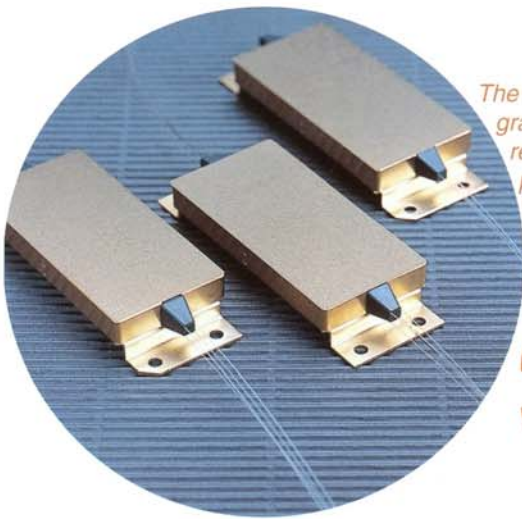


Temperature-Compensating Fiber Bragg Grating Packaging



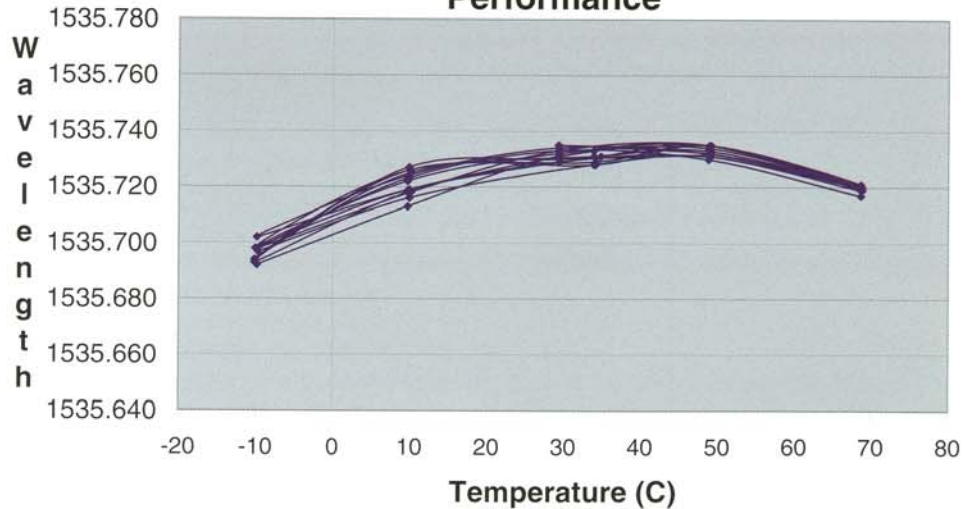
Fiber Bragg Gratings (FBG) are often used in telecommunication applications involving dense wavelength division multiplexing (DWDM) and Optical Add-Drop Modules (OADM). Other FBG applications include wavelength stabilization, dispersion compensation and gain flattening. In comparison to popular thin film filters, FBG based devices promise to deliver the steep-skirted profiles necessary to provide high adjacent channel isolation as the channel spacing in DWDM systems gets smaller and smaller. The in-fiber solution of the FBG is also advantageous to system designers striving to reduce their network's overall insertion loss. In DWDM applications even minimal wavelength shifts can cause loss of data. In an uncompensated package, the center wavelength of a Fiber Bragg Grating typically shifts 0.01nm per 1°C. Hence in 50GHz (0.4nm) DWDM systems, a few degrees of temperature shift can dramatically affect system integrity.



The robust design can house up to four gratings in a single package, withstands repetitive temperature cycling and prolonged exposure to damp heat.

Thermal drift	<1.0pm/°C
Operating temperature	-10°C - 70°C
Physical size	2.44 in. L x 1.17 in. W x 0.46 in.H

Athermal Bragg Grating Temperature Performance



The above graph illustrates the thermal response of a new temperature-compensating, Fiber Bragg Grating package being developed at Gould. The shift in the central wavelength of the grating was less than 40pm over the temperature range of -10°C to 70°C.