

Description

The T45 is a Fiber Bragg Grating exhibiting an ultra sharp notch response. It is a key building block for optical sensors used in applications that require monitoring of events from DC to tens of KHz and even to MHz speeds.

Naturally packaged (written) directly in fiber, these sensors can be used as they are or they can be packaged into a variety of higher level sensors for use in optical sensing systems. Small-size and fast response time. Excellent wavelength to temperature and wavelength to strain linearity. The T45 FBG is designed to make handling and installation fast, easy and intuitive. Delivers the many advantages inherent to all FBG based sensors. Equally sensitive as traditional strain and temperature sensors but immune to EMI.

Pi-Phase FBG sensors are well fit for fast edge trigger type opto-electronic systems that enable ultra-fast detection of the wavelength shift of the grating's notch spectral feature.

Strain
Temperature
Vibration
Displacement
Pressure
Acceleration
and more
at
**DC to MHz
Speeds!**

Pi-Phase Fiber Bragg Gratings (Pi-FBG)

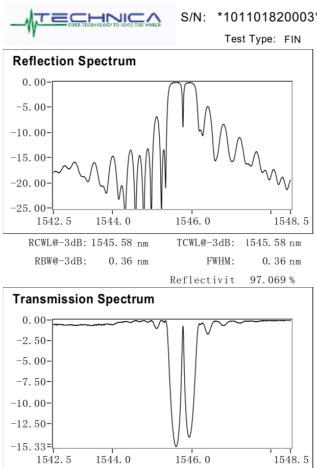
FBGs manufactured and sold by Technica under International License from United Technologies Corporation

Key Features

Temperature and Strain Linearity. The precision made FBG structure written into the fibers' core for producing the T45 yields a simple transducer configuration of high resolution, linearity, and measurement repeatability. Ultra-sharp notch for clear signal processing.

Low cost, easy installation, and long lifetime. The T45 was designed for projects that require both the availability of low-cost FBGs and stable operation for highly accurate measurements over the long-term. The original design makes handling and installation very easy. Fastening methods are by simple fiber bonding, laying, or embedding. Technica is happy to provide support and advice with regard to application specific installation and monitoring requirements.

Proven field performance. The T45 is based on core laser processing technology that has been in production for several years and continues to receive excellent customer feedback. Hundreds of thousands of FBGs have been manufactured and delivered from our state-of-the-art production facility with practically no returns since initial release. The T45 is a new and reliable core element for an expanding range of applications. It is ideally monitored when paired with our FBG Amplifier (FBGA-1).



Parameter	Specifications
Wavelengths, Tolerance	1550nm standard 1510 to 1590nm, +/-0.5nm
PI-Notch Bandwidth	~30pm
FBG Length	5mm, other options
Response Time (Strain, Temperature)	1 ns, 1ms
Strain Range, Sensitivity	>10,000 $\mu\epsilon$, 1.16pm/ $\mu\epsilon$ other options available
Temperature Range, Sensitivity	-40°C to +120°C, ~11.7 pm/°C other options available
Fiber Type and Cladding Diameter Options	Single-Mode Fiber with 125 (std), 80, and 50 μm DIA
Fiber Coating	Acrylate, Polyimide, Copper, Gold
Fiber Pigtail Length	1 m, other options
Fiber Bend Radius	>17mm, other options
Optical Connector	LC/APC, or custom

Applications in Industrial Processes, Robotics, Structural Monitoring, and R&D Programs

Technica undertakes a rigorous development process before products release. The company is also firmly committed to continuous improvements after release to insure performance to the highest standards, hence, specifications are subject to update without notice.