

Fig. 6. (a) Measured output spectrum from the EA side facet. The inset shows laser-EA structure. (b) Normalized output power versus the reverse bias of EA modulator.

The bandwidth of the integrated device is measured to be over 3GHz as shown in Fig. 7. The bandwidth is limited by the simple contacting arrangement to the device. Much higher bandwidths can be envisaged through an optimized contacting arrangement.

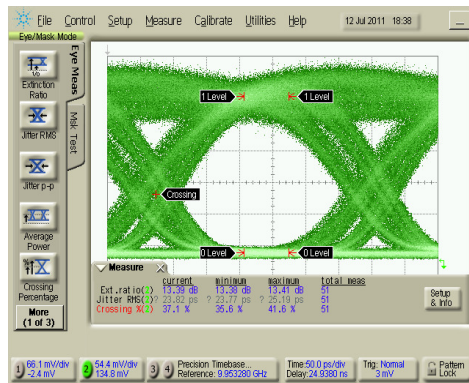


Fig. 7. Measured eye diagram at 3Gb/s.

4. Conclusion

A re-growth free single mode laser scheme based on slots suitable for photonic integration has been presented. The fabricated lasers exhibit a stable single mode operation with a threshold of 32mA and side mode suppression ratio of about 52dB. Such laser integrated with EA modulator has also been demonstrated. The integrated device has a lasing wavelength of around 1569nm (20nm red shift from the gain peak). A DC extinction ratio of 10dB and 3dB bandwidth of 3GHz have been observed for the integrated devices. The laser performance can be further improved in terms of output power and threshold current if the back-side facet can be HR coated. The presented laser structure just needs a single wafer growth and can be fabricated by standard photolithography, which should provide a significant cost advantage.

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