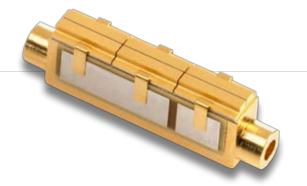
LASER DIODE ARRAY

60W CW

NORTHROP GRUMMAN

PART NUMBER: ARRO1C060
3-BAR DERRINGER 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	25A at 25°C Heat Sink	60	W
Operating Current	60W at 25°C Heat Sink	25	А
Threshold Current	25°C Heat Sink	8	А
Slope Efficiency	25°C Heat Sink	3.45	W/A
Electrical-Optical Efficiency	60W at 25°C Heat Sink	47	%
Center Wavelength	60W at 25°C Heat Sink	808	nm
Wavelength Tolerance	60W at 25°C Heat Sink	+/-3	nm
Spectral Width	60W at 25°C Heat Sink	1.8	nm
Wavelength Shift	_	0.25	nm/°C
Beam Divergence FWHM	_	38x7	X°
Beam Divergence FWHM (Lensed)	_	1x7	Χ°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25°C Heat Sink	0.012	Ω
Operating Voltage	25°C Heat Sink, 60W	5.1	V

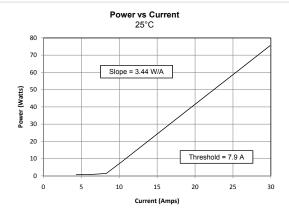
ABSOLUTE MAXIMUM RATINGS

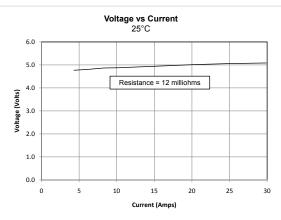
Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40°C to 70°C
Storage Temperature Range	-40°C to 85°C

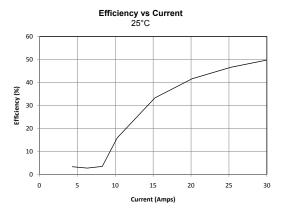
- (1) These specifications apply for operation at 808nm. Other wavelengths available upon request.
- (2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.
- (3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

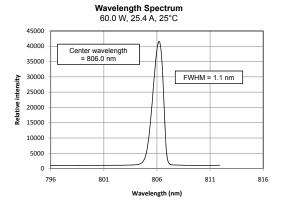
60W CW

OPTICAL CHARACTERISTICS (SAMPLE)

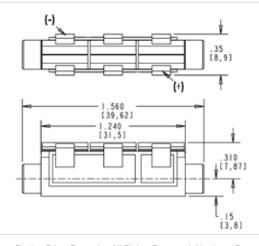


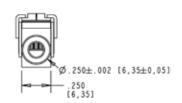






MECHANICAL CHARACTERISTICS







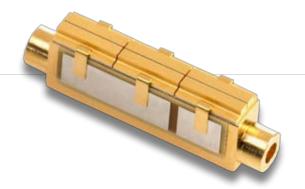
LASER DIODE ARRAY

120W CW

NORTHROP GRUMMAN

PART NUMBER: ARRO1C120
3-BAR DERRINGER 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	120	W
Operating Current	120W at 25°C Heat Sink	47	Α
Threshold Current	25°C Heat Sink	12	А
Slope Efficiency	25°C Heat Sink	3.45	W/A
Electrical-Optical Efficiency	120W at 25°C Heat Sink	53	%
Center Wavelength	120W at 25°C Heat Sink	808	nm
Wavelength Tolerance	120W at 25°C Heat Sink	+/-3	nm
Spectral Width	120W at 25°C Heat Sink	1.8	nm
Wavelength Shift	_	0.25	nm/°C
Beam Divergence FWHM	_	38x7	Χ°
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, 120W	5.1	V

