

Infrared Emitter / Sensor Product Brief

This product brief provides an overview of the Infrared Emitter / Sensor offering including product features and applications.

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- **Optoelectronic** core focus
- **Comprehensive** package selection offering robust reliability and longevity
- **Application** and engineering support available, including optical simulation data
- **Custom** solutions and special binning

Infrared Overview



Product Features

- High radiant intensity
- High reliability
- Emitter and sensor matching
- Low forward voltage
- Various view angle options
- Top, reverse, and side mount options

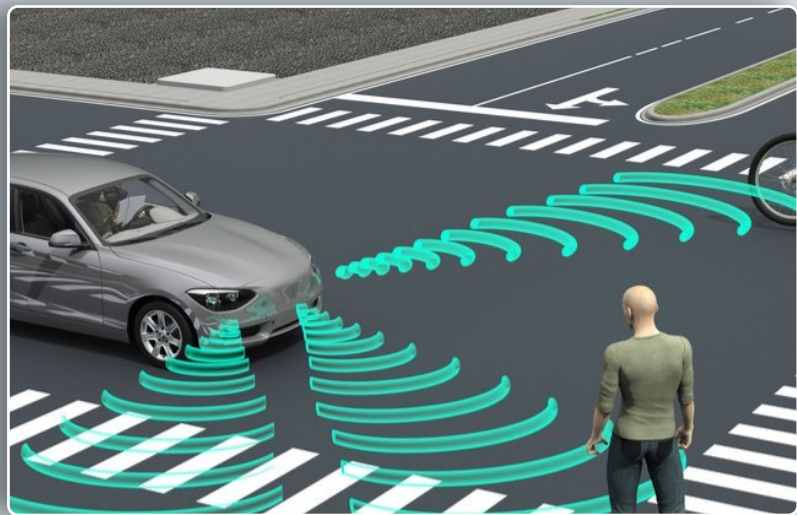
Applications

- Optical Switch
- Motion & Position Sensing
- 3D Sensing & Scanning
- Time of Flight Sensors
- Security Cameras
- Biometrics Identification
- Health Monitoring
- Medical Lab / Diagnostic Equipment
- Skin, Muscle & Joint Pain Treatment
- Rotary & Linear Encoders
- Object Counting & Sorting Sensor
- Touch Panel
- High Speed IR Communication

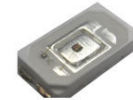
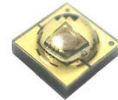


Product Features

- Focused Beam Angle
- MSL 4 Qualified (J-STD 020)
- ESD (HBM) 8KV
- ROHS and REACH Compliant



VCSEL PRODUCT OVERVIEW

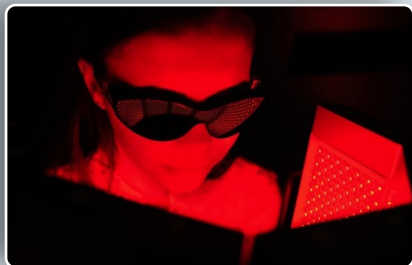
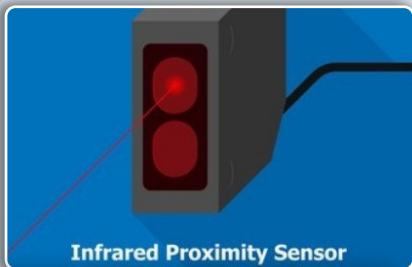


Product Name	Dimensions (mm)	Peak Wavelength (nm)	IF (mA)	Viewing Angle	Radiometric Power (mW)	VF (v) typ.
INV-Q39CT Series	3.9 x 3.9 x 1.5	850 or 940	2000	30	1600 or 1800	2.4
INV-K1T Series	14.5 x 8.0 x 5	850	700 or 1000	25	400 or 900	2.4
INV-P53CT Series	5.6 x 3.0 x 0.9	850 or 940	200	30	120 or 150	2.4
INV-C33CT Series	3.45 x 3.45 x 2	850 or 940	700 or 1000	30	450, 600, or 800	2.4



Product Features

- Multiple Lens Angle Selections
- Vertical Chip Technology
- MSL 3 Qualified (J-STD 020)
- ESD (HBM) 2KV
- ROHS and REACH Compliant



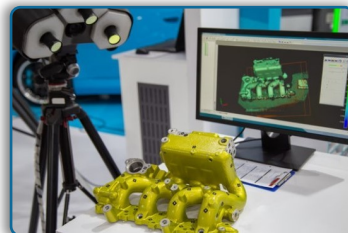
PRODUCT OVERVIEW



Product Name	Dimensions (mm)	Peak Wavelength (nm)	IF (mA)	Viewing Angle	Radiometric Power (mW)	VF (v) typ.
IN-C33(X)TOIR Series	3.9 x 3.9 x 1.5	850	1000	30, 60, 90, or 120	600	2.2

