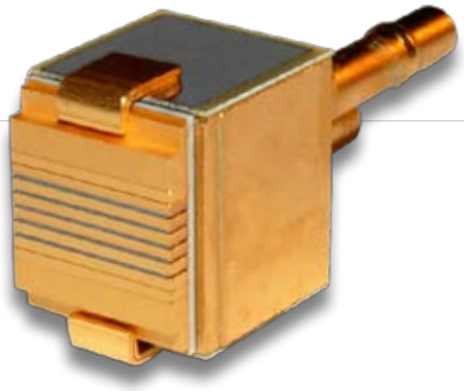
E2 PACKAGE

LASER DIODE ARRAY

40W CW

NORTHROP GRUMMAN



PART NUMBER: ARR23C040

1-BAR E2 PACKAGE

FEATURES AND BENEFITS

- Assembled With Hard Solder & Expansion Matched Materials
- Small, Compact Design
- Water Cooled
- Ideal For Side Pumping Or Direct Diode Applications
- Available Wavelengths: 790-1550nm
- Multi-wavelength Configurations Available

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
CW Power Output	47A at 25˚C Heat Sink	40	W
Operating Current	40W at 25˚C Heat Sink	47	A
Threshold Current	25˚C Heat Sink	12	A
Slope Efficiency	25°C Heat Sink	1.15	W/A
Electrical-Optical Efficiency	40W at 25˚C Heat Sink	53	%
Center Wavelength	40W at 25˚C Heat Sink	808	nm
Wavelength Tolerance	40W at 25˚C Heat Sink	+/-3	nm
Spectral Width	40W at 25˚C Heat Sink	1.8	nm
Wavelength Shift	—	0.25	nm/˚C
Beam Divergence FWHM	—	38x7	x°
Beam Divergence FWHM (Lensed)	—	1x7	x°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25˚C Heat Sink	0.002	Ω
Operating Voltage	25˚C Heat Sink, 40W	1.7	V

ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40˚C to 70˚C
Storage Temperature Range	-40˚C to 85˚C

NOTES

(1) These specifications apply for operation at 808nm. Other wavelengths available upon request.

(2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.

(3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

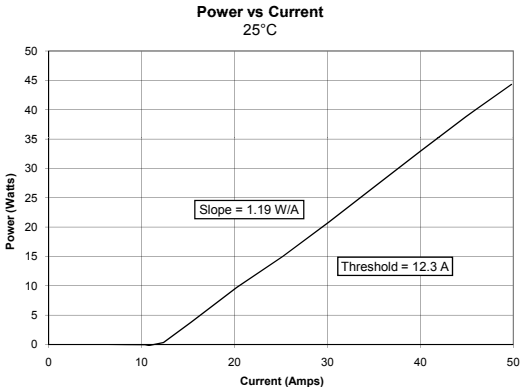
LASER DIODE ARRAY

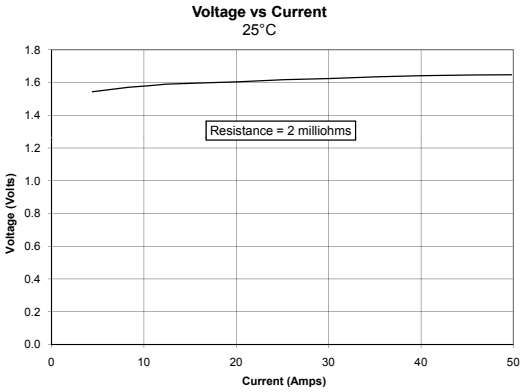
40W CW

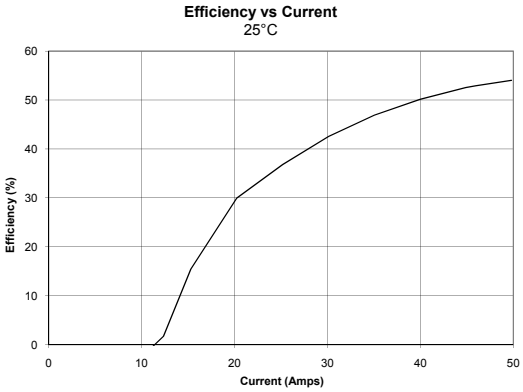
E2 PACKAGE

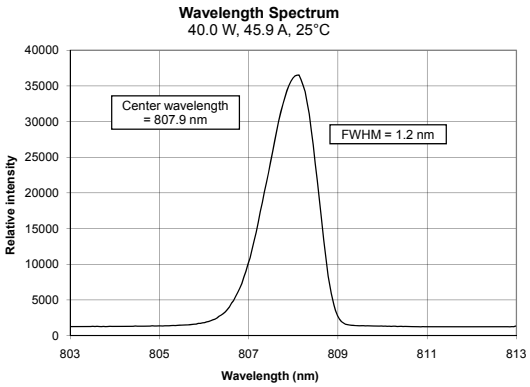
NORTHROP GRUMMAN

OPTICAL CHARACTERISTICS (SAMPLE)