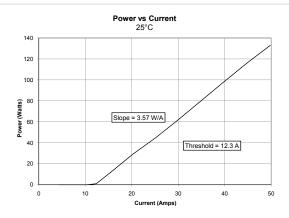
ABSOLUTE MAXIMUM RATINGS

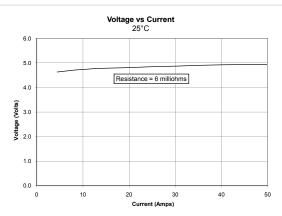
Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40°C to 70°C
Storage Temperature Range	-40°C to 85°C

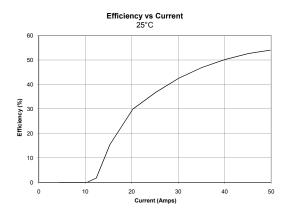
- (1) These specifications apply for operation at 808nm. Other wavelengths available upon request.
- (2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.
- (3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs

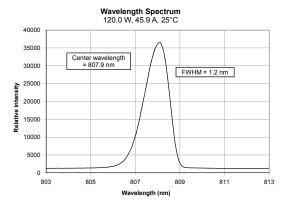
120W CW

OPTICAL CHARACTERISTICS (SAMPLE)

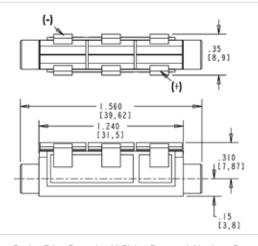


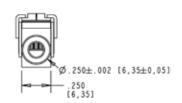






MECHANICAL CHARACTERISTICS







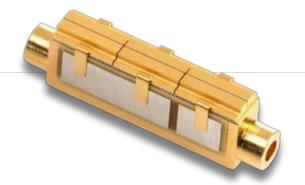
LASER DIODE ARRAY

600W QCW

NORTHROP GRUMMAN

PART NUMBER: ARR01P600 3-BAR DERRINGER 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
- Derringer Package Available With Up To 24 Bars And A Maximum Output Power Of 4.8 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	175A at 25°C Heat Sink	600	W
Operating Current	600W at 25°C Heat Sink	175	А
Threshold Current	25°C Heat Sink	15	А
Slope Efficiency	25°C Heat Sink	3.75	W/A
Electrical-Optical Efficiency	600W at 25°C Heat Sink	57	%
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	3.0	nm
Wavelength Shift	_	0.25	nm/°C
Beam Divergence FWHM	_	38x7	Χ°
Beam Divergence FWHM (Lensed)	_	1x7	Χ°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25°C Heat Sink	0.006	Ω
Operating Voltage	25°C Heat Sink, 600W	6.0	V

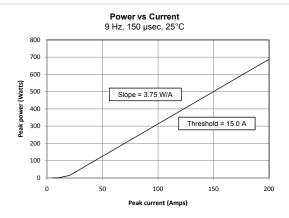
ABSOLUTE MAXIMUM RATINGS

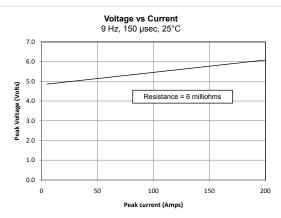
Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40°C to 70°C
Storage Temperature Range	-40°C to 85°C

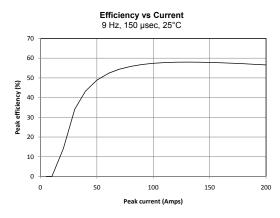
- (1) These specifications apply for operation at 808nm. Other wavelengths available upon request.
- (2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.
- (3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

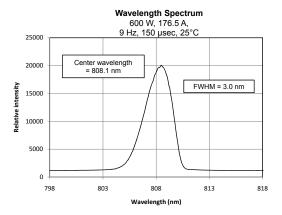
600W QCW

OPTICAL CHARACTERISTICS (SAMPLE)

