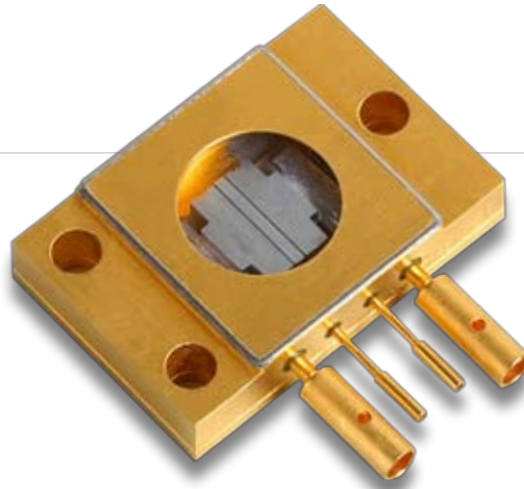


PART NUMBER: ARR94C032
2-BAR HERMETICALLY SEALED PACKAGE

FEATURES AND BENEFITS



- Conductively Cooled
- Environmentally Sealed
- Ideal for Illumination Applications
- Available Wavelengths: 790-1550nm
- Multi-wavelength Configurations Available
- HS Package Also Available With Up To 40W Maximum Output Power

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
CW Power Output	22A at 25°C Heat Sink	32	W
Operating Current	32W at 25°C Heat Sink	22	A
Threshold Current	25°C Heat Sink	8	A
Slope Efficiency	25°C Heat Sink	2.30	W/A
Electrical-Optical Efficiency	32W at 25°C Heat Sink	43	%
Center Wavelength	32W at 25°C Heat Sink	808	nm
Wavelength Tolerance	32W at 25°C Heat Sink	+/-3	nm
Spectral Width	32W 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	0.004	Ω
Operating Voltage	25°C Heat Sink, 32W	3.4	V

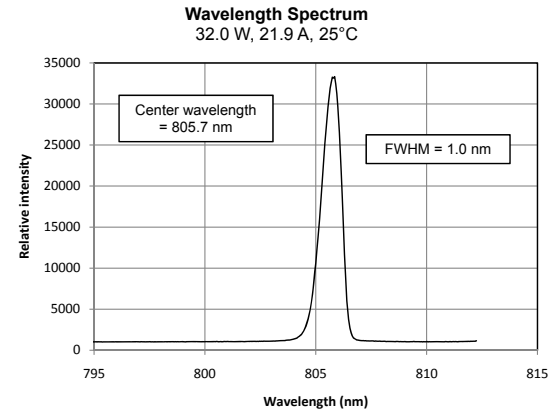
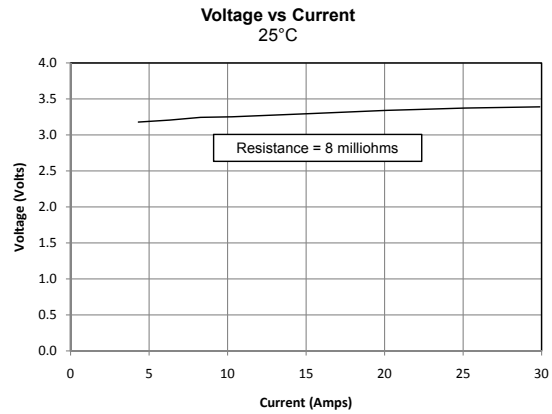
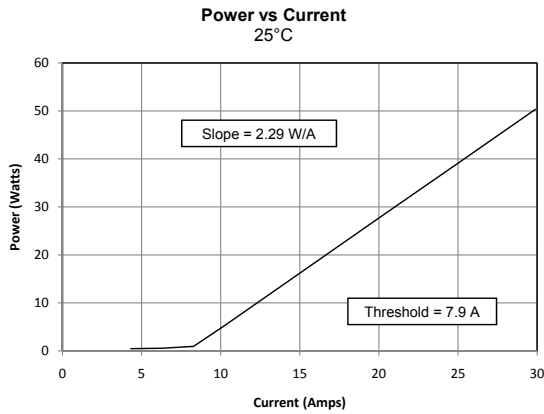
ABSOLUTE MAXIMUM RATINGS

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

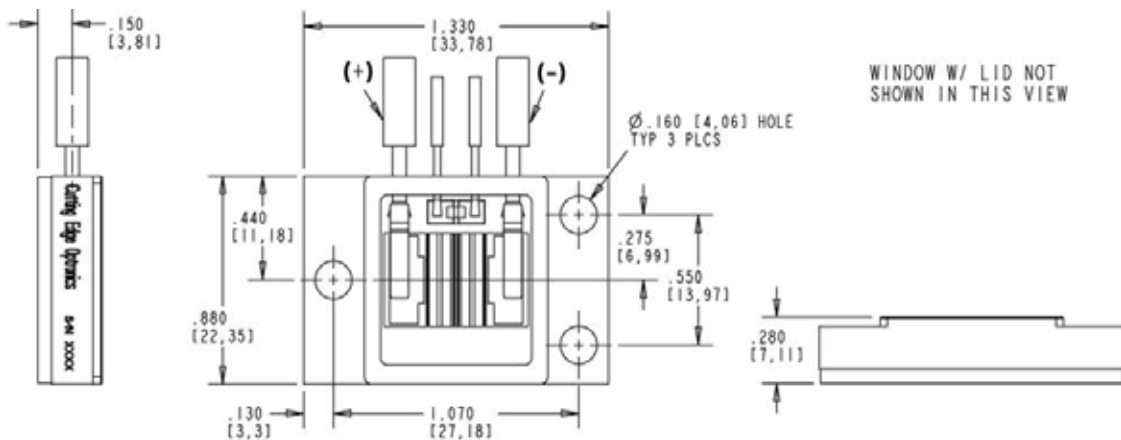
NOTES

- (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.

OPTICAL CHARACTERISTICS (SAMPLE)



MECHANICAL CHARACTERISTICS



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WARNING

DANGER

INVISIBLE LASER RADIATION

AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION.