Applications

- Linear Smoke Detectors
- Machine Vision
- Printing (Inkjet, Laser, and Industrial)
- 3D Scanning





Emitter - SMD

850nm SMD Type Emitter

Product Name	VF	Intensity	Peak Emission Wavelength λ_D (nm) @(typ)	MAX	VA
	V	mW/Sr		mA	Deg
IN-P281ASGIR	1.9	13	850 @100mA	100	120
IN-P32ZTIR	1.5	5	850 @20mA	100	120
IN-S126ETIR	1.4	20	850 @20mA	100	30
IN-S42CTQIR	1.6	5.5	850 @20mA	70	140

940nm SMD Type Emitter

Product Name	VF	Intensity	Peak Emission Wavelength λ_D (nm) @(typ)	MAX	VA
	V	mW/Sr		mA	Deg
IN-P281ASGHIR	1.5	12.5	940 @100mA	100	120
IN-P32ZTHIR	1.4	5	940 @20mA	70	120
IN-S126BTHIR	1.4	0.9	940 @20mA	65	140
IN-S126DSHIR	1.4	4.8	940 @20mA	70	20
IN-S126ESGHIR	1.46	92	940 @100mA	100	20
IN-S126ETHIR	1.2	5	940 @20mA	100	30
IN-S126FSHIR	1.4	6.5	940 @20mA	70	60
IN-S42CTQHIR	1.6	4.5	940 @70mA	70	140
IN-S63DTHIR	1.2	0.8	940 @20mA	65	140
IN-S63FTHIR	1.2	0.8	940 @20mA	70	140
IN-S85TBTHIR	1.5	0.8	940 @20mA	65	140





Sensor - SMD

Detector - Photo Transistor

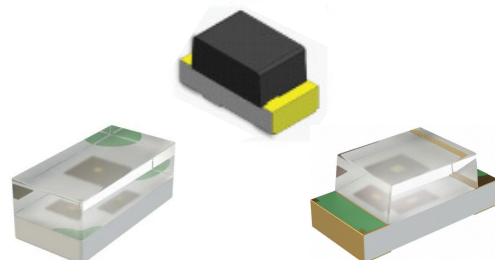
Product Name	On State Collector Current IC(ON) Ee=1mW/cm ² 940nm, VCE=5V	Collector-Emitter Voltage	Range of Spectral Bandwidth λD
	uA	v	nm
IN-S63DTPT	1.2	35	400-1100
IN-S126BTNPT	0.5	30	750-1100
IN-S85BTPT	1	35	400-1100
IN-S126CSNPT	3	35	700-1100

Detector - Photo Diode

Product Name	On State Collector Current IC(ON) Ee=1mW/cm ² 940nm, VCE=5V	Reverse Voltage	Range of Spectral Bandwidth λD
	uA	v	nm
IN-S126BTNPD	0.87	35	700-1100
IN-S32GTNPD	10	35	700-1100
IN-S32HSNPD	0.58	35	700-1100

Ambient Light Sensor

Product Name	Collector Light Current @Ev=1000Lx, 6500K, VCE=5V	Collector-Emitter Breakdown Voltage	Range of Spectral Bandwidth λD
	uA	v	nm
IN-S32GTLS	330	60	390-700
IN-S63DTLS	280	60	390-700



*All products available in clear lens or with Daylight filter



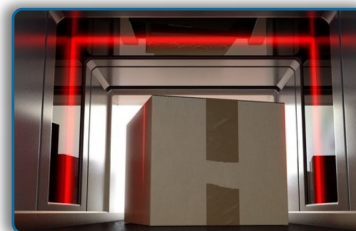
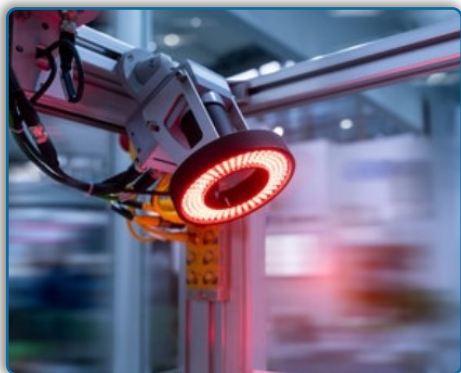
Emitter - 3 & 5mm DIP

