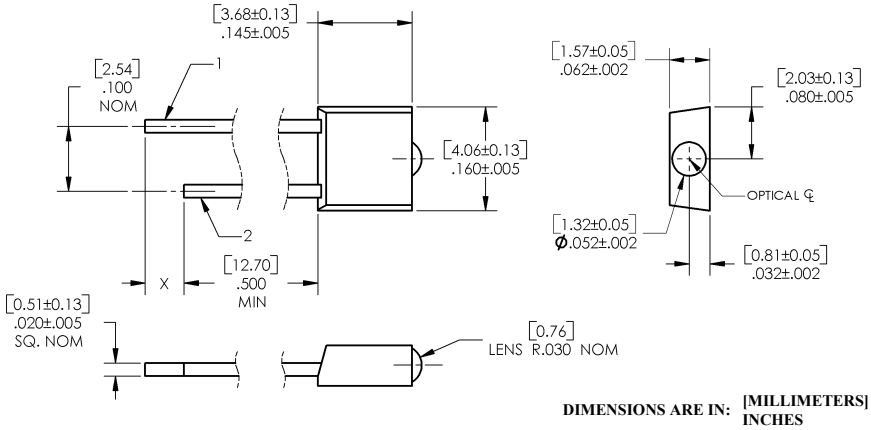




Pin #	LED X=0.060" (1.5 mm)
1	Anode
2	Cathode

OP169 (A, B, C), OP269 (A, B, C)





Pin #	LED X=0.060" (1.5 mm)
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Electrical Specifications

Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)	
Storage and Operating Temperature Range	-40° C to +100° C
Reverse Voltage	2.0 V
Continuous Forward Current	50 mA
Peak Forward Current (1 µs pulse width, 300 pps) OP168, OP169, OP268, OP269 (A)	3.0 A
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron](1)	260° C
Power Dissipation(2)	100 mW

Electrical Characteristics (T_A = 25° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
$E_{E\ (APT)}$(3)	Apertured Radiant Incidence OP168FA OP168FB OP169B OP169C OP268FA OP268FB OP268FC OP269A	 0.48 0.43 0.11 0.03 0.64 0.45 0.36 0.58	 - - - - - - - - -	 0.73 - 0.22 - - 0.99 - -	mW/cm^2	I_F = 20 mA Aperture = .081" dia. Distance = .400" from tip of lens to aperture surface
V_F	Forward Voltage OP168, OP169 OP268, OP269	 - -	 - -	 1.40 1.50	V	I_F = 20 mA
I_R	Reverse Current OP168, OP169, OP268, OP269	 -	 -	 100	µA	V_R= 2.0 V
λ_P	Wavelength at Peak Emission OP168, OP169 OP268, OP269	 - -	 935 890	 - -	nm	I_F = 20 mA

Notes:

1. RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering. A maximum of 20 grams force may be applied to the leads when soldering.
2. Derate linearly 1.33 mW/° C above 25° C.
3. For OP168 (FB, FC) and OP268 (FA, FB, FC), $E_{E(APT)}$ is a measurement of the average apertured radiant energy incident upon a sensing area 0.081" (2.06 mm) in diameter perpendicular to and centered on the mechanical axis of the lens and 0.400" (10.16 mm) from the measurement surface. For OP169 (B, C) and OP269 (A), $E_{E(APT)}$ is a measurement of the average apertured radiant energy incident upon a sensing area 0.180" (4.57 mm) in diameter perpendicular to and centered on the mechanical axis of the lens and 0.653" (16.6 mm) from the lens tip. NOTE: $E_{E(APT)}$ is a measurement of the *average* radiant intensity within the cone formed by the above conditions. $E_{E(APT)}$ is not necessarily uniform within the measured area.