Diode laser
5W & up, 780-1560nm
CLASS IV

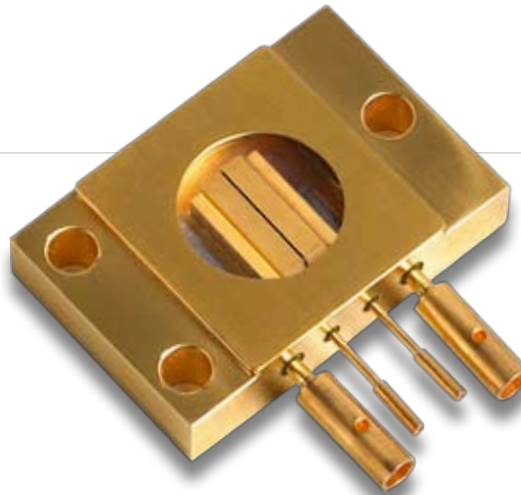
WARNING

ELECTROSTATIC DISCHARGE SENSITIVE DEVICE REQUIRING SPECIAL HANDLING

REV. A 10/09

PART NUMBER: ARR94C040
1-BAR HERMETICALLY SEALED PACKAGE

FEATURES AND BENEFITS



- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Illumination Applications
- Standard Bar Pitch Options Include 400 μm , 800 μm , & 1200 μm
- HS Package Available With Up To 40W Maximum Output Power
- Conductively Cooled & Environmentally Sealed
- Available Wavelengths: 790-1550nm

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	51	%
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	1.6	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

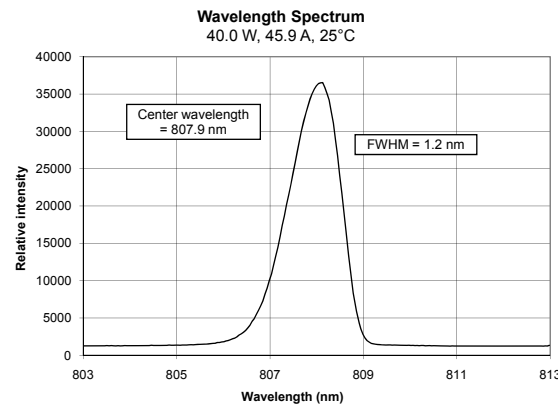
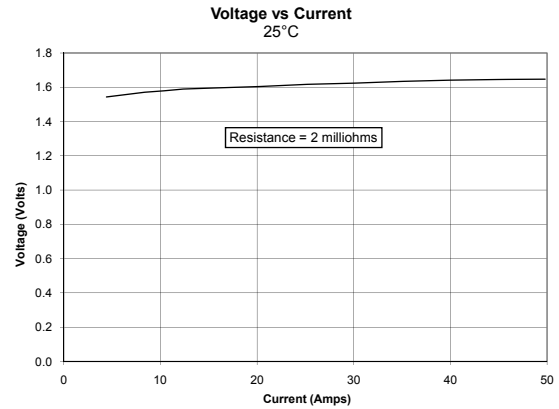
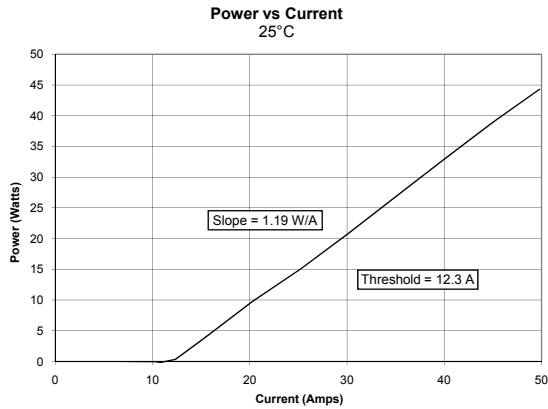
ABSOLUTE MAXIMUM RATINGS

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

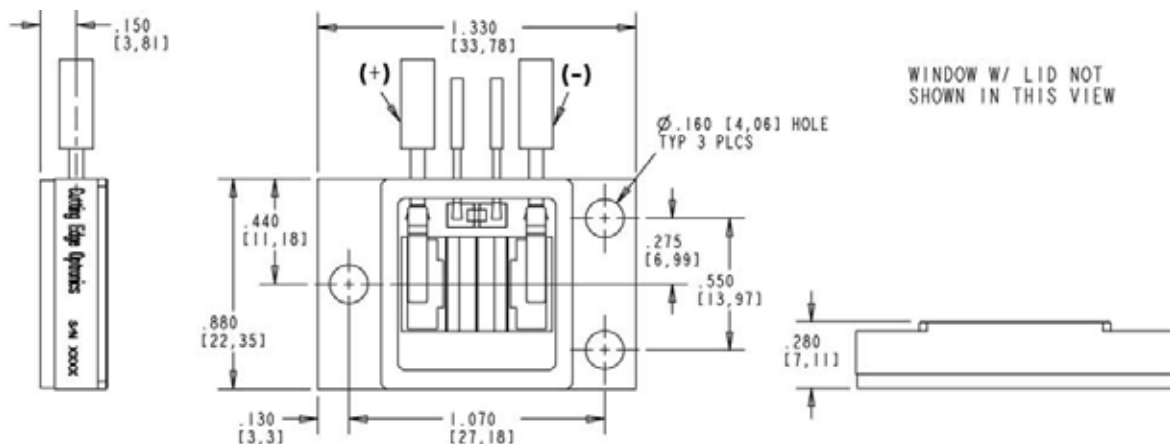
NOTES

- (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.

OPTICAL CHARACTERISTICS (SAMPLE)



MECHANICAL CHARACTERISTICS

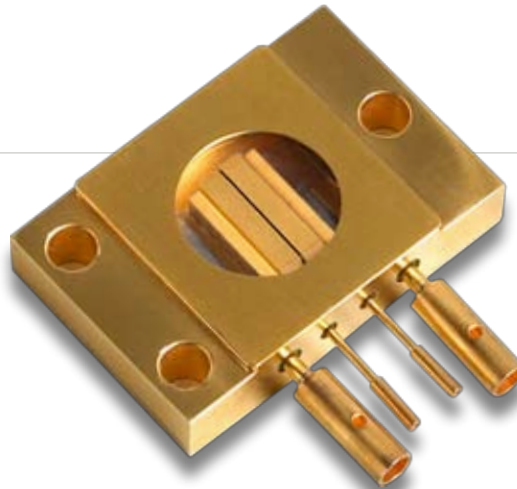


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WARNING
DANGER
INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION.
*
Diode laser
5W & up, 780-1560nm
CLASS IV
ELECTROSTATIC DISCHARGE SENSITIVE DEVICE
REQUIRING SPECIAL HANDLING

PART NUMBER: ARR94P100
1-BAR HERMETICALLY SEALED PACKAGE

FEATURES AND BENEFITS



- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Long Pulse And/Or High Duty Cycle Applications
- Standard Bar Pitch Options Include 400 μm , 800 μm , & 1200 μm
- Available Wavelengths: 790-1550nm
- Multi-wavelength Configurations Available
- HS Package Also Available With Up To 8 Bars For A Maximum Output Power Of 1.6 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	95A at 25°C Heat Sink	100	W
Operating Current	100W at 25°C Heat Sink	95	A
Threshold Current	25°C Heat Sink	15	A
Slope Efficiency	25°C Heat Sink	1.25	W/A
Electrical-Optical Efficiency	100W at 25°C Heat Sink	58	%
Center Wavelength	100W at 25°C Heat Sink	808	nm
Wavelength Tolerance	100W at 25°C Heat Sink	+/-3	nm
Spectral Width	100W 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	0.002	Ω
Operating Voltage	25°C Heat Sink, 100W	1.8	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