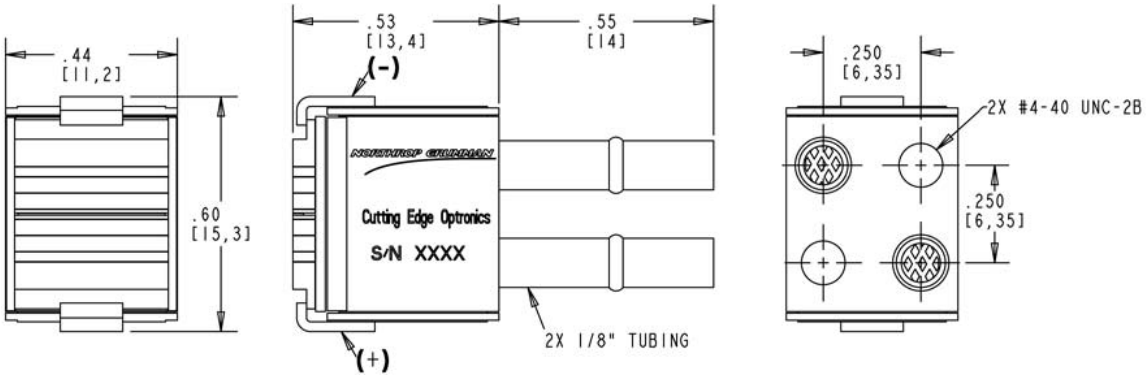








MECHANICAL CHARACTERISTICS

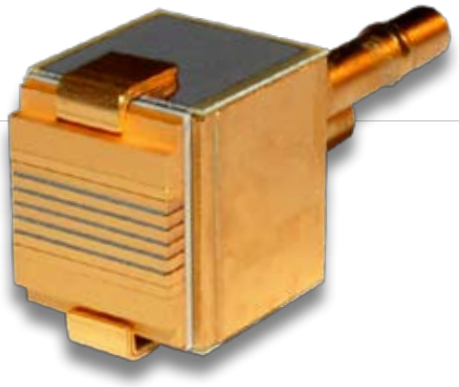


E2 PACKAGE

LASER DIODE ARRAY

200W QCW

NORTHROP GRUMMAN



PART NUMBER: ARR23P200

1-BAR E2 PACKAGE

FEATURES AND BENEFITS

- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Long Pulse And/Or High Duty Cycle Applications
- Multi-wavelength Configurations Available From 790-1550nm
- Standard Bar Pitch Options Include 400 µm, 800 µm, and 1200 µm
- Small, Compact Water Cooled Design Is Ideal For Side Pumping Or Direct Diode Applications
- E2 Package Available With Up To 15 Bars And A Maximum Output Power Of 3.0 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	175A at 25˚C Heat Sink	200	W
Operating Current	200W at 25˚C Heat Sink	175	A
Threshold Current	25˚C Heat Sink	15	A
Slope Efficiency	25°C Heat Sink	1.25	W/A
Electrical-Optical Efficiency	200W at 25˚C Heat Sink	57	%
Center Wavelength	200W at 25˚C Heat Sink	808	nm
Wavelength Tolerance	200W at 25˚C Heat Sink	+/-3	nm
Spectral Width	200W at 25˚C Heat Sink	3.0	nm
Wavelength Shift	—	0.25	nm/˚C
Beam Divergence FWHM	—	38x7	x°
Beam Divergence FWHM (Lensed)	—	1x7	x°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25˚C Heat Sink	0.002	Ω
Operating Voltage	25˚C Heat Sink, 200W	2.0	V

ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40˚C to 70˚C
Storage Temperature Range	-40˚C to 85˚C

NOTES

(1) These specifications apply for operation at 808nm. Other wavelengths available upon request.

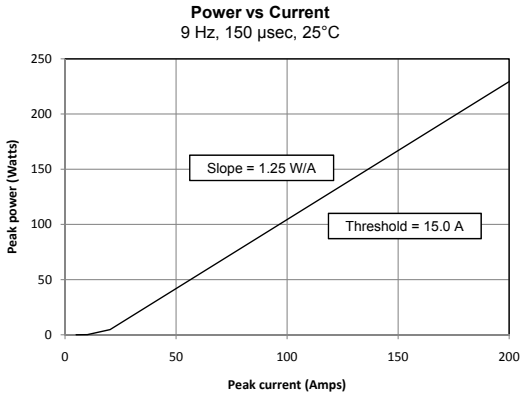
(2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.

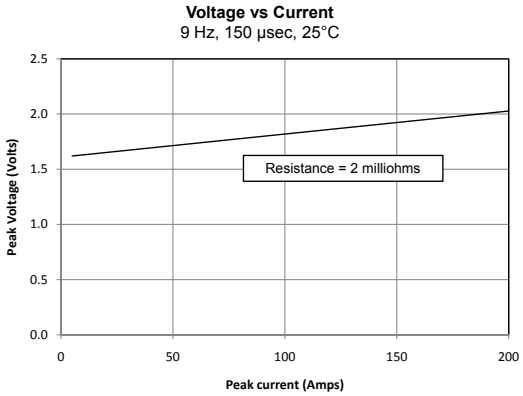
(3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

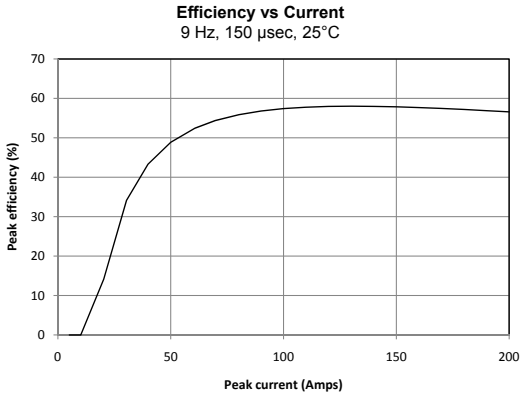
200W QCW

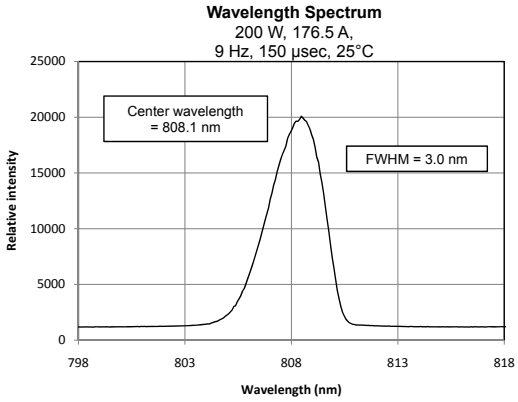
NORTHROP GRUMMAN

OPTICAL CHARACTERISTICS (SAMPLE)