3mm Lamp / DIP Emitter

Product Name	VF	Intensity	Peak Emission Wavelength λ_D (nm) @(typ)	MAX	VA
	V	mW/Sr		mA	Deg
INL-3ABCMIR40	1.3	10	880 @20mA	100	40
INL-3AHIR15	1.2	12	940 @20mA	100	15
INL-3AHIR30	1.2	10	940 @20mA	100	30
INL-AIR30	1.4	12	850 @20mA	100	30
INL-4AMIR40	1.3	10	880 @20mA	100	40

5mm Lamp / DIP Emitter

Product Name	VF	Intensity	Peak Emission Wavelength λ_D (nm) @(typ)	MAX	VA
	V	mW/Sr		mA	Deg
INL-5ABCMIR40	1.3	13	880 @20mA	100	30
INL-5AHIR15	1.2	12	940 @20mA	100	15
INL-5AHIR30	1.2	12	940 @20mA	100	30
INL-5AIR45	1.4	16	850 @20mA	100	45
INL-5AMIR15	1.3	12	880 @20mA	100	15





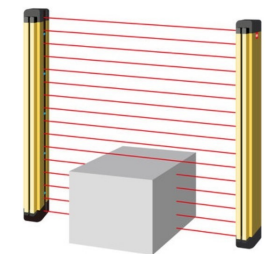
Sensor - 3 & 5mm DIP

Photo Transistor

Product Name	IC(ON) Ee=1mW @λD typ)	Collector- Emitter Voltage	Receiving Angle	Range of Spectral Bandwidth λD
	mA	V	deg	nm
INL-3APT30	2.5@940nm	30	30	400-1100
INL-3ANPT30	2.5@940nm	30	30	700-1100
INL-5APT30	2.5@940nm	30	30	400-1000
INL-5ANPT30	2.5@940nm	30	30	700-1100

Photo Diode

Product Name	Peak Wavelength λD @(typ)	Reverse Voltage	Receiving Angle	Reverse Light Current VR=5V Ee=1mW/cm2 λ=850nm
	nm	V	deg	uA
INL-3APD80	850	32	80	35
INL-3ANPD80	850	32	80	35
INL-5APD80	850	32	80	35
INL-5ANPD80	850	32	80	35