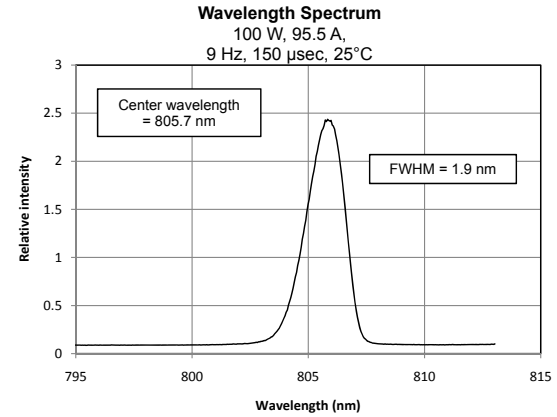
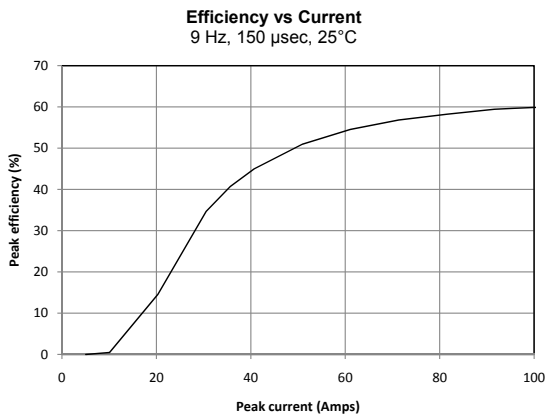
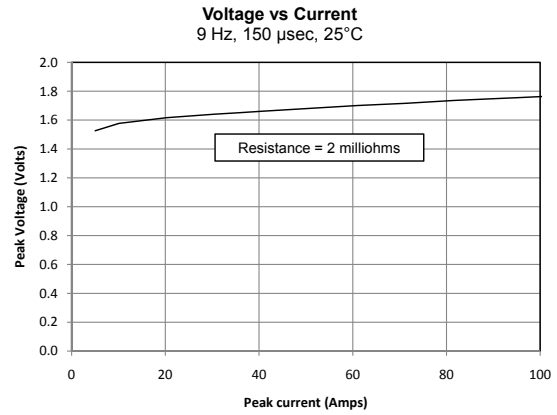
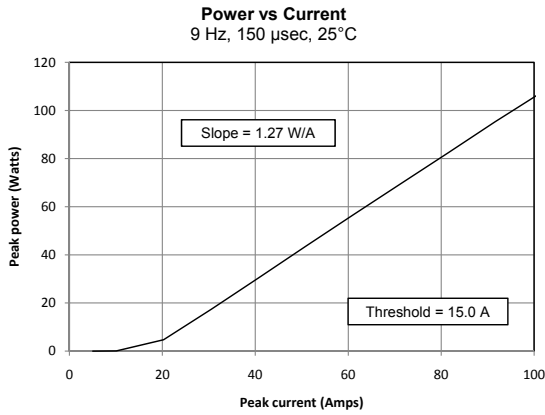
NOTES

- (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.

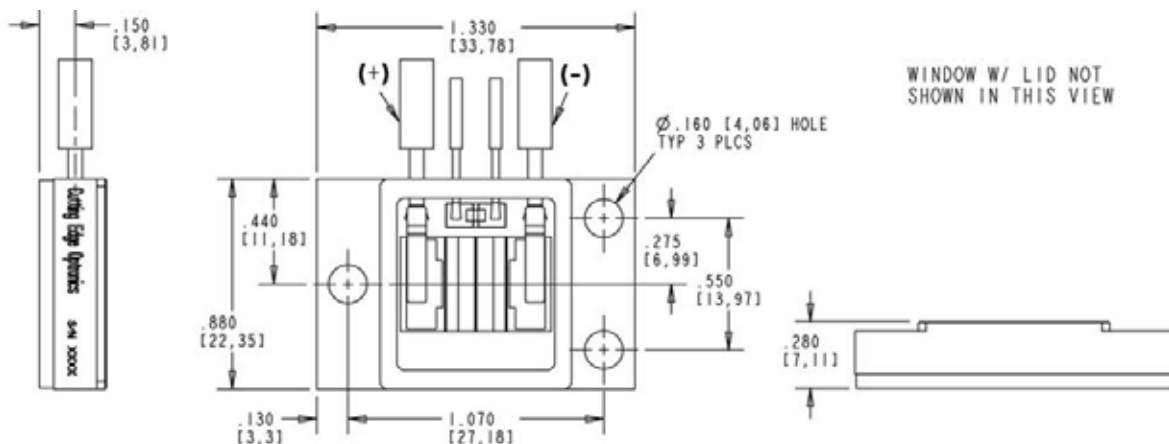
100W QCW

NORTHROP GRUMMAN

> OPTICAL CHARACTERISTICS (SAMPLE)



> MECHANICAL CHARACTERISTICS



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DANGER

INVISIBLE LASER RADIATION

AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION.

* Diode laser
5W & up, 780-1560nm
CLASS IV

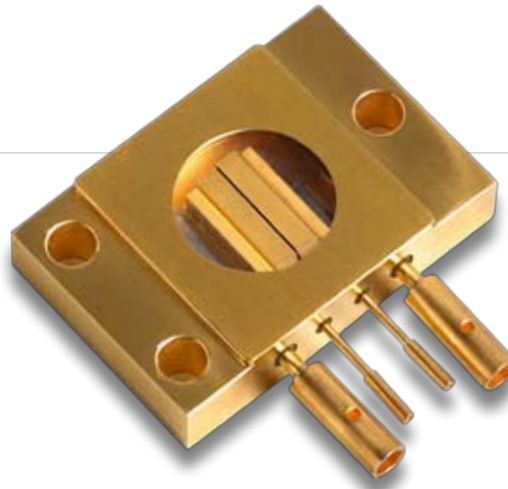
WARNING

ELECTROSTATIC DISCHARGE SENSITIVE DEVICE REQUIRING SPECIAL HANDLING

REV. A 10/09

PART NUMBER: ARR94P200
1-BAR HERMETICALLY SEALED PACKAGE

FEATURES AND BENEFITS



- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Long Pulse And/Or High Duty Cycle Applications
- Standard Bar Pitch Options Include 400 μm , 800 μm , & 1200 μm
- Available Wavelengths: 790-1550nm
- Multi-wavelength Configurations Available
- HS Package Also Available With Up To 8 Bars For A Maximum Output Power Of 1.6 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	2.5	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