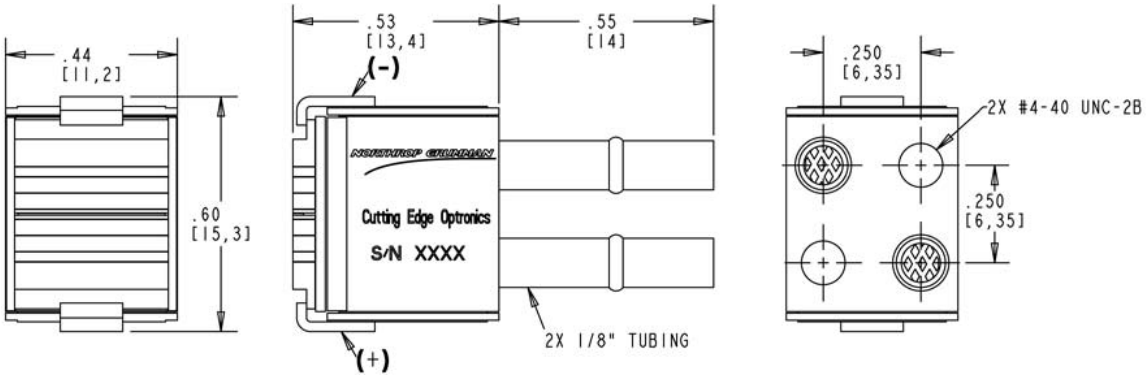








MECHANICAL CHARACTERISTICS

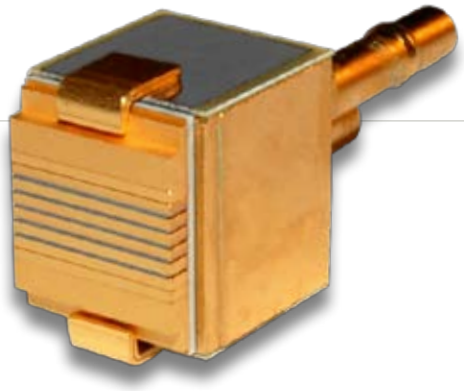


E2 PACKAGE

LASER DIODE ARRAY

300W QCW

NORTHROP GRUMMAN



PART NUMBER: ARR23P300

3-BAR E2 PACKAGE

FEATURES AND BENEFITS

- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Long Pulse And/Or High Duty Cycle Applications
- Multi-wavelength Configurations Available From 790-1550nm
- Standard Bar Pitch Options Include 400 µm, 800 µm, and 1200 µm
- Small, Compact Water Cooled Design Is Ideal For Side Pumping Or Direct Diode Applications
- E2 Package Available With Up To 15 Bars And A Maximum Output Power Of 3.0 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	95A at 25˚C Heat Sink	300	W
Operating Current	300W at 25˚C Heat Sink	95	A
Threshold Current	25˚C Heat Sink	15	A
Slope Efficiency	25°C Heat Sink	3.75	W/A
Electrical-Optical Efficiency	300W at 25˚C Heat Sink	58	%
Center Wavelength	300W at 25˚C Heat Sink	808	nm
Wavelength Tolerance	300W at 25˚C Heat Sink	+/-3	nm
Spectral Width	300W at 25˚C Heat Sink	2.0	nm
Wavelength Shift	—	0.25	nm/˚C
Beam Divergence FWHM	—	38x7	x°
Beam Divergence FWHM (Lensed)	—	1x7	x°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25˚C Heat Sink	0.006	Ω
Operating Voltage	25˚C Heat Sink, 300W	5.4	V

ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40˚C to 70˚C
Storage Temperature Range	-40˚C to 85˚C

NOTES

(1) These specifications apply for operation at 808nm. Other wavelengths available upon request.

(2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.

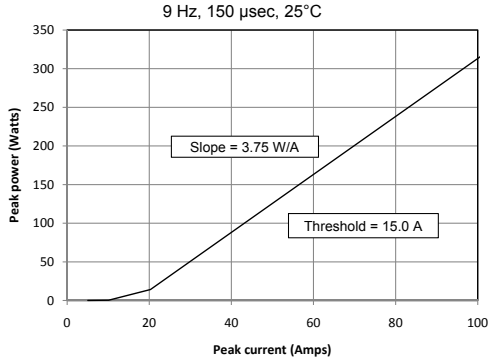
(3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

300W QCW

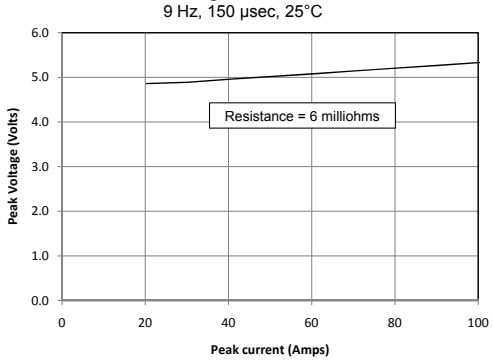
NORTHROP GRUMMAN

OPTICAL CHARACTERISTICS (SAMPLE)

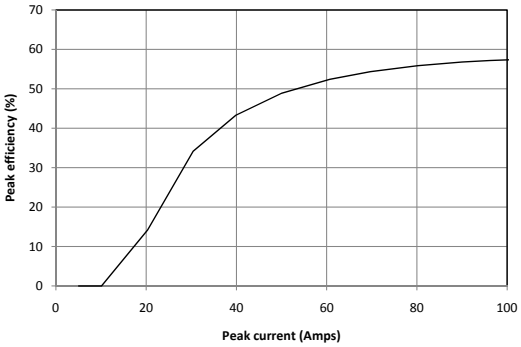
Power vs Current
9 Hz, 150 µsec, 25°C



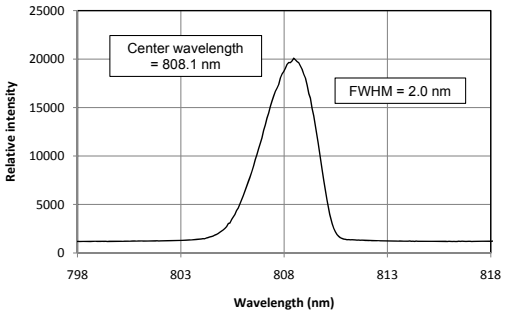
Voltage vs Current
9 Hz, 150 µsec, 25°C



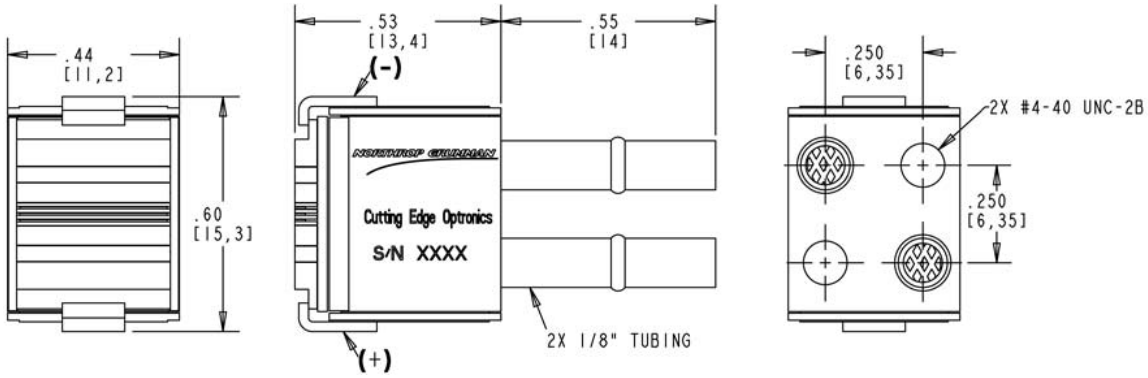
Efficiency vs Current
9 Hz, 150 µsec, 25°C