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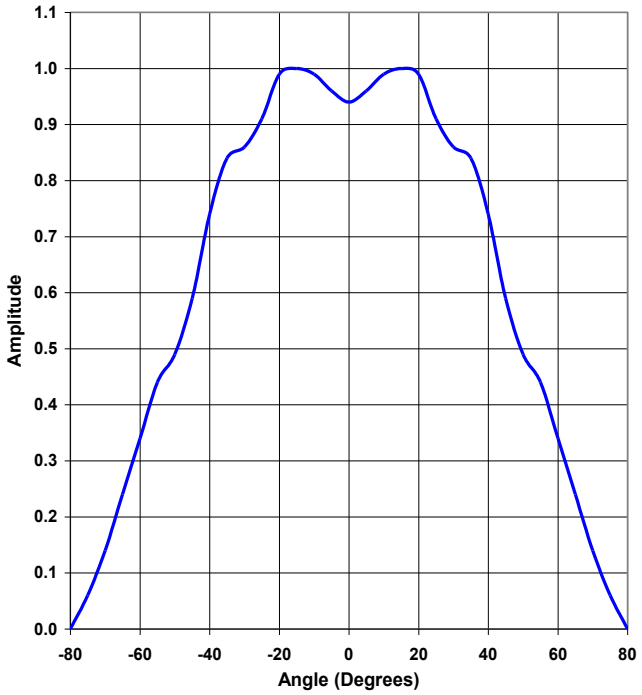
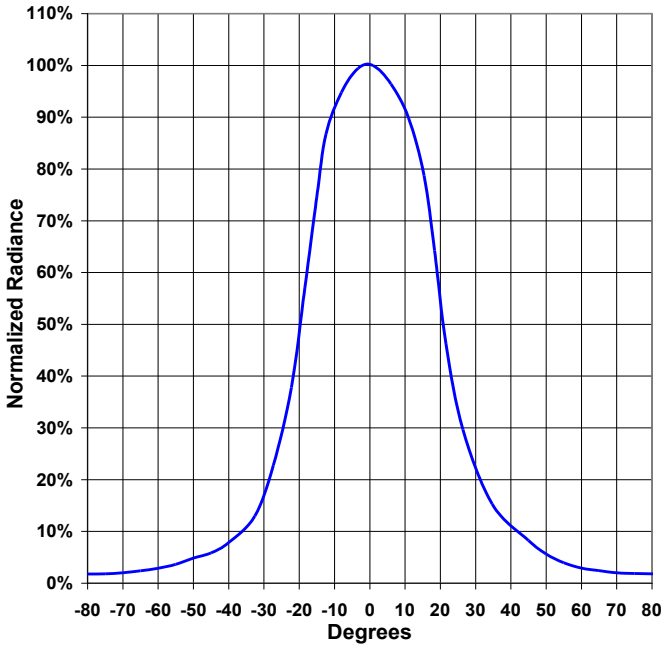
Electrical Characteristics (T_A = 25° C unless otherwise noted— for reference only)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
B	Spectral Bandwidth between Half Power Points OP168, OP169 OP268, OP269	 - -	 50 80	 - -	nm	I_F = 10 mA
$\Delta\lambda_P/\Delta T$	Spectral Shift with Temperature OP168, OP169 OP268, OP269	 - -	 ±0.30 ±0.18	 - -	nm/°C	I_F = Constant
θ_{HP}	Emission Angle at Half Power Points OP168 OP169 OP268 OP269	 - - - -	 104° 46° 104° 46°	 - - - -	Degree	I_F = 20 mA
t_r	Rise Time OP168, OP169 OP268, OP269	 - - -	 1000 500 10	 - - -	ns	$I_{F(PK)}$=100 mA, PW=10 µs, D.C.=10%
t_f	Fall Time OP168, OP169 OP268, OP269	 - - -	 500 250 10	 - - -	ns	$I_{F(PK)}$=100 mA, PW=10 µs, D.C.=10%