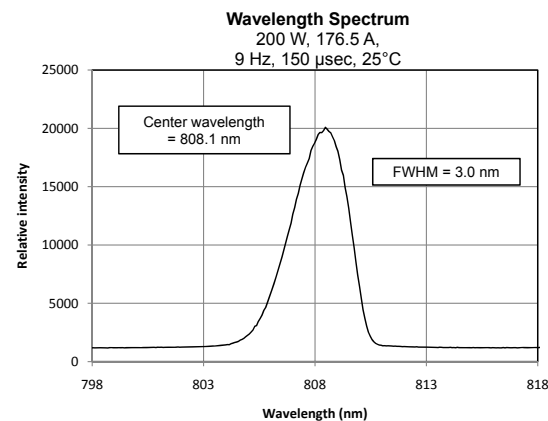
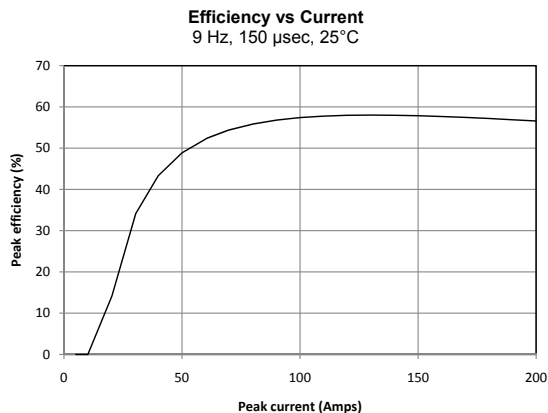
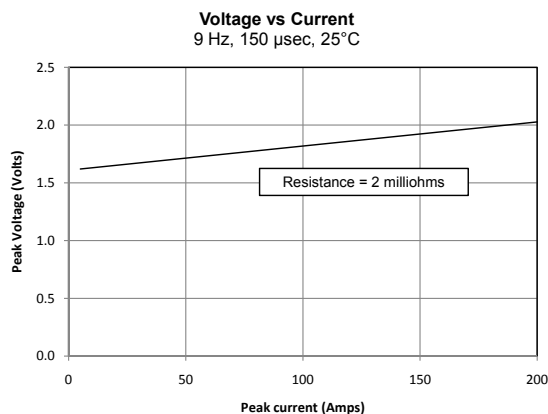
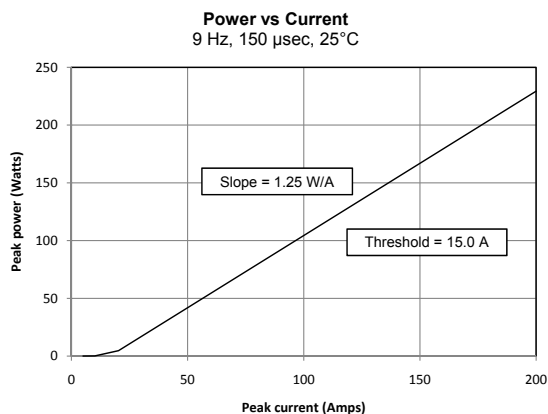
NOTES

- (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.

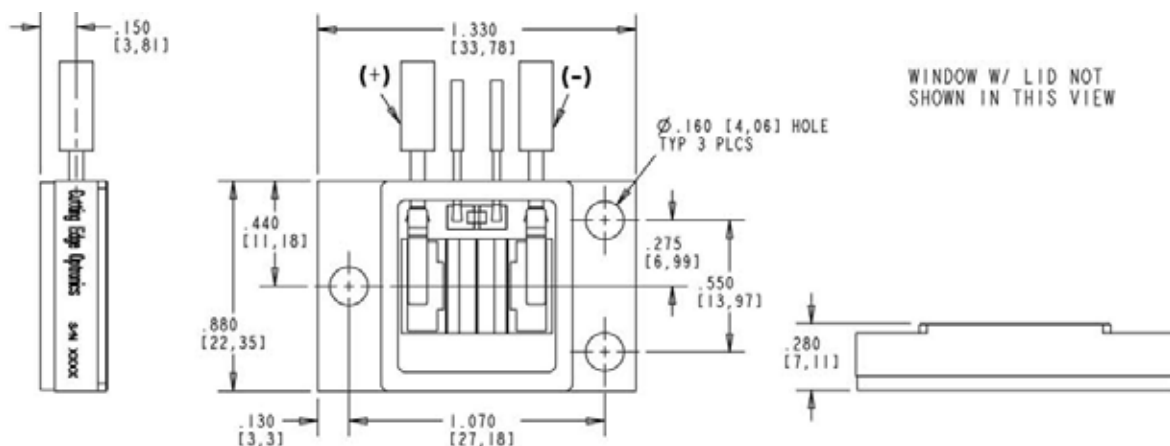
200W QCW

NORTHROP GRUMMAN

> OPTICAL CHARACTERISTICS (SAMPLE)



> MECHANICAL CHARACTERISTICS



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WARNING

DANGER

INVISIBLE LASER RADIATION

AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION.

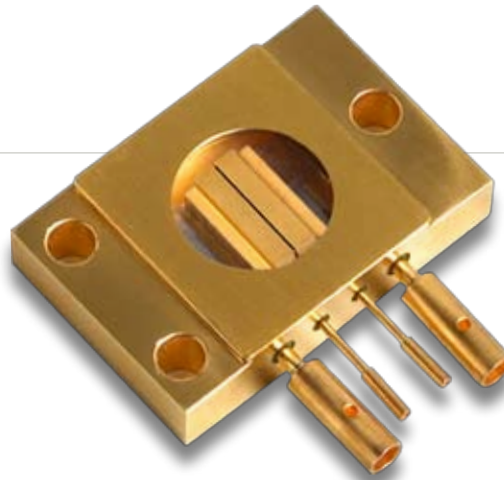
Diode laser
5W & up, 780-1560nm
CLASS IV

WARNING

ELECTROSTATIC DISCHARGE SENSITIVE DEVICE REQUIRING SPECIAL HANDLING

REV. A 10/09

PART NUMBER: ARR94P400
4-BAR HERMETICALLY SEALED PACKAGE



FEATURES AND BENEFITS

- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Long Pulse And/Or High Duty Cycle Applications
- Standard Bar Pitch Options Include 400 μm , 800 μm , & 1200 μm
- Available Wavelengths: 790-1550nm
- Multi-wavelength Configurations Available
- HS Package Also Available With Up To 8 Bars For A Maximum Output Power Of 1.6 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	95A at 25°C Heat Sink	400	W
Operating Current	400W at 25°C Heat Sink	95	A
Threshold Current	25°C Heat Sink	15	A
Slope Efficiency	25°C Heat Sink	5.00	W/A
Electrical-Optical Efficiency	400W at 25°C Heat Sink	58	%
Center Wavelength	400W at 25°C Heat Sink	808	nm
Wavelength Tolerance	400W at 25°C Heat Sink	+/-3	nm
Spectral Width	400W 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	0.008	Ω
Operating Voltage	25°C Heat Sink, 400W	7.2	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