Wavelength Spectrum
300 W, 95.5 A,
9 Hz, 150 µsec, 25°C



MECHANICAL CHARACTERISTICS

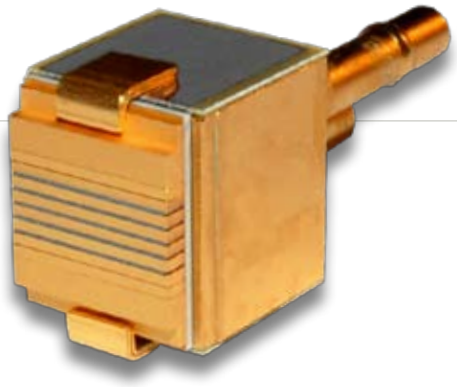


E2 PACKAGE

LASER DIODE ARRAY

600W QCW

NORTHROP GRUMMAN



PART NUMBER: ARR23P600

6-BAR E2 PACKAGE

FEATURES AND BENEFITS

- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Long Pulse And/Or High Duty Cycle Applications
- Multi-wavelength Configurations Available From 790-1550nm
- Standard Bar Pitch Options Include 400 µm, 800 µm, and 1200 µm
- Small, Compact Water Cooled Design Is Ideal For Side Pumping Or Direct Diode Applications
- E2 Package Available With Up To 15 Bars And A Maximum Output Power Of 3.0 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	95A at 25˚C Heat Sink	600	W
Operating Current	600W at 25˚C Heat Sink	95	A
Threshold Current	25˚C Heat Sink	15	A
Slope Efficiency	25°C Heat Sink	7.50	W/A
Electrical-Optical Efficiency	600W at 25˚C Heat Sink	58	%
Center Wavelength	600W at 25˚C Heat Sink	808	nm
Wavelength Tolerance	600W at 25˚C Heat Sink	+/-3	nm
Spectral Width	600W at 25˚C Heat Sink	2.0	nm
Wavelength Shift	—	0.25	nm/˚C
Beam Divergence FWHM	—	38x7	x°
Beam Divergence FWHM (Lensed)	—	1x7	x°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25˚C Heat Sink	0.012	Ω
Operating Voltage	25˚C Heat Sink, 600W	10.8	V

ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40˚C to 70˚C
Storage Temperature Range	-40˚C to 85˚C

NOTES

(1) These specifications apply for operation at 808nm. Other wavelengths available upon request.

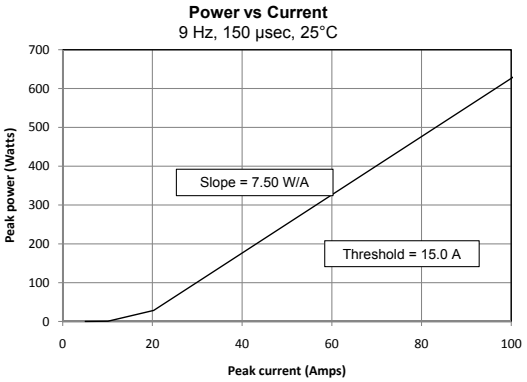
(2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.

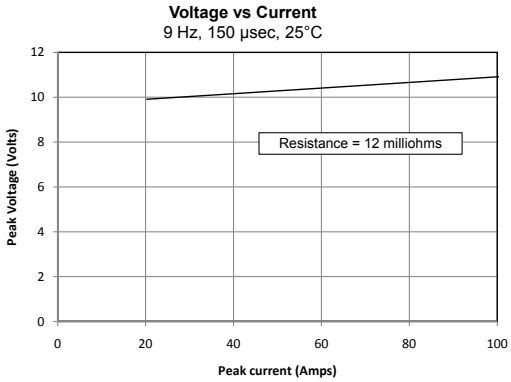
(3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

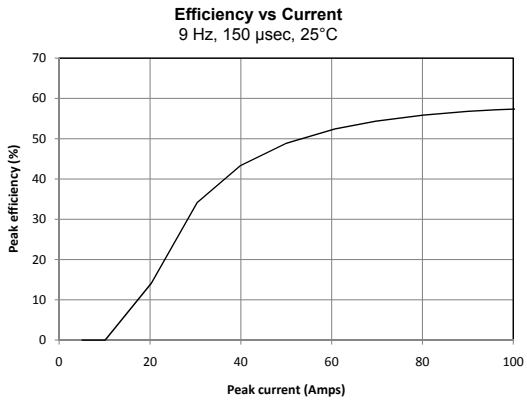
600W QCW

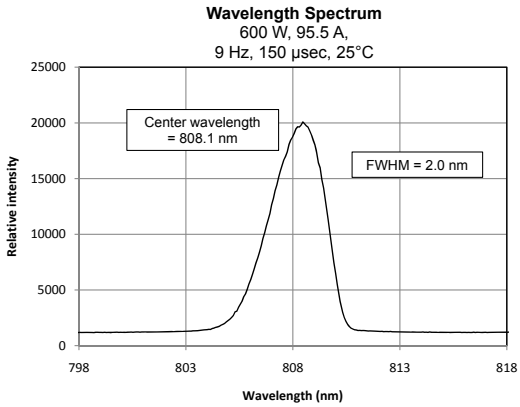
NORTHROP GRUMMAN

OPTICAL CHARACTERISTICS (SAMPLE)

