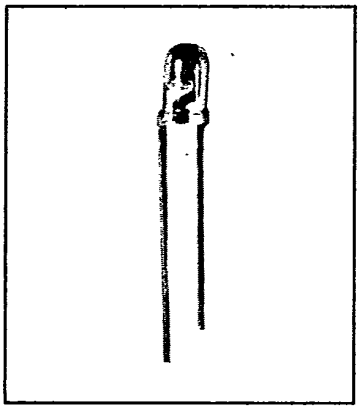
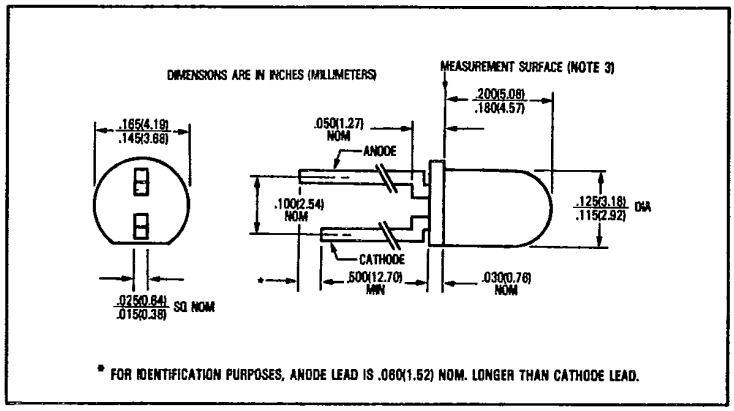
Optoelectronics Division
TRW Electronic Components Group

Product Bulletin 5048
January 1985

GaAs Plastic Infrared Emitting Diodes
Types OP161SL, OP161SLD, OP161SLC, OP161SLB, OP161SLA





Features
- 0.100 inch (2.54 mm) lead spacing for standard socket mounting
- Low cost, plastic miniature end-looking T-1 package
- Mechanically and spectrally matched to the OP501 phototransistor series

Description
The OP161SL series devices are gallium arsenide infrared emitting diodes molded in clear plastic, mini-axial packages. The lensing effect of the package allows a radiation half angle of 8° measured from the optical axis to the half power point. Lead spacing is 0.100" (2.54 mm) to allow mounting in standard sockets. These devices are mechanically and spectrally matched to the OP501 and OP501SL series of phototransistors. For additional information on spectral emission characteristics, please refer to the OP501 data sheet.

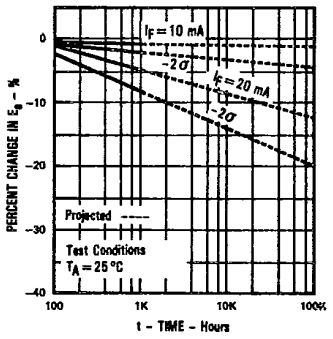
Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Continuous Forward Current	50 mA
Peak Forward Current (Pulse Width = 1 μsec, 300 pps)	3.0 A
Reverse Voltage	2.0 V
Storage and Operating Temperature Range	−40°C to +100°C
Lead Soldering Temperature Range (1/16 Inch (1.6 mm) from Case for 5 sec. with soldering iron)(1)	240°C
Power Dissipation	100 mW(2)

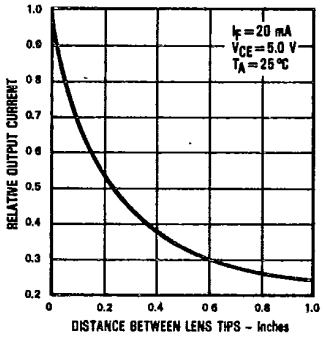
Notes:
(1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
(2) Derate linearly 1.33 mW/°C above 25°C.
(3) $E_{e(APT)}$ is a measurement of the average apertured radiant incidence upon a sensing area 0.081" (2.06 mm) in diameter perpendicular to and centered on the mechanical axis of the lens, and 0.590" (14.99 mm) from the measurement surface. $E_{e(APT)}$ is not necessarily uniform within the measured area.