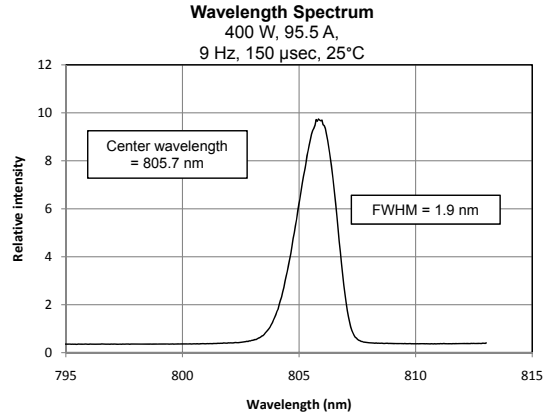
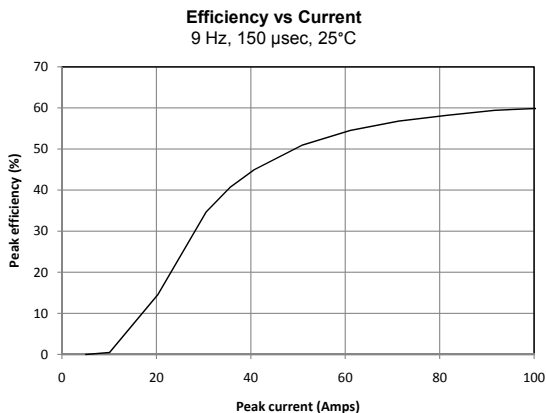
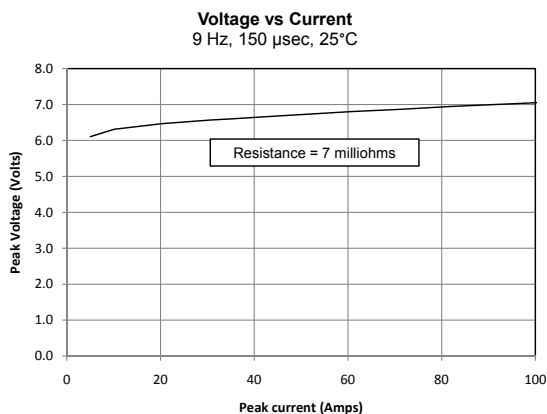
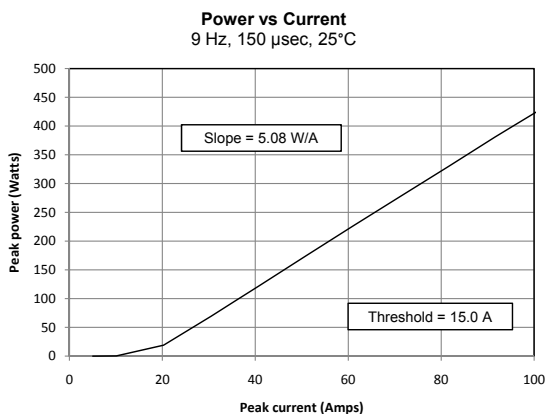
NOTES

- (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.

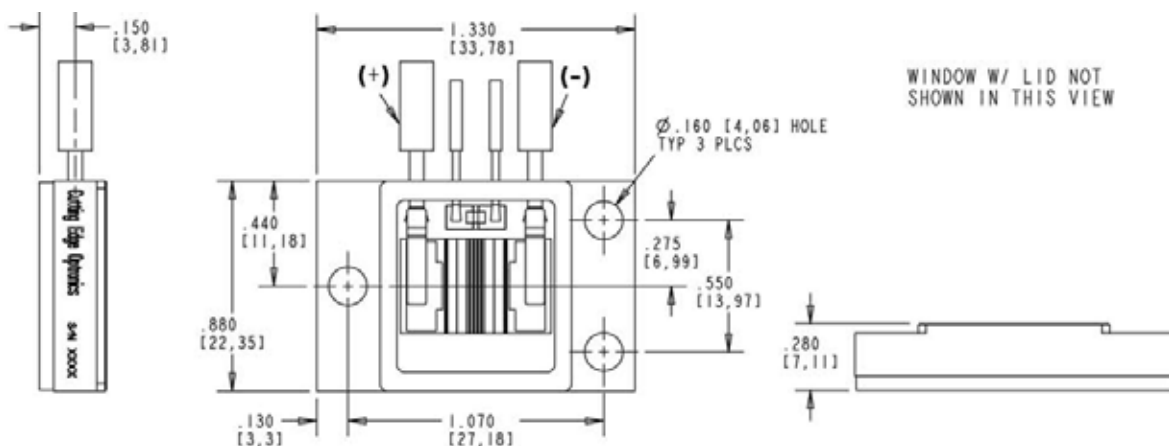
400W QCW

NORTHROP GRUMMAN

> OPTICAL CHARACTERISTICS (SAMPLE)



> MECHANICAL CHARACTERISTICS



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DANGER

INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION.

Diode laser
5W & up, 780-1560nm
CLASS IV

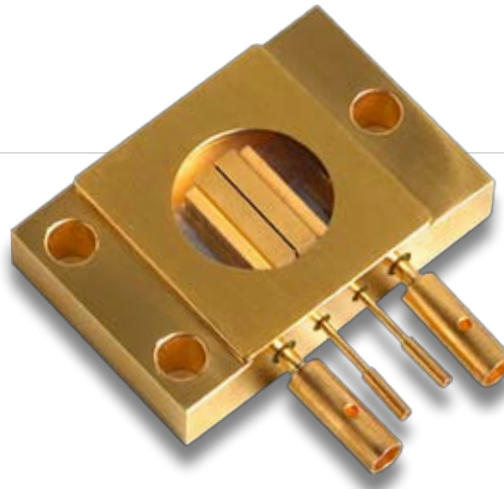
WARNING

ELECTROSTATIC DISCHARGE SENSITIVE DEVICE
REQUIRING SPECIAL HANDLING

REV. A 10/09

PART NUMBER: ARR94P800
4-BAR HERMETICALLY SEALED PACKAGE

FEATURES AND BENEFITS



- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Long Pulse And/Or High Duty Cycle Applications
- Standard Bar Pitch Options Include 400 μm , 800 μm , & 1200 μm
- Available Wavelengths: 790-1550nm
- Multi-wavelength Configurations Available
- HS Package Also Available With Up To 8 Bars For A Maximum Output Power Of 1.6 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	175A at 25°C Heat Sink	800	W
Operating Current	800W at 25°C Heat Sink	175	A
Threshold Current	25°C Heat Sink	15	A
Slope Efficiency	25°C Heat Sink	5.00	W/A
Electrical-Optical Efficiency	800W at 25°C Heat Sink	57	%
Center Wavelength	800W at 25°C Heat Sink	808	nm
Wavelength Tolerance	800W at 25°C Heat Sink	+/-3	nm
Spectral Width	800W at 25°C Heat Sink	2.5	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	0.008	Ω
Operating Voltage	25°C Heat Sink, 800W	8.0	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