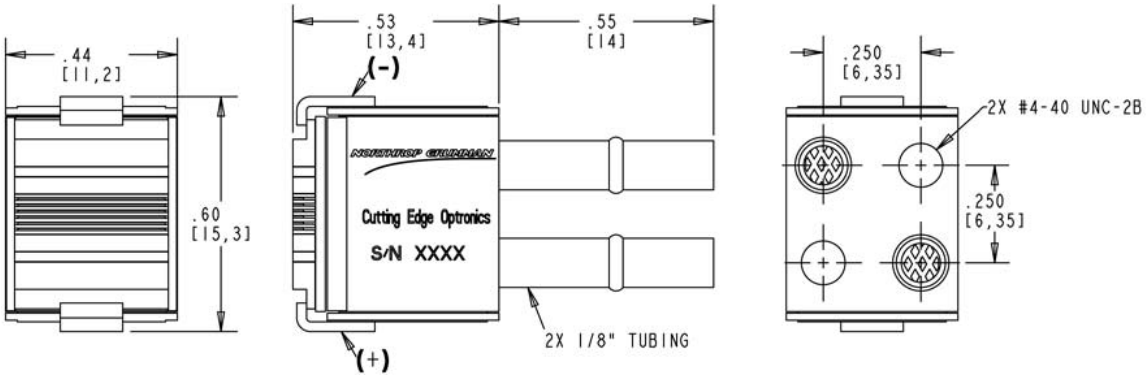








MECHANICAL CHARACTERISTICS

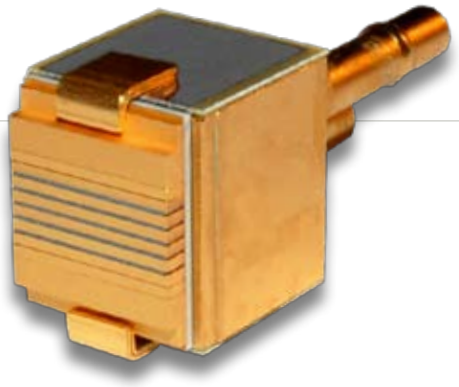


E2 PACKAGE

LASER DIODE ARRAY

1000W QCW

NORTHROP GRUMMAN



PART NUMBER: ARR23P1000

10-BAR E2 PACKAGE

FEATURES AND BENEFITS

- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Long Pulse And/Or High Duty Cycle Applications
- Multi-wavelength Configurations Available From 790-1550nm
- Standard Bar Pitch Options Include 400 µm, 800 µm, and 1200 µm
- Small, Compact Water Cooled Design Is Ideal For Side Pumping Or Direct Diode Applications
- E2 Package Available With Up To 15 Bars And A Maximum Output Power Of 3.0 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	95A at 25°C Heat Sink	1000	W
Operating Current	1000W at 25°C Heat Sink	95	A
Threshold Current	25°C Heat Sink	15	A
Slope Efficiency	25°C Heat Sink	10.3	W/A
Electrical-Optical Efficiency	1000W at 25°C Heat Sink	58	%
Center Wavelength	1000W at 25°C Heat Sink	808	nm
Wavelength Tolerance	1000W at 25°C Heat Sink	+/-3	nm
Spectral Width	1000W at 25°C Heat Sink	2.0	nm
Wavelength Shift	—	0.25	nm/°C
Beam Divergence FWHM	—	38x7	x°
Beam Divergence FWHM (Lensed)	—	1x7	x°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25°C Heat Sink	0.020	Ω
Operating Voltage	25°C Heat Sink, 1000W	18.0	V

ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40°C to 70°C
Storage Temperature Range	-40°C to 85°C

NOTES

(1) These specifications apply for operation at 808nm. Other wavelengths available upon request.

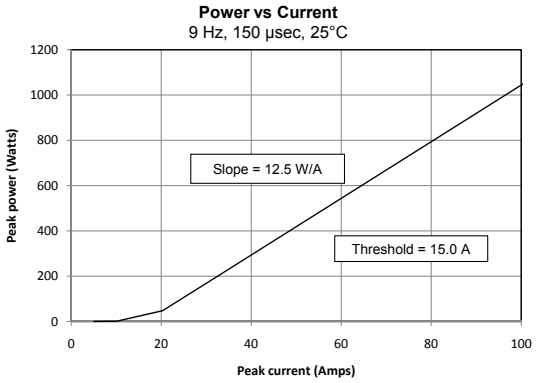
(2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.

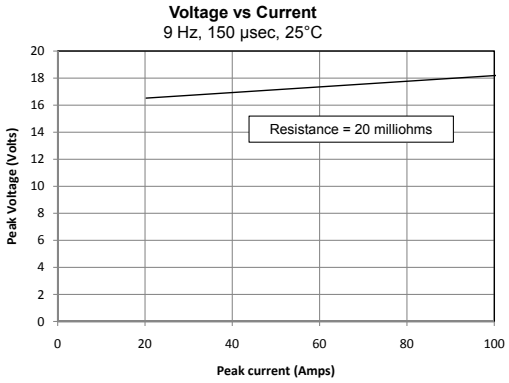
(3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

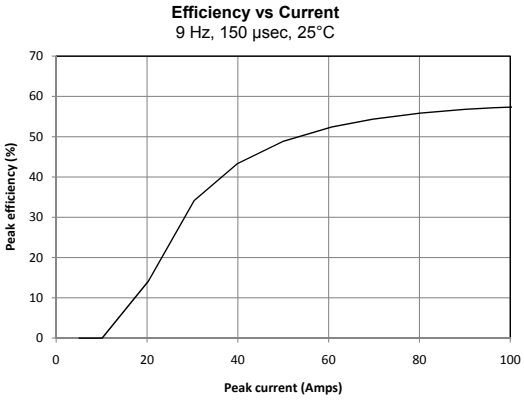
1000W QCW

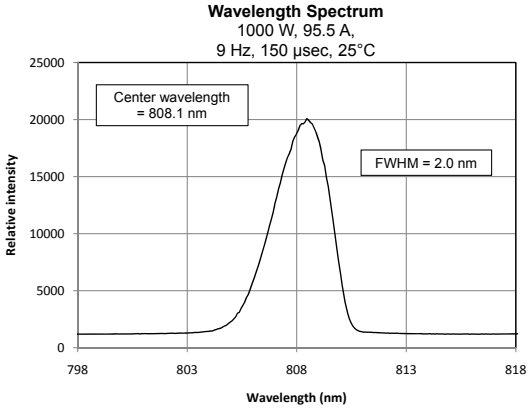
NORTHROP GRUMMAN

OPTICAL CHARACTERISTICS (SAMPLE)