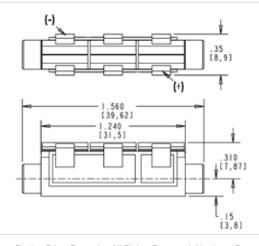


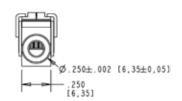






MECHANICAL CHARACTERISTICS







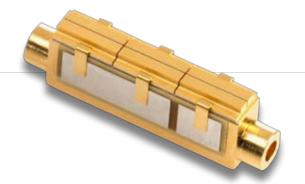
LASER DIODE ARRAY

900W QCW

NORTHROP GRUMMAN

PART NUMBER: ARR01P900 9-BAR DERRINGER 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
- Derringer Package Available With Up To 24 Bars And A Maximum Output Power Of 4.8 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	95A at 25°C Heat Sink	900	W
Operating Current	900W at 25°C Heat Sink	95	Α
Threshold Current	25°C Heat Sink	15	А
Slope Efficiency	25°C Heat Sink	11.3	W/A
Electrical-Optical Efficiency	900W at 25°C Heat Sink	58	%
Center Wavelength	900W at 25°C Heat Sink	808	nm
Wavelength Tolerance	900W at 25°C Heat Sink	+/-3	nm
Spectral Width	900W at 25°C Heat Sink	2.0	nm
Wavelength Shift	_	0.25	nm/°C
Beam Divergence FWHM	_	38x7	X°
Beam Divergence FWHM (Lensed)	_	1x7	Χ°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25°C Heat Sink	0.018	Ω
Operating Voltage	25°C Heat Sink, 900W	16.2	V

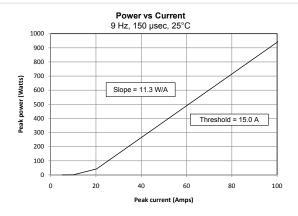
ABSOLUTE MAXIMUM RATINGS

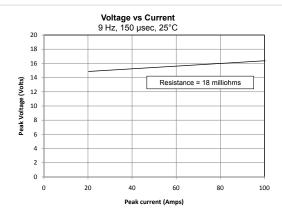
Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40°C to 70°C
Storage Temperature Range	-40°C to 85°C

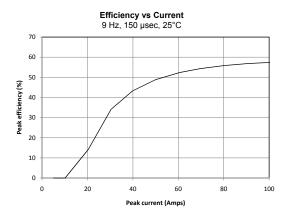
- (1) These specifications apply for operation at 808nm. Other wavelengths available upon request.
- (2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.
- (3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

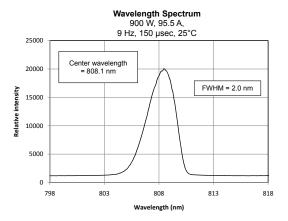
900W QCW

OPTICAL CHARACTERISTICS (SAMPLE)

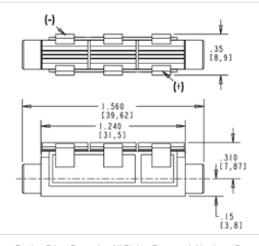


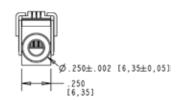






MECHANICAL CHARACTERISTICS







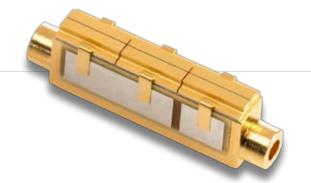
LASER DIODE ARRAY

1200W QCW

NORTHROP GRUMMAN

PART NUMBER: ARR01P1200 12-BAR DERRINGER PACKAGE





- 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 $\mu m,\,800~\mu m,\,and\,1200~\mu m$
- Small, Compact Water Cooled Design Is Ideal For Side Pumping Or Direct Diode Applications
- Derringer Package Available With Up To 24 Bars And A Maximum Output Power Of 4.8 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	95A at 25°C Heat Sink	1200	W
Operating Current	1200W at 25°C Heat Sink	95	Α
Threshold Current	25°C Heat Sink	15	А
Slope Efficiency	25°C Heat Sink	15.0	W/A
Electrical-Optical Efficiency	1200W at 25°C Heat Sink	58	%
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	2.0	nm
Wavelength Shift	_	0.25	nm/°C
Beam Divergence FWHM	_	38x7	X°
Beam Divergence FWHM (Lensed)	_	1x7	Χ°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25°C Heat Sink	0.024	Ω
Operating Voltage	25°C Heat Sink, 1200W	21.6	V