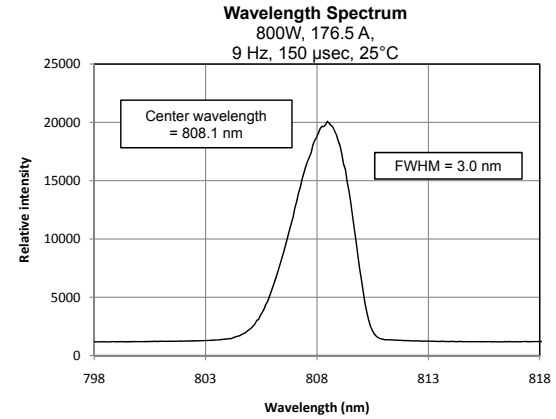
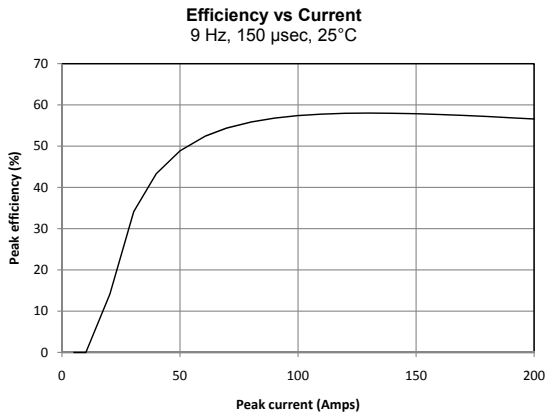
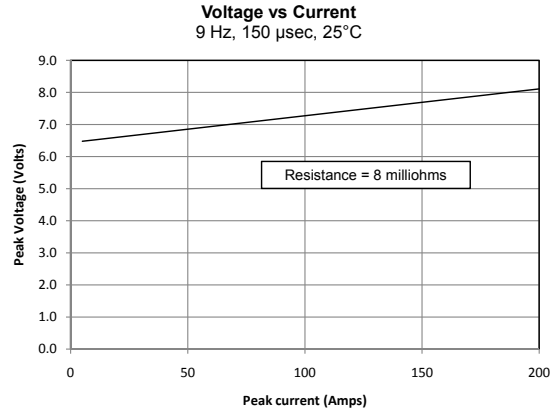
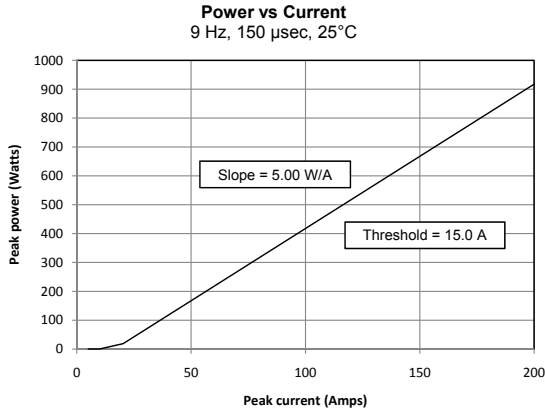
NOTES

- (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.

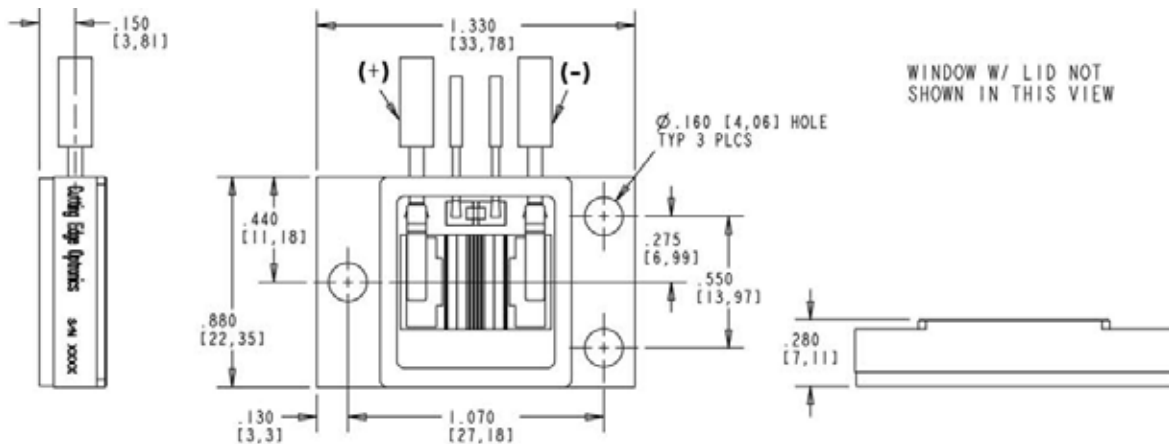
800W QCW

NORTHROP GRUMMAN

> OPTICAL CHARACTERISTICS (SAMPLE)



> MECHANICAL CHARACTERISTICS



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⚠ DANGER ⚠

INVISIBLE LASER RADIATION

AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION.