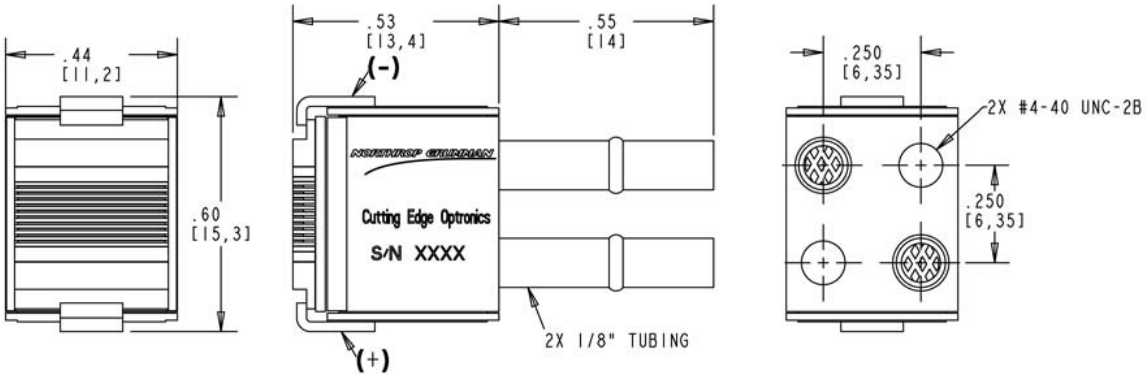








MECHANICAL CHARACTERISTICS

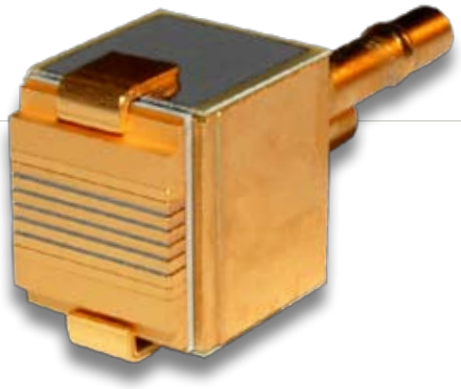


E2 PACKAGE

LASER DIODE ARRAY

1400W QCW

NORTHROP GRUMMAN



PART NUMBER: ARR23P1400

7-BAR E2 PACKAGE

FEATURES AND BENEFITS

- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Long Pulse And/Or High Duty Cycle Applications
- Multi-wavelength Configurations Available From 790-1550nm
- Standard Bar Pitch Options Include 400 µm, 800 µm, and 1200 µm
- Small, Compact Water Cooled Design Is Ideal For Side Pumping Or Direct Diode Applications
- E2 Package Available With Up To 15 Bars And A Maximum Output Power Of 3.0 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	175A at 25˚C Heat Sink	1400	W
Operating Current	1400W at 25˚C Heat Sink	175	A
Threshold Current	25˚C Heat Sink	15	A
Slope Efficiency	25°C Heat Sink	8.75	W/A
Electrical-Optical Efficiency	1400W at 25˚C Heat Sink	57	%
Center Wavelength	1400W at 25˚C Heat Sink	808	nm
Wavelength Tolerance	1400W at 25˚C Heat Sink	+/-3	nm
Spectral Width	1400W at 25˚C Heat Sink	3.0	nm
Wavelength Shift	—	0.25	nm/˚C
Beam Divergence FWHM	—	38x7	x°
Beam Divergence FWHM (Lensed)	—	1x7	x°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25˚C Heat Sink	0.014	Ω
Operating Voltage	25˚C Heat Sink, 1400W	14.0	V

ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40˚C to 70˚C
Storage Temperature Range	-40˚C to 85˚C

NOTES

(1) These specifications apply for operation at 808nm. Other wavelengths available upon request.

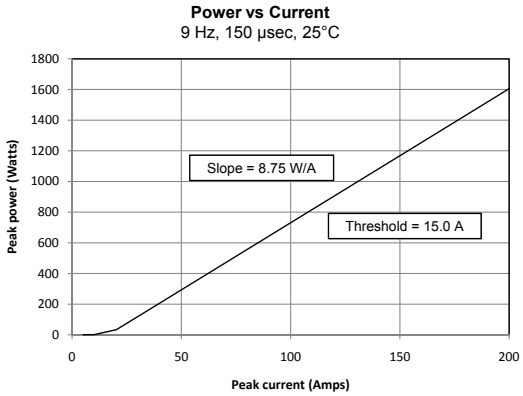
(2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.

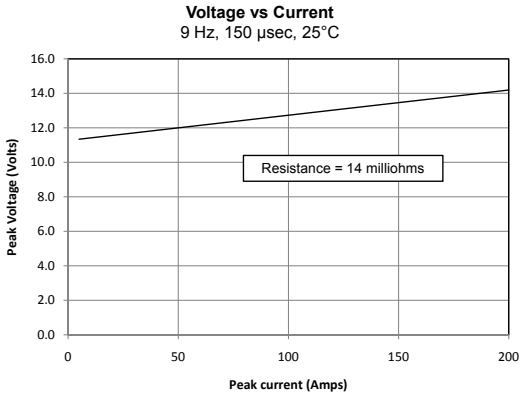
(3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

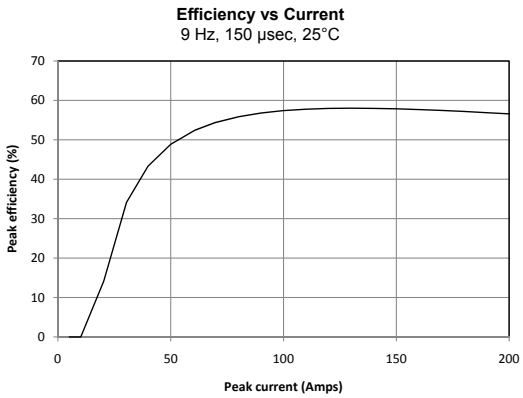
1400W QCW

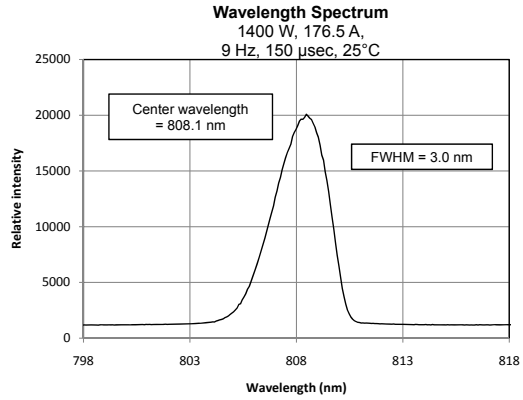
NORTHROP GRUMMAN

OPTICAL CHARACTERISTICS (SAMPLE)