Beam Angle OP168 & OP268 Package



Beam Angle OP169 & OP269 Package



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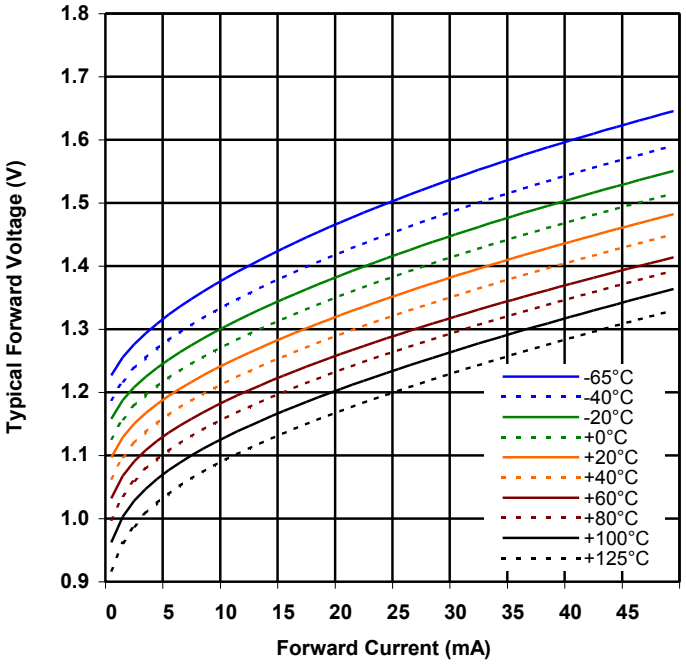
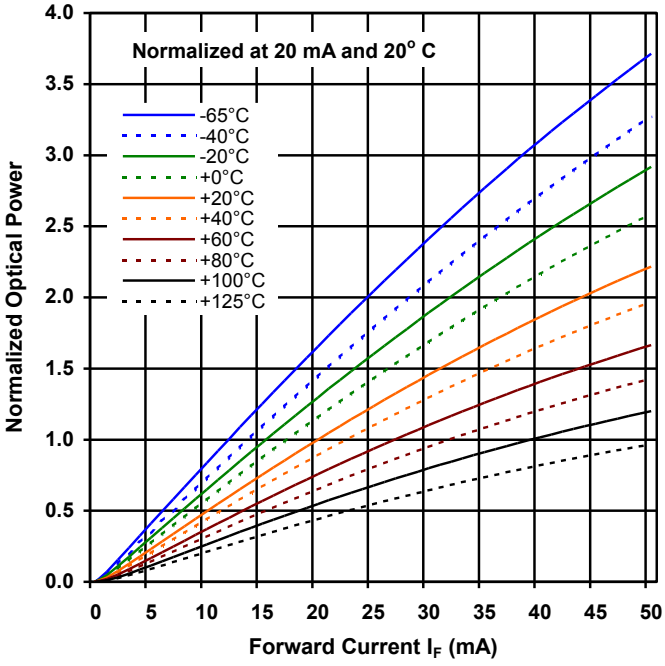
Performance

OP168 (FB, FC), OP169 (B, C)

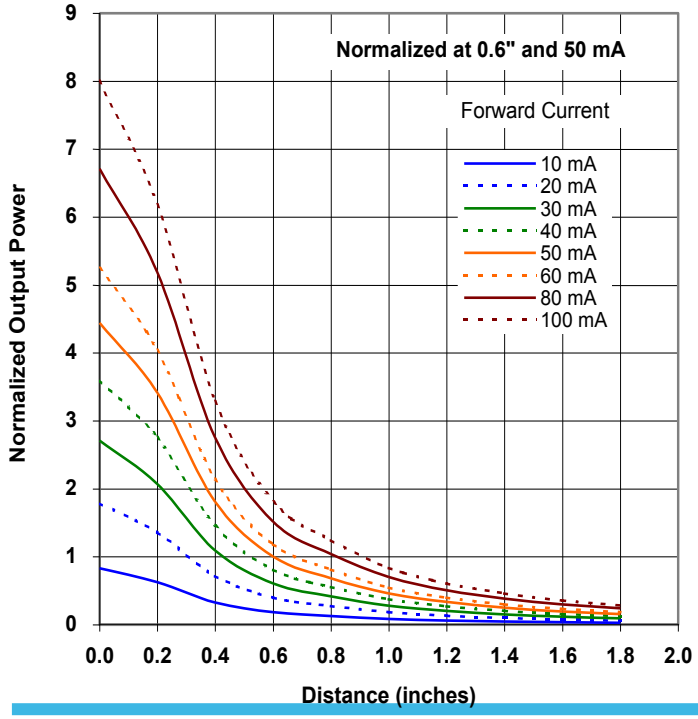
Forward Voltage vs Forward Current vs Temperature



