

## D0156/D0153 SP DQPSK–MBC for DQPSK/QAM/Arbitrary Applications

### Features of SP QPSK-MZ-MBC

- Three modulators can be controlled with one controller (1<sup>st</sup>, 2<sup>nd</sup> modulator at Null/peak mode, the 3<sup>rd</sup> at Quad);
- User selectable locking slope (NULL ↔ PEAK) through USB interface;
- One photodiode is integrated in the controller.
- With both single-end and differential bias outputs
- Three operation modes: DQPSK ,QAM or QAM with Arbitrary-waveform \*
- All settings are remote controllable through USB computer interface, or UART.
- User can select automation mode or manual mode; user may stop the pilot tone for any or all modulators and manually tune the bias through USB computer interface on the GUI.
- Read back the input power to the PDs and the bias voltages through GUI.
- Read back the firmware version through GUI.
- Low profile (3.57” \* 3.37” \* 0.65”).
- \* D0153 is only for DQPSK application. D0156 will have DQPSK, QAM/Arbitrary

### SP QPSK-MBC D0153/D0056 Specifications

| PARAMETERS  | MIN   | TYP | MAX   | UNITS    |
|---|---|-----|-------|----------|
| <b>Optical Performance</b>                        |   |     |       |          |
| Detector Input Power <sup>1</sup>                 | -25   |     | -8    | dBm      |
| Optical wavelength                                | 1000  |     | 1650  | nm       |
| <b>Electrical Performance</b>                     |   |     |       |          |
| Bias voltage ( <b>differential bias outputs</b> ) | -25   |     | 25    | V        |
| Bias voltage ( <b>single-end bias outputs</b> )   | -12.5   |     | 12.5  |          |
| Null Mode Extinction Ratio <sup>2</sup>           |   | 25  | 40    | dB       |
| Locking Slope                                     | Positive or Negative  |     |       |          |
| Locking Mode                                      | Two Null (Peak) positions,<br>one Quad+ or (Quad-) position |     |       |          |
| <b>Pilot tone</b>                                 |   |     |       |          |
| Modulation Depth (Null)                           |   |     | 0.1   | %        |
| Pilot Tone Frequency                              |   | 4K  |       | Hz       |
| <b>Power Supplies</b>                             |   |     |       |          |
| Positive Power Voltage                            | 14.5  | 15  | 15.5  | V(DC)    |
| Negative Power Voltage                            | -15.5   | -15 | -14.5 | V(DC)    |
| Positive Power Current                            |   | 130 |       | mA(DC)   |
| Negative Power Current                            |   | 50  |       | mA(DC)   |
| <b>General</b>                                    |   |     |       |          |
| Operating temperature                             | 0   |     | 70    | Degree C |
| Storage Temperature                               | -40   |     | +85   | Degree C |
| Dimension   | 3.57x3.37x0.65 inch   |     |       |          |
| Weight  | 0.2 lb  |     |       |          |

1. For a given input, detection power refers to the coupled optical power to the photodiode of D0156-MBC when the modulator output is at its minimum attenuation (The detection power does not describe the detected power at locking status).
2. In this case, if the modulator output power is 0 dBm, 1% coupler was used, the detection power should be -20 dBm.
3. The distinction ratio will be close but not exceed the distinction ratio of the modulator.
4. Optical Modulation Index = amplitude of modulation/ $V_{\pi}$ .

### SP-QPSK/QAM-D0153/D0156 Layout

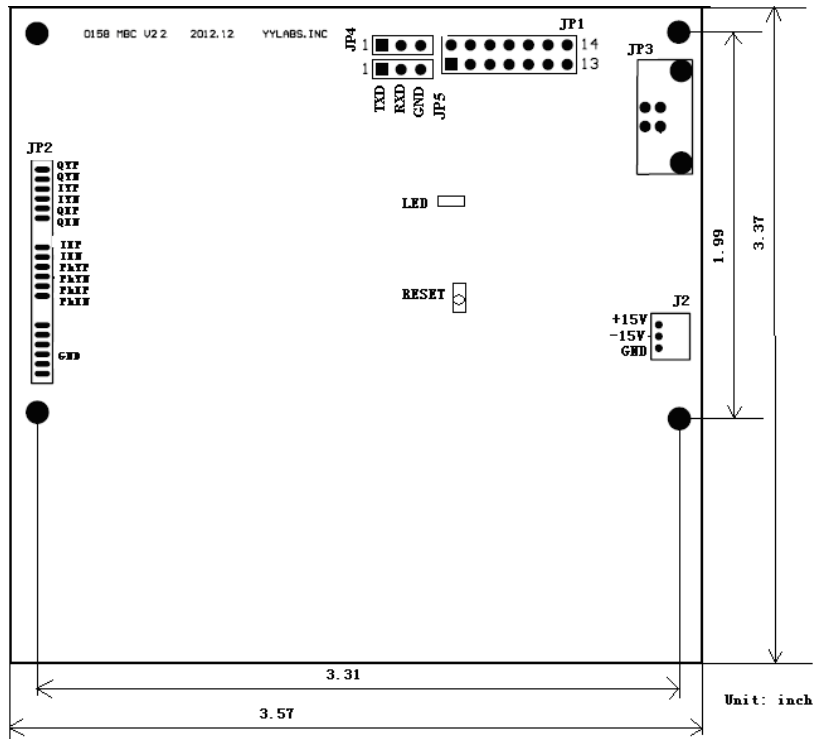


Figure 2. Layout of D0153/D0156 MBC