

# AFSI-Q22C0

## 10G Dual-Channel Transceiver IC

### Key Features

- 2-channel VCSEL driver and 2-channel receiver
- 10 Gb/s data rate with 64b/66b encoded data
- Uses cathode-connected discrete VCSEL devices or semi-insulating arrays
- Built-in VCSEL current control state machine
- Programmable temperature coefficient with 32 steps over an 80°C range
- Programmable  $I_{MOD}/I_{BIAS}$  ratio with 32 steps over an 80°C range
- 5-bit temperature ADC
- Signal detect (LSOD) with programmable threshold and hysteresis
- Non-CIO and CIO operating modes with power management state machine to meet CIO specifications
- 8K-bit OTP memory block for wafer-level and module-level programming and calibration with built-in redundancy
- Built-in burn-in capability with  $\pm 5\%$  accuracy using wafer-level calibration
- Programmable VCSEL cross-point adjustment and peaking
- Two-wire serial (TWS) bus interface for programming and CIO-defined power management with 2-bit TWS hardware address control
- Die size width: 2.55 mm
- Die thickness: 975  $\mu\text{m}$
- Chip substrate temperature range: 0°C to 90°C

### Overview

The Broadcom<sup>®</sup> AFSI-Q22C0 is a dual-channel transceiver IC designed to simultaneously support two short-communication links over multi-mode fiber at serial (64b/66b, NRZ) bit rates up to 10 Gb/s. The IC includes two independent VCSEL driver circuits and two independent receiver circuits, as well as an efficient digital control state machine.

Broadcom's strong presence in the Datacom, Storage, and Telecom Network markets has enabled a robust portfolio of fiber optic transceivers and a wealth of sub-component expertise. Broadcom proudly presents this industry-leading, dual-channel transceiver IC for high-bandwidth, VCSEL-based communication links and active optical cable assemblies.

This IC is designed to be used in conjunction with two cathode-driven VCSELs, two PIN photo diodes, and assembled into an electro-optical subsystem to enable the efficient conversion (O-E-O) of high-speed electrical signals into optical pulses for transmission through multi-mode optical fiber.

### Applications

High-bandwidth (10 Gb/s), VCSEL-based fiber optic interconnects for Datacom, Computercom, and Consumer electronics.

### Ordering Information

Product Code	Description
AFSI-Q22C0	10G Dual-Channel Transceiver IC