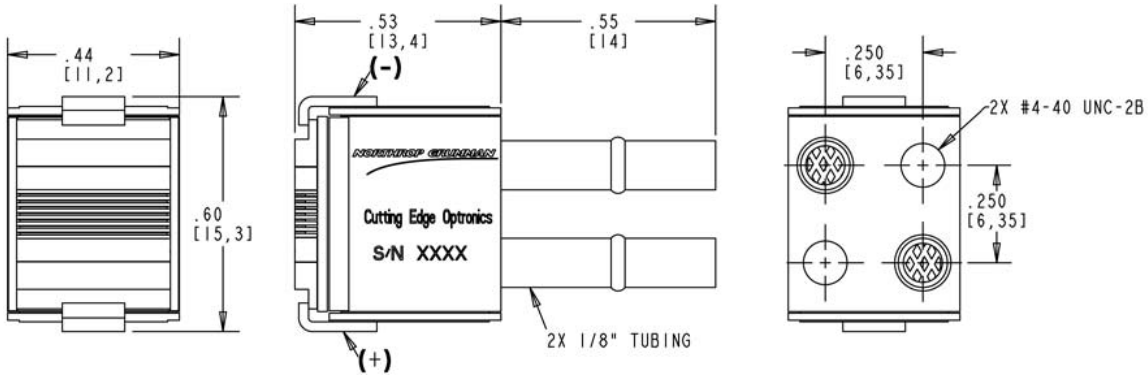








MECHANICAL CHARACTERISTICS

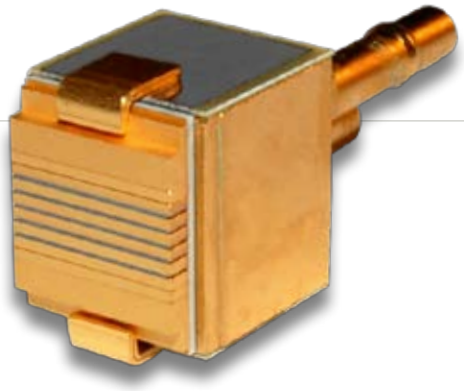


E2 PACKAGE

LASER DIODE ARRAY

2400W QCW

NORTHROP GRUMMAN



PART NUMBER: ARR23P2400

12-BAR E2 PACKAGE

FEATURES AND BENEFITS

- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Long Pulse And/Or High Duty Cycle Applications
- Multi-wavelength Configurations Available From 790-1550nm
- Standard Bar Pitch Options Include 400 µm, 800 µm, and 1200 µm
- Small, Compact Water Cooled Design Is Ideal For Side Pumping Or Direct Diode Applications
- E2 Package Available With Up To 15 Bars And A Maximum Output Power Of 3.0 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	175A at 25˚C Heat Sink	2400	W
Operating Current	2400W at 25˚C Heat Sink	175	A
Threshold Current	25˚C Heat Sink	15	A
Slope Efficiency	25°C Heat Sink	15.0	W/A
Electrical-Optical Efficiency	2400W at 25˚C Heat Sink	57	%
Center Wavelength	2400W at 25˚C Heat Sink	808	nm
Wavelength Tolerance	2400W at 25˚C Heat Sink	+/-3	nm
Spectral Width	2400W at 25˚C Heat Sink	3.0	nm
Wavelength Shift	—	0.25	nm/˚C
Beam Divergence FWHM	—	38x7	x°
Beam Divergence FWHM (Lensed)	—	1x7	x°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25˚C Heat Sink	0.024	Ω
Operating Voltage	25˚C Heat Sink, 2400W	24.0	V

ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40˚C to 70˚C
Storage Temperature Range	-40˚C to 85˚C

NOTES

(1) These specifications apply for operation at 808nm. Other wavelengths available upon request.

(2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.

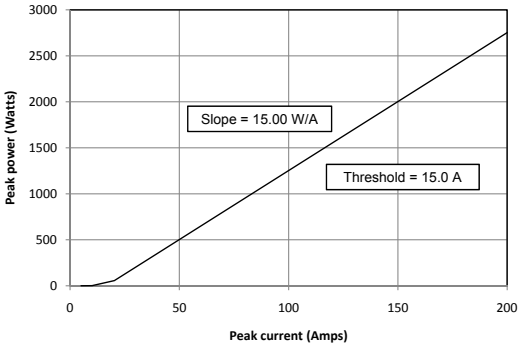
(3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

2400W QCW

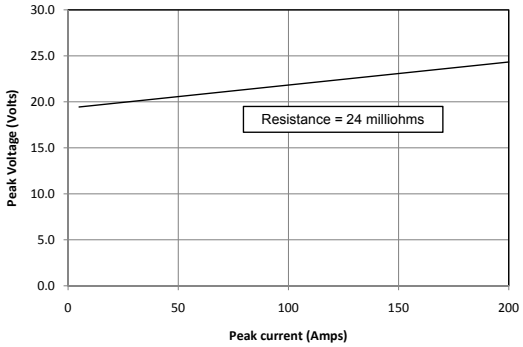
NORTHROP GRUMMAN

OPTICAL CHARACTERISTICS (SAMPLE)