Typical Performance Curves

Percent Changes in Radiant Intensity vs Time



Coupling Characteristics of OP161SL and OP501SL



Types OP161SL, OP161SLD, OP161SLC, OP161SLB, OP161SLA

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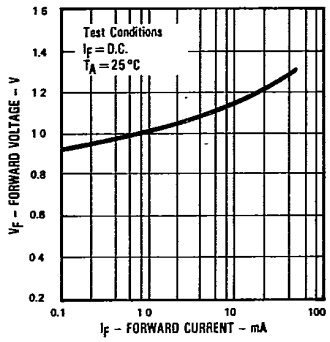
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Symbol	Parameter		Min.	Typ.	Max.	Units	Test Conditions
PO	Radiant Power Output	OP161	0.50			mW	I_F = 20 mA
E_e(APT)[3]	Apertured Radiant Incidence	OP161SL	0.05			mW/cm²	I_F = 20 mA
		OP161SLD	0.28		0.95	mW/cm²	I_F = 20 mA
		OP161SLC	0.85		1.60	mW/cm²	I_F = 20 mA
		OP161SLB	1.40		2.2	mW/cm²	I_F = 20 mA
		OP161SLA	1.95			mW/cm²	I_F = 20 mA
V_F	Forward Voltage				1.60	V	I_F = 20 mA
I_R	Reverse Current				100	μA	V_R = 2.0 V

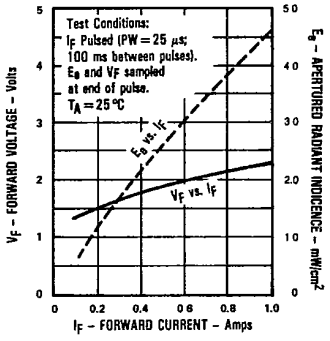
C

Typical Performance Curves

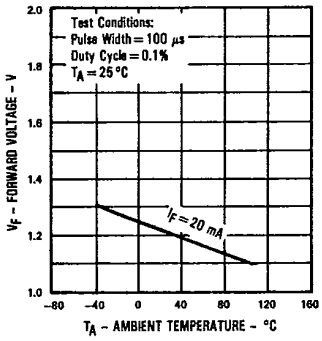
Forward Voltage vs Forward Current



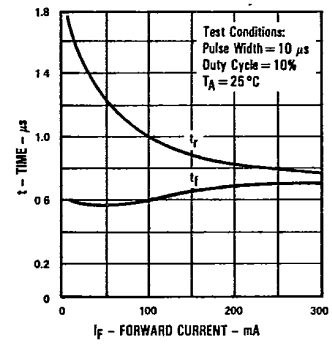
Forward Voltage and Radiant Incidence vs Forward Current



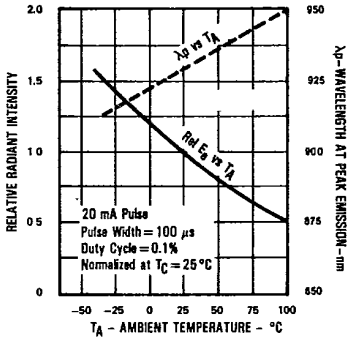
Forward Voltage vs Ambient Temperature



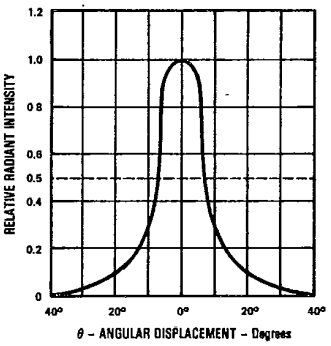
Rise Time and Fall Time vs Forward Current



Relative Radiant Intensity and Wavelength at Peak Emission vs Ambient Temperature



Relative Radiant Intensity vs Angular Displacement



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

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