Diode laser
5W & up, 780-1560nm
CLASS IV

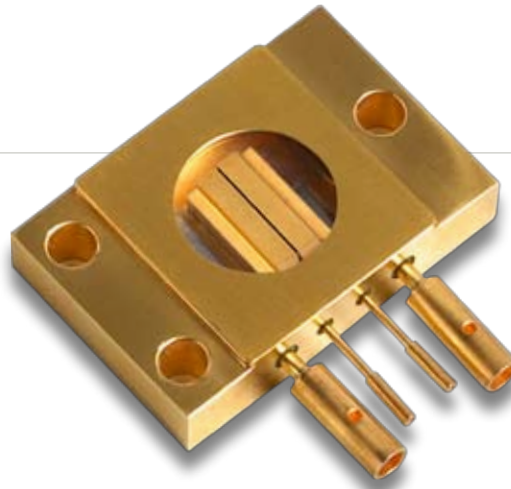
⚠ WARNING ⚠

ELECTROSTATIC DISCHARGE SENSITIVE DEVICE
REQUIRING SPECIAL HANDLING

REV. A 10/09

PART NUMBER: ARR94P1200
6-BAR HERMETICALLY SEALED PACKAGE

FEATURES AND BENEFITS



- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Long Pulse And/Or High Duty Cycle Applications
- Standard Bar Pitch Options Include 400 μm , 800 μm , & 1200 μm
- Available Wavelengths: 790-1550nm
- Multi-wavelength Configurations Available
- HS Package Also Available With Up To 8 Bars For A Maximum Output Power Of 1.6 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	175A at 25°C Heat Sink	1200	W
Operating Current	1200W at 25°C Heat Sink	175	A
Threshold Current	25°C Heat Sink	15	A
Slope Efficiency	25°C Heat Sink	7.50	W/A
Electrical-Optical Efficiency	1200W at 25°C Heat Sink	57	%
Center Wavelength	1200W at 25°C Heat Sink	808	nm
Wavelength Tolerance	1200W at 25°C Heat Sink	+/-3	nm
Spectral Width	1200W at 25°C Heat Sink	2.5	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, 1200W	12.0	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

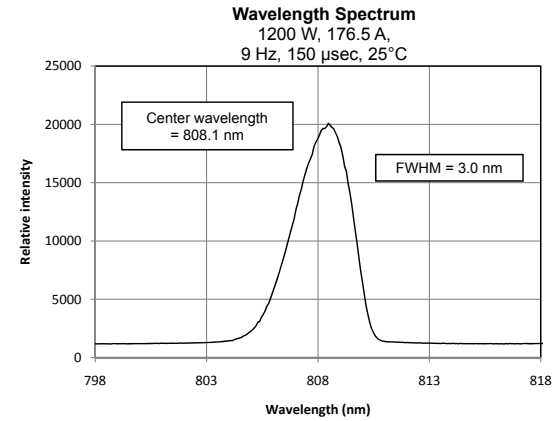
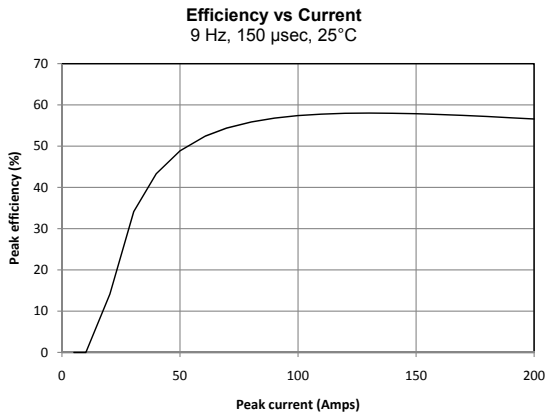
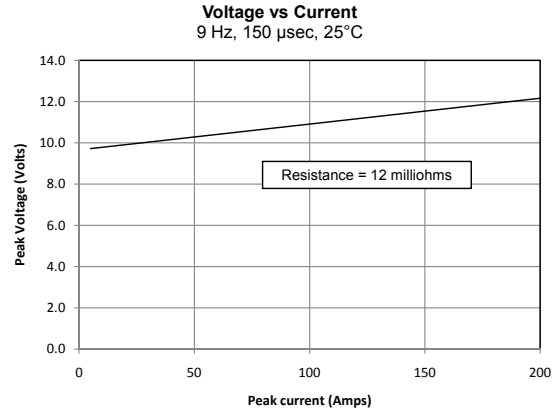
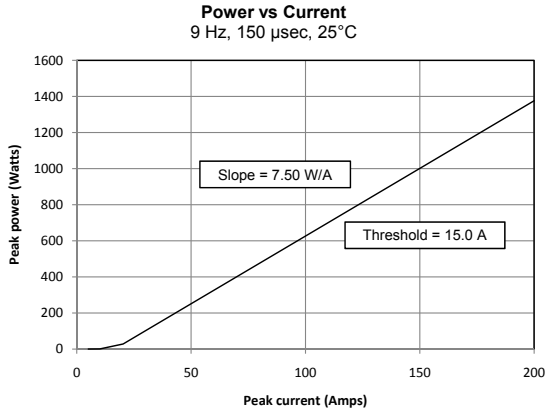
NOTES

- (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.

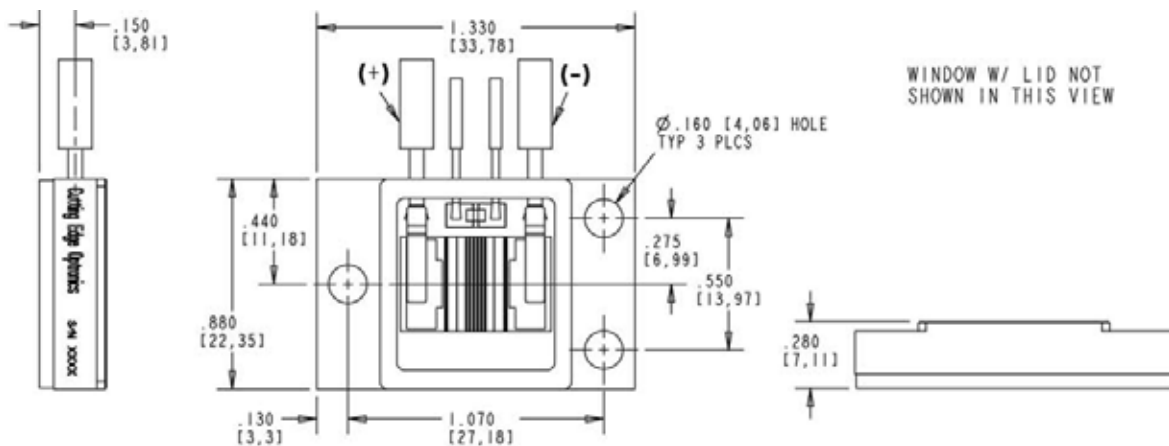
1200W QCW

NORTHROP GRUMMAN

> OPTICAL CHARACTERISTICS (SAMPLE)



> MECHANICAL CHARACTERISTICS



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WARNING

DANGER

INVISIBLE LASER RADIATION

AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION.