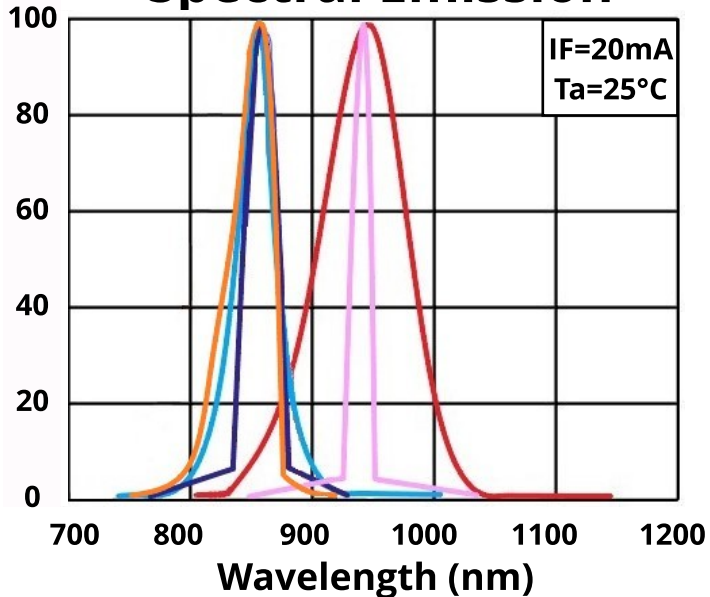




Electronic - Optical Characteristics

Emitter

Spectral Emission



940nm Low Power LED



850nm Low Power LED



850nm High Power LED



940nm VCSEL Emitter

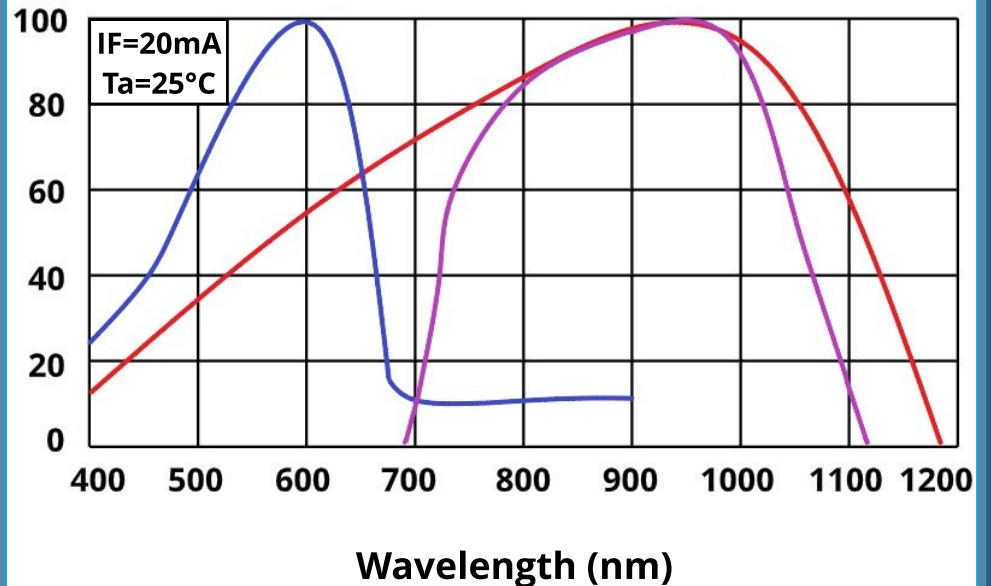


850nm VCSEL Emitter



Sensor

Spectral Sensitivity



Ambient Light Sensor



Phototransistor -
Black Epoxy Lens (for daylight filtering)

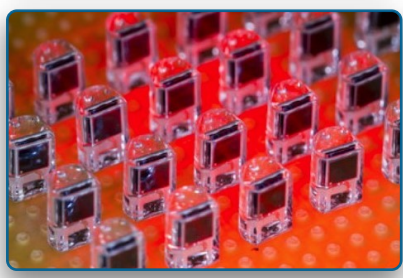
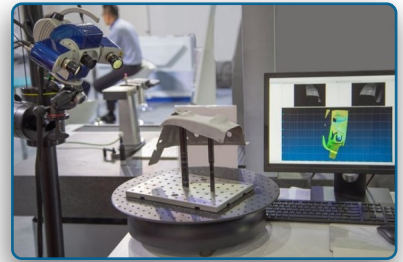
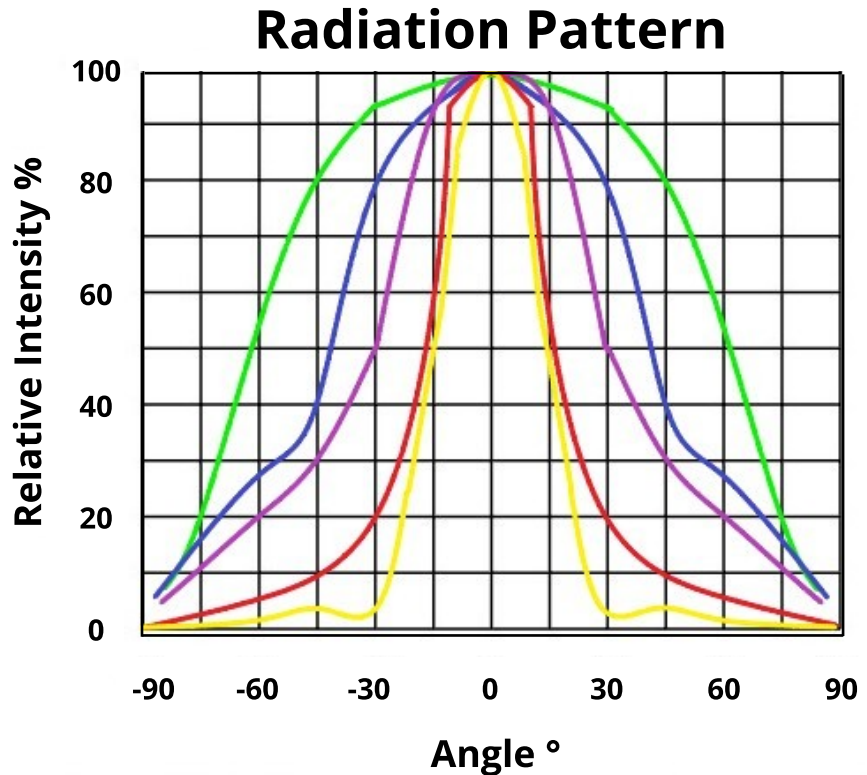












Phototransistor -
Clear Lens

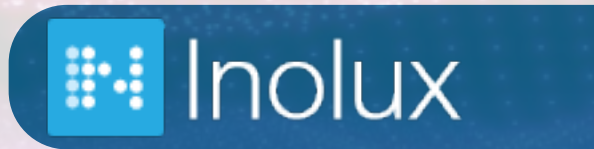




Electronic - Optical Characteristics



High Power Beam Angle 120D		
High Power Beam Angle 90D		
High Power Beam Angle 60D		
High Power Beam Angle 30D		
VCSEL Beam Angle 30D		



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For more information on the Infrared line including features, applications, and specifications, or to view additional parts in this product family, visit:

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