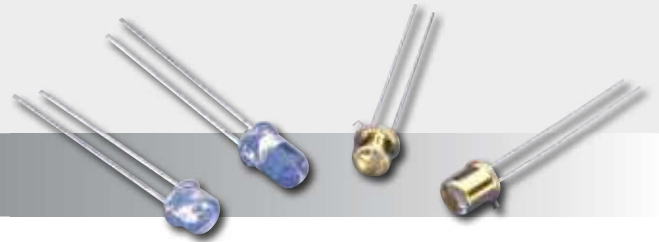


Infrared Emitting Diodes

For High-volume Applications

INFRARED EMITTING DIODES ■

Infrared Emitting Diodes (IREDs) VTE



Infrared Emitting Diodes (IREDs) – VTE

Applications

- Consumer coin readers
- Lottery card readers
- Position sensors – joysticks
- Safety shields
- Encoders – measure speed and direction
- Printers – margin control
- Copiers – monitor paper position or paper stack height

Features and Benefits

- End and side radiating configurations
- Selection of emission angle spread using molded lenses
- Narrow band of emitted wavelengths
- Minimal heat generation
- Low power consumption

Product Description

IREDs are solid state light sources emitting in the near infrared part of the spectrum. The emission wavelength is closely matched to the response peak of silicon photodiodes and phototransistors. The product line provides a broad range of mounting lens and power output options. Both end and side radiating cases are available. Wide arrays of emission beam profiles are available. Devices may be operated in either CW or pulsed operating modes.

IREDs can be combined with Excelitas detectors or phototransistors in integrated assemblies for optoisolators, optical switches and retro sensors. Optical isolators are useful when electrical isolation is required, for example to transmit control logic signals to high power switching circuits (which can be noisy). In an optical switch, an object is detected when it passes between the IRED and detector/phototransistor, for example a coin counter. In a retro sensor, an object is detected when the IRED emitted beam is reflected onto the detector/photodetector. The retro sensor is used in applications where the object changes the reflectance, for example detecting the end of a ply wood sheet or other manufactured material.

Our core competencies include: LPE wafer growth; wafer processing of the grown GaAs wafers; assembly using either epoxy die attach; epoxy encapsulation of the IRED LEDs on lead frame; hermetically-sealed package.

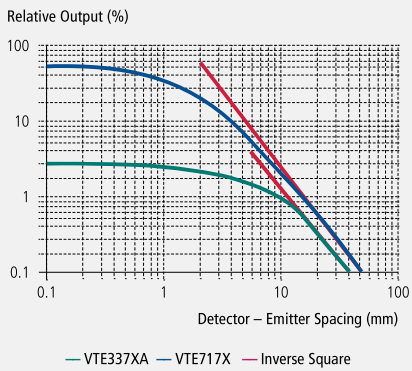
Product Table

Infrared Emitting Diodes (IREDs) – VTE

Part Number		Irradiance			Min. Radiant	Typical Total Peak	Forward Test Current	Max. Forward Voltage	Max Pulsed Forward		Half Power
Symbol		E_e typ.	Distance	Diameter	Intensity	Power	Pulsed	Drop	Current	Wavelength	Beam Angle
Unit	Package	(mW/cm ²)	(mm)	(mm)	(mW/sr)	(mW)	(mA)	(V)	(mA)	(nm)	
VTE1013H	TO-46	2.7	36	6.4	27	30	1000	2.5	3000	940	±35°
VTE1063H	TO-46	5	36	6.4	49	80	1000	3.5	3000	880	±35°
VTE1113H	TO-46	15	36	6.4	156	30	1000	2.5	3000	940	±10°
VTE1163H	TO-46	28	36	6.4	285	110	1000	3.5	3000	880	±10°
VTE1291-1H	T-1 3/4 lensed (5 mm)	3.3	36	6.4	32	20	100	2	2500	880	±12°
VTE1291-2H	T-1 3/4 lensed (5 mm)	6.5	36	6.4	65	25	100	2	2500	880	±12°
VTE1291W-1H	T-1 3/4 lensed (5 mm)	1.6	36	6.4	16	20	100	2	2500	880	±25°
VTE1291W-2H	T-1 3/4 lensed (5 mm)	3.3	36	6.4	32	25	100	2	2500	880	±25°
VTE1295H	T-1 3/4 lensed (5 mm)	5.5	36	6.4	39	20	100	2	2500	895	±8°
VTE7172H	Lateral	0.6	16.7	4.6	1.1	2.5	20	1.8	2500	880	±25°
VTE7173H	Lateral	0.8	16.7	4.6	1.7	5	20	1.8	2500	880	±25°
VTE3372LAH	T-1 lensed (3 mm)	2.6	10.16	2.1	2	3	20	1.8	2500	880	±10°
VTE3374LAH	T-1 lensed (3 mm)	5.2	10.16	2.1	4.1	5	20	1.8	2500	880	±10°
VTE3375LAH	T-1 lensed (3 mm)	"2 (Min.)"	10.16	2.1		3	20	1.8	2500	880	±12.5°
VTE3322LAH	T-1 lensed (3 mm)	1.3	10.16	2.1	1	1.5	20	1.6	3000	940	±10°
VTE3324LAH	T-1 lensed (3 mm)	2.6	10.16	2.1	2	2.5	20	1.6	3000	940	±10°
CR10IRD	SMD	-	-	-	-	6.3	50	2.05	800	770	±90°

