

Request for Information

NB688000-18-00565

Two (2) high power short pulse optical amplifiers in the 1535 nm to 1565 nm window.

January 12, 2018

Q #1: the 2W unit is a standard for our vendor, however, the 5W requires some work to be done on our vendor's end. Vendor's engineer is preparing a datasheet for the customer. While doing so, he wanted me to ask if you know what the linewidth of the source is that they will be using. Additionally, they have specified that the output pulse width broadening must be <100 fs. Their specification is 35 fs/nm. Please confirm if that is acceptable?

A #1: The spectral width of the input optical pulses is on the order of 25 nm. A residual dispersion of the amplifier of 35 fs/nm will most likely broaden the pulse more than 100fs, and would therefore most likely not meet technical specifications.

Q #2: The amplifiers are to be used for the amplification of 300fs pulses at a repetition rate of 10GHz. This would correspond to peak power outputs of 667W and 1,667W for the 2W and 5W amplifiers, respectively. An important requirement is that the output pulse not be lengthened significantly, <100fs. To accomplish this, we believe would require chirping (stretching) the incoming pulse, amplifying the chirped pulse and then compressing the chirped pulse. This approach limits peak power in the amplifier stage and mitigates the effect of optical non-linearities in the amplifier. Our question is whether the quote should include the pulse stretching and compression, or whether the end user will supply those functions?

A #2: The end user will not supply the functions of pulse stretching and compression. These functions should be included in the quote.

Q #3: Are both amplifiers polarization maintaining? If so, do you have a spec for the final polarization extinction ratio?

A #3: Only the 5W amplifier is polarization maintaining. Polarization extinction ratio should be greater than 20 dB.

Q #4: Is an output isolator required for both amplifiers?

A #4: An output isolator is required for the 5W amplifier only.

Q #5: Does the input/output isolator specification for the 5W of >45dB applicable over the entire wavelength range of 1535 to 1565nm?

A #5: Yes.

Q #6: Is there a specification on the transverse modal quality of the output, for instance a maximum M2 value?

A #6: M2 (M-squared) maximum is 1.1 for both amplifiers.

Q #7: Is OEM type module (computer interface included, external power required) sufficient or do you need a benchtop type unit?

A #7: Benchtop unit is required.

Q #8: Is there a specification on WDM gain flatness between 1535 and 1565nm?

A #8: There is no specific requirement on the WDM gain flatness. However, it is assumed that a minimum gain flatness will be necessary to meet other technical specifications.