Optical Power vs I_F vs Temp



Distance vs Output Power vs Forward Current



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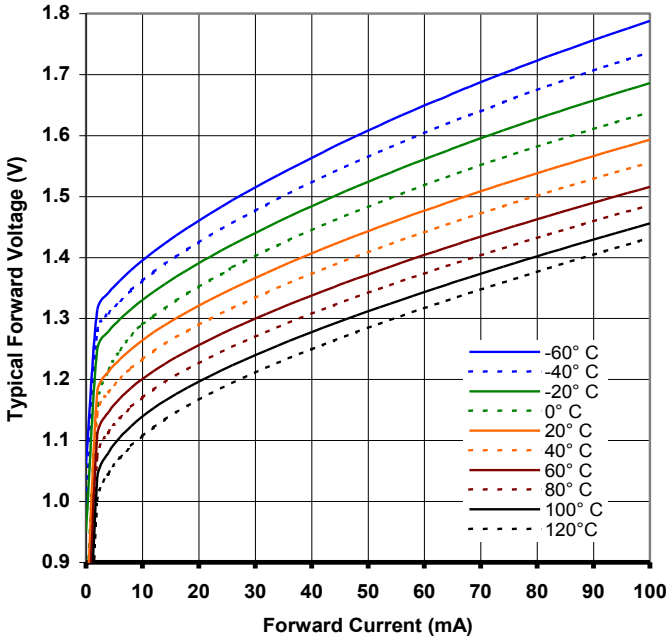
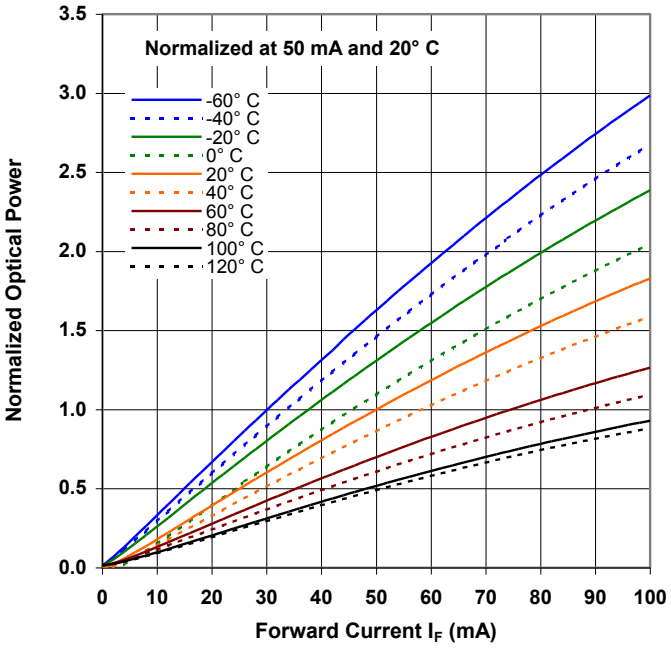
Performance

OP268 (FA, FB, FC), OP269 (A)

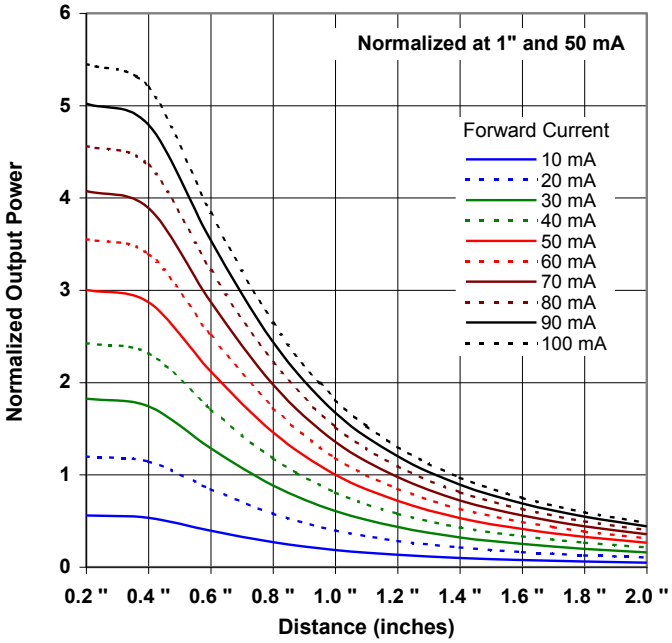
Forward Voltage vs Forward Current vs Temperature



Optical Power vs I_F vs Temperature



Distance vs Output Power vs Forward Current



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Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
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http://moschip.ru/get-element

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