MM 980nm 14Gbps VCSEL
(Top Emission)

QZV14MM0980T101

QZV14MM0980T102

QZV14MM0980T103

CONTENTS

Description

The QuantumZ - **QZV14MM0980TX0X** is multimode 14Gbps VCSEL with wavelength 980nm device has low electrical parasitics and proven high reliability. That has top side ohmic contacts with Signal-Ground (SG) configurations. The device is available in singlet (1x1) or array configurations (1x4) and are compatible with wire-bonding and flip-chip bonding.

Features

- 980nm multimode emission
- High reliability & data rates from DC to 14Gbps
- High humidity robustness compliant with GR-468
- Low threshold, operating voltage & electrical parasitic
- Available as single chip & 4 channel array
- Available application for COB & flip chip processes
- Dual top contact configuration with common cathode electrodes
- Halogen & RoHS compliant

Applications

- Smart cables & consumer applications& Automotive
- Single channel & parallel fiber optical communication links

Absolute Maximum Ratings

Parameter	Rating	Unit
Max. operating power	6	mW
Max. operating current	12	mA
VCSEL reverse voltage	5	V
Operating temperature	0 to 105	°C
Storage temperature	-40 to 125	°C
Mounting temperature (max. 10sec)	260	°C

Recommended Operating Conditions

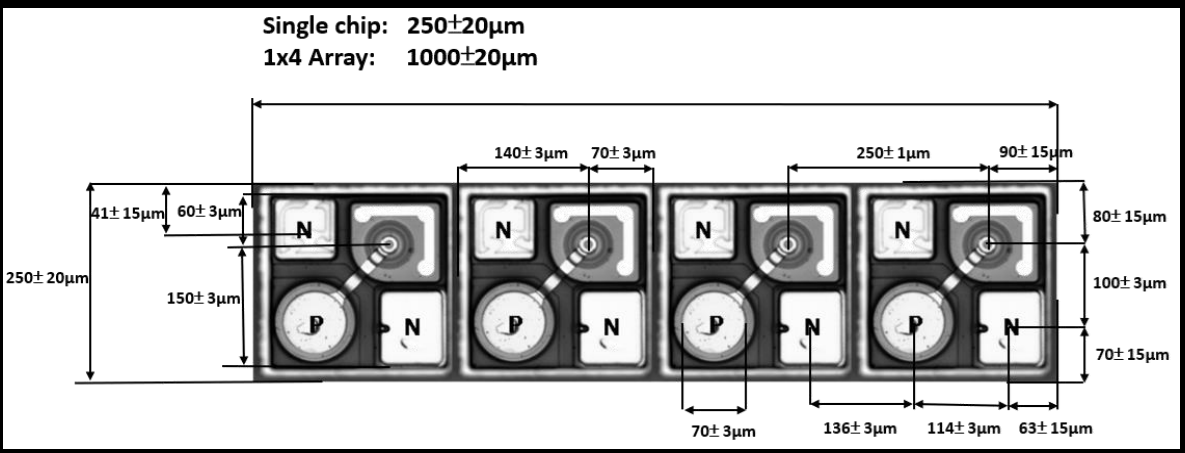
& Electro-Optic Characteristics

Parameter	Symbol	Conditions	Ratings			Unit
			Min.	Typ.	Max.	
Threshold current	I_{th}	T=25°C		0.6	0.8	mA
		T=105°C		0.8	1.0	
Slope efficiency	η	Iop = 6.0mA, T=25°C		0.5		W/A
Optical output power	P_{out}	Iop = 6.0mA, T=25°C	2.5	3.0		mW
		Iop = 6.0mA, T=105°C	2.0	2.5		
Forward voltage	V_f	Iop=6.0mA, T=25°C	1.9	2.1	2.3	V
Differential resistance	R_d	Iop=6mA, T=25°C~105°C		80	110	Ω
Emission wavelength	λ	Iop = 6.0mA, T=25°C~105°C	970	980	990	nm
Spectral width, RMS	Δλ	Iop=6mA, T=25°C~105°C		0.8		nm
Wavelength Shift	dλ/dT	T = 25 °C~105 °C		0.07		nm/℃
Modulation bandwidth	f_{3dB}	Iop=6mA, T=25°C	15	17		GHz
		Iop=9mA, T=105°C	14	16		
Beam divergence	Θ	Iop = 6.0mA, Full width 1/e2		25	30	Deg

Chip Outer Dimensions

Parameter	Min.	Typ.	Max.
Die length	225	250	275
Die width	225	250	275
Die height	125	150	175

Chip Layout



P: p-contact (anode)

N: n-contact (common cathode)

RoHS Compliance

QuantumZ insists, via continuous improvement in technology and experiences, to utilize non-hazardous materials for manufacturing green products that are in compliance with the regulation as well as customers' GP demands. The relevant evidence of RoHS compliance is held as part of our controlled documentation for each of our compliant products.

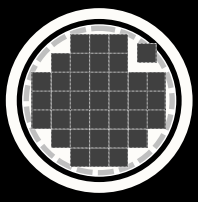
Ordering Information

Product code	Data Rate	Description	Shipment Package
QZV14MM0980T101	14Gbps	Single VCSEL chip	Diced wafer on metal lead frame (1)
QZV14MM0980T401	14Gbps	1x4 VCSEL array	Diced wafer on metal lead frame (1)
QZV14MM0980T102	14Gbps	Single VCSEL chip	Grip ring (2)
QZV14MM0980T402	14Gbps	1x4 VCSEL array	Grip ring (2)
QZV14MM0980T103	14Gbps	Single VCSEL chip	Gel-Pak (3)
QZV14MM0980T403	14Gbps	1x4 VCSEL array	Gel-Pak (3)

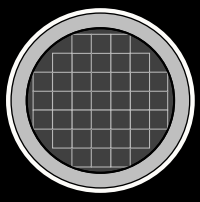
(1) Full diced 4'' wafer on UV tape on metal lead frame Ø 230mm, electronic wafer map provided (standard high volume)

(2) Known Good Dies on UV tape on grip ring Ø 150mm (medium volume)

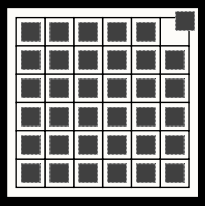
(3) Known Good Dies in 2'' Gel-Pak (low volume)



Diced wafer on UV tape on metal lead frame



Grip ring



Gel-Pak