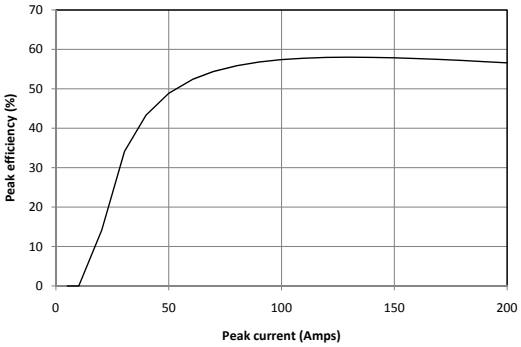
Power vs Current
9 Hz, 150 µsec, 25°C



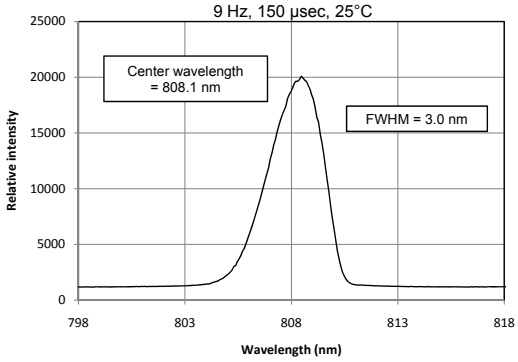
Voltage vs Current
9 Hz, 150 µsec, 25°C



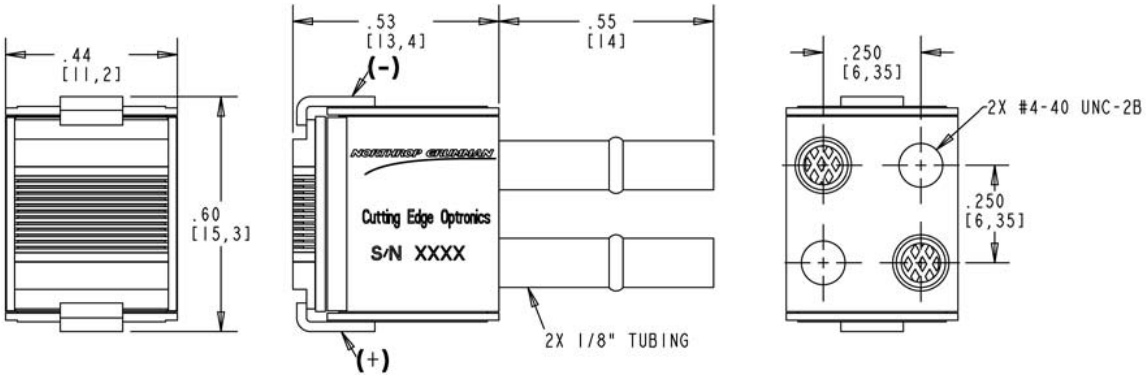
Efficiency vs Current
9 Hz, 150 µsec, 25°C



Wavelength Spectrum
2400 W, 176.5 A,
9 Hz, 150 µsec, 25°C



MECHANICAL CHARACTERISTICS

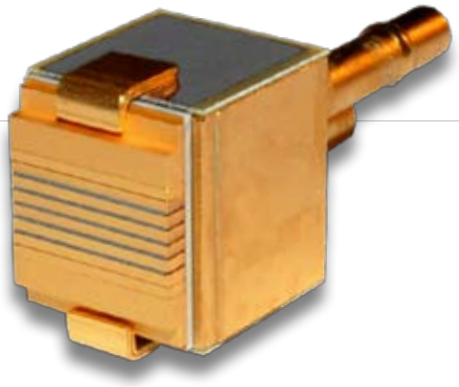


E2 PACKAGE

LASER DIODE ARRAY

3000W QCW

NORTHROP GRUMMAN



PART NUMBER: ARR23P3000

15-BAR E2 PACKAGE

FEATURES AND BENEFITS

- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Long Pulse And/Or High Duty Cycle Applications
- Multi-wavelength Configurations Available From 790-1550nm
- Standard Bar Pitch Options Include 400 µm, 800 µm, and 1200 µm
- Small, Compact Water Cooled Design Is Ideal For Side Pumping Or Direct Diode Applications
- E2 Package Available With Up To 15 Bars And A Maximum Output Power Of 3.0 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	175A at 25˚C Heat Sink	3000	W
Operating Current	3000W at 25˚C Heat Sink	175	A
Threshold Current	25˚C Heat Sink	15	A
Slope Efficiency	25°C Heat Sink	18.8	W/A
Electrical-Optical Efficiency	3000W at 25˚C Heat Sink	57	%
Center Wavelength	3000W at 25˚C Heat Sink	808	nm
Wavelength Tolerance	3000W at 25˚C Heat Sink	+/-3	nm
Spectral Width	3000W at 25˚C Heat Sink	3.0	nm
Wavelength Shift	—	0.25	nm/˚C
Beam Divergence FWHM	—	38x7	x°
Beam Divergence FWHM (Lensed)	—	1x7	x°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25˚C Heat Sink	0.030	Ω
Operating Voltage	25˚C Heat Sink, 3000W	30.0	V

ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40˚C to 70˚C
Storage Temperature Range	-40˚C to 85˚C

NOTES

(1) These specifications apply for operation at 808nm. Other wavelengths available upon request.

(2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.

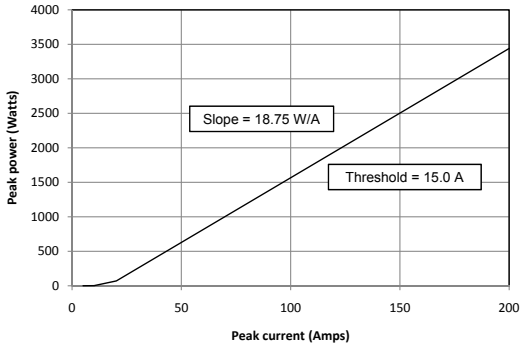
(3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

3000W QCW

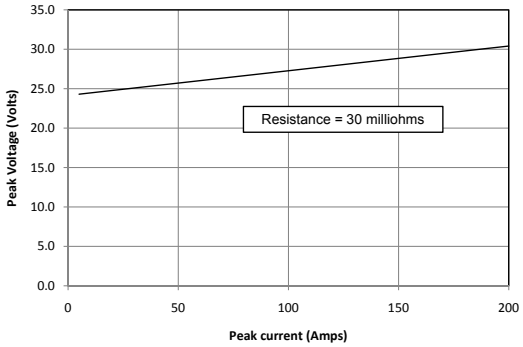
NORTHROP GRUMMAN

OPTICAL CHARACTERISTICS (SAMPLE)

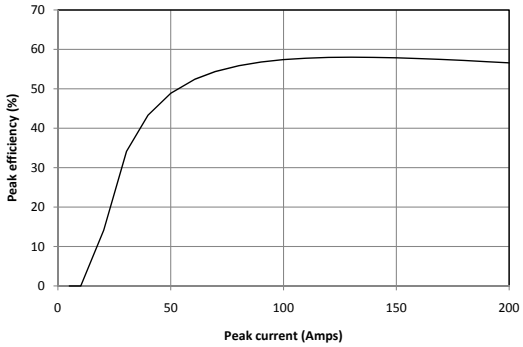
Power vs Current
9 Hz, 150 µsec, 25°C



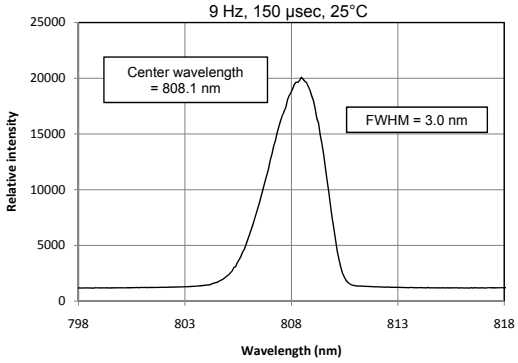
Voltage vs Current
9 Hz, 150 µsec, 25°C



Efficiency vs Current
9 Hz, 150 µsec, 25°C



Wavelength Spectrum
3000 W, 176.5 A,
9 Hz, 150 µsec, 25°C



MECHANICAL CHARACTERISTICS