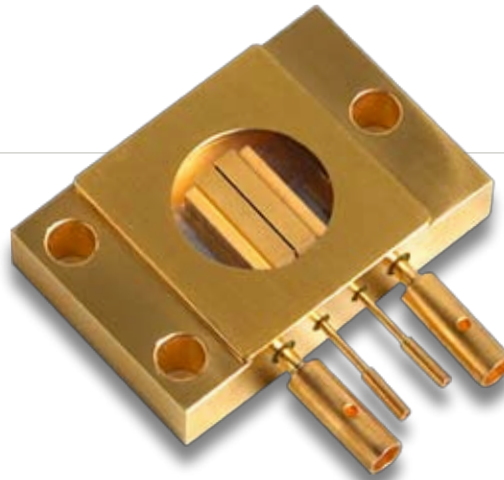
Diode laser
5W & up, 780-1560nm
CLASS IV

WARNING

ELECTROSTATIC DISCHARGE SENSITIVE DEVICE REQUIRING SPECIAL HANDLING

REV. A 10/09

PART NUMBER: ARR94P1600
8-BAR HERMETICALLY SEALED PACKAGE



FEATURES AND BENEFITS

- Assembled With Hard Solder & Expansion Matched Materials
- Ideal For Long Pulse And/Or High Duty Cycle Applications
- Standard Bar Pitch Options Include 400 μm , 800 μm , & 1200 μm
- Available Wavelengths: 790-1550nm
- Multi-wavelength Configurations Available
- HS Package Available With Up To 8 Bars For A Maximum Output Power Of 1.6 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	175A at 25°C Heat Sink	1600	W
Operating Current	1600W at 25°C Heat Sink	175	A
Threshold Current	25°C Heat Sink	15	A
Slope Efficiency	25°C Heat Sink	10.0	W/A
Electrical-Optical Efficiency	1600W at 25°C Heat Sink	57	%
Center Wavelength	1600W at 25°C Heat Sink	808	nm
Wavelength Tolerance	1600W at 25°C Heat Sink	+/-3	nm
Spectral Width	1600W at 25°C Heat Sink	2.5	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	0.016	Ω
Operating Voltage	25°C Heat Sink, 1600W	16.0	V

ABSOLUTE MAXIMUM RATINGS

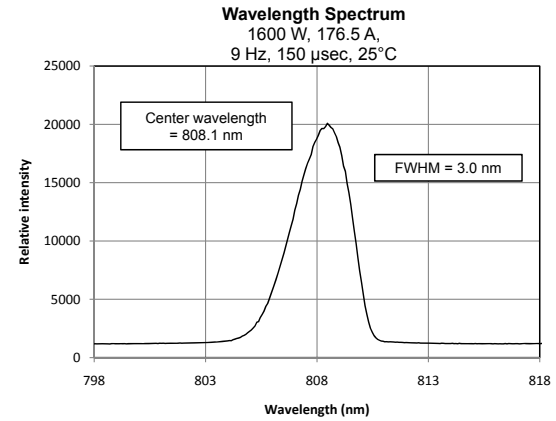
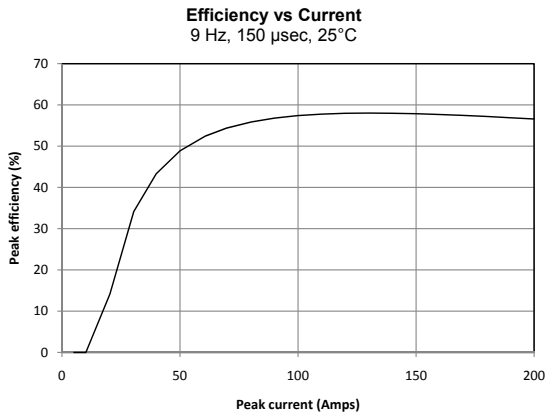
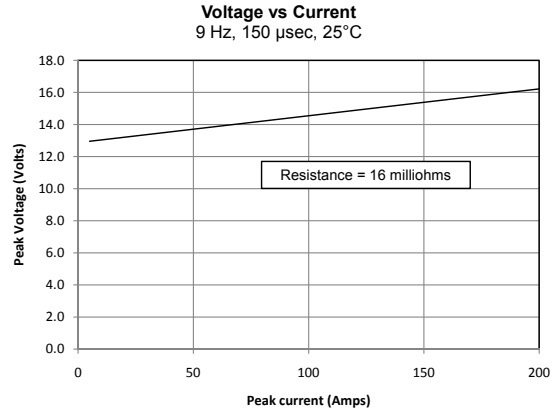
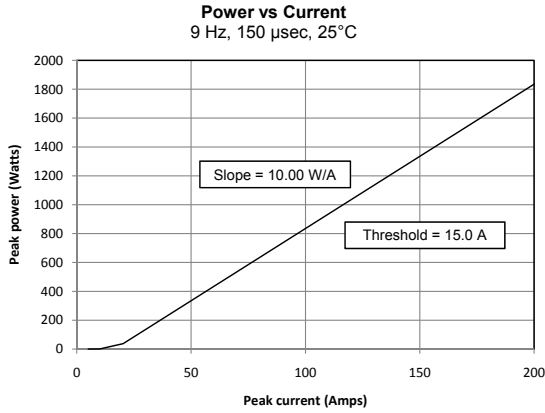
Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40°C to 70°C
Storage Temperature Range	-40°C to 85°C

NOTES

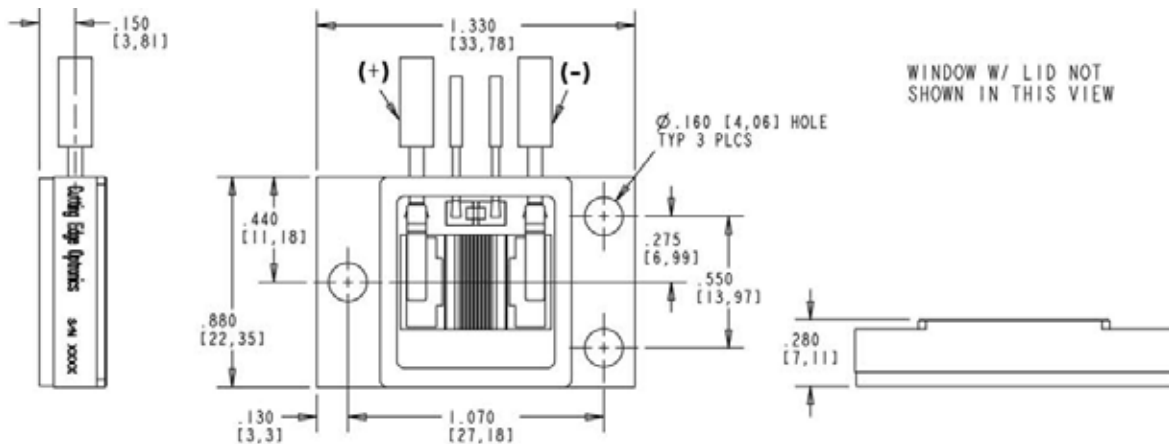
- (1) These specifications apply for operation at 808nm. Other wavelengths available upon request.
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1600W QCW

OPTICAL CHARACTERISTICS (SAMPLE)



MECHANICAL CHARACTERISTICS



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5W & up, 780-1560nm
CLASS IV
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