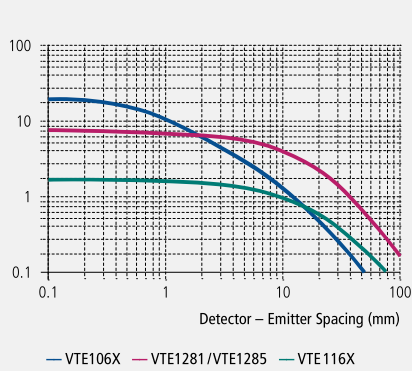
Graph 1

On Axis Rel. Irradiance T-1/Lateral Packages



Graph 2

On Axis Relative Irradiance



Graph 3

Angular Emission

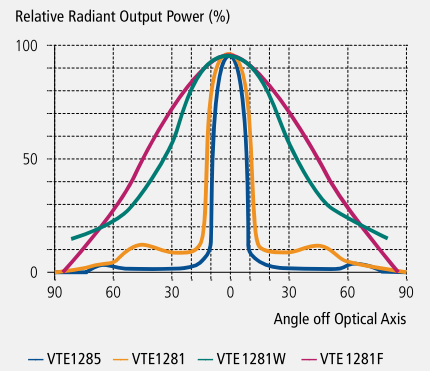
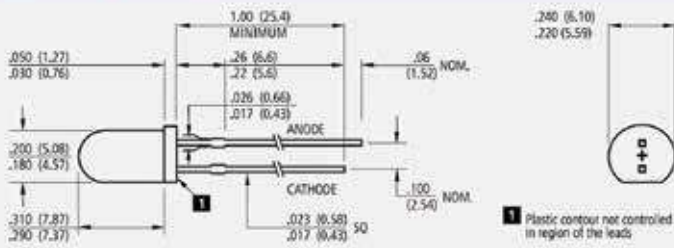


Figure 1

Housing / Package Drawing – VTE1291



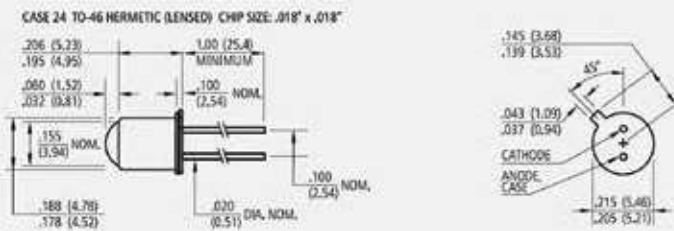
VTE1291H



Narrow beam angle
T-1½ bullet package

Figure 2

Housing / Package Drawing – VTE1113H



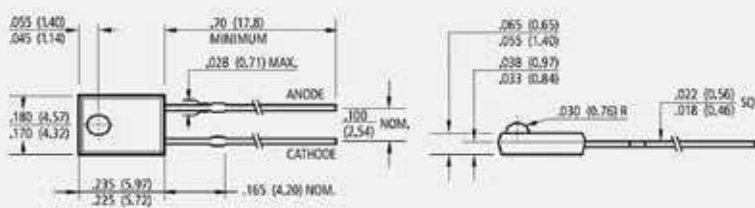
VTE1113H



TO-46 lensed cap

Figure 3

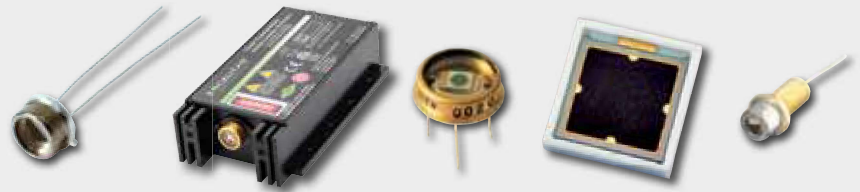
Housing / Package Drawing – VTE7172



VTE7172H



Molded lateral package



Excelitas Technologies – Photon Detection Solutions

Markets & Applications

Life Sciences & Analytical

- Luminescence and fluorescence for analytical and clinical diagnostics
- Photon counting
- Particle sizing
- PET, CT, MRI scanning

Safety & Security

- X-ray scanning of luggage, cargo & food
- LiDAR for autonomous vehicles and drones
- Smoke and particle detection
- Safety curtains

High Volume Electronics

- Laser range finding, industrial and consumer
- Vital signs monitoring for wearables
- Gesture recognition
- Light detection and measurement

Engage, Enable, Excel.

Everything we do revolves around this important principle. We work from Engineer to Engineer to understand your needs and tailor our solutions to exceed these needs and enable you to excel in what you do best.

Excelitas offers a complete suite of solutions for your detection needs, from individual components to plug and play modules. Our products range from high volume C30737 series of avalanche photodiodes (APDs) for range finding, to our high performance C30902 series of reach through APDs, to our outstanding single photon counting module, to pulsed laser diodes, and everything in between.

With more than 50 years of market leading performance in silicon and InGaAs detection capabilities, Excelitas offers proven expertise in customizing to specific needs and help bring your next generation platforms to market. Whether you are working in the UV, visible or near IR, or even looking to detect X-ray or Gamma rays, we have the knowledge and solutions that will help get you to market faster. Excelitas offers one-stop shopping capabilities for both detectors and emitters for those looking to develop range finding or LiDAR-based systems, which helps to simplify the supply chain and provide economies of scale. We are fully vertically integrated giving us maximum flexibility in product design at competitive pricing. Contact us to find out more on how we can help you succeed.