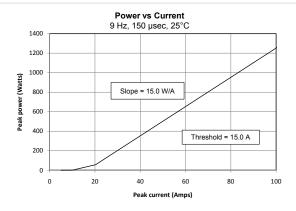
ABSOLUTE MAXIMUM RATINGS

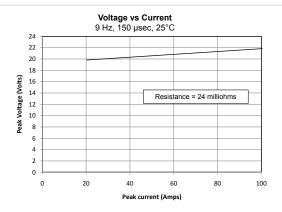
Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40°C to 70°C
Storage Temperature Range	-40°C to 85°C

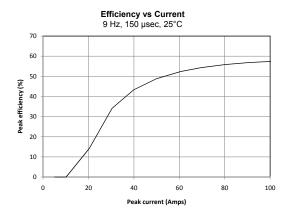
- (1) These specifications apply for operation at 808nm. Other wavelengths available upon request.
- (2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.
- (3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

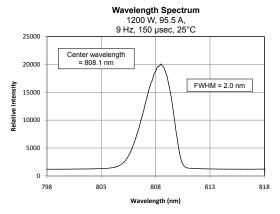
1200W QCW

OPTICAL CHARACTERISTICS (SAMPLE)

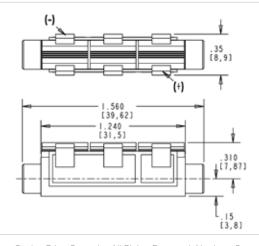


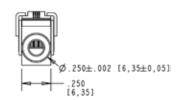






MECHANICAL CHARACTERISTICS







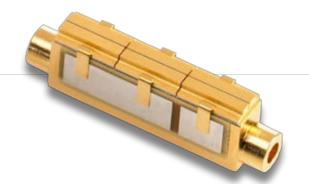
LASER DIODE ARRAY

1800W QCW

NORTHROP GRUMMAN

PART NUMBER: ARR01P1800 9-BAR DERRINGER 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
- Derringer Package Available With Up To 24 Bars And A Maximum Output Power Of 4.8 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	175A at 25°C Heat Sink	1800	W
Operating Current	1800W at 25°C Heat Sink	175	А
Threshold Current	25°C Heat Sink	15	А
Slope Efficiency	25°C Heat Sink	11.3	W/A
Electrical-Optical Efficiency	1800W at 25°C Heat Sink	57	%
Center Wavelength	1800W at 25°C Heat Sink	808	nm
Wavelength Tolerance	1800W at 25°C Heat Sink	+/-3	nm
Spectral Width	1800W at 25°C Heat Sink	3.0	nm
Wavelength Shift	_	0.25	nm/°C
Beam Divergence FWHM	_	38x7	x°
Beam Divergence FWHM (Lensed)	_	1x7	Χ°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25°C Heat Sink	0.018	Ω
Operating Voltage	25°C Heat Sink, 1800W	18.0	V

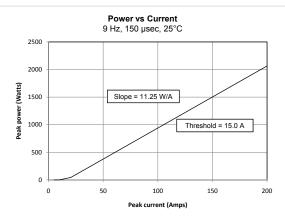
ABSOLUTE MAXIMUM RATINGS

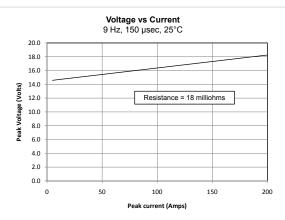
Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40°C to 70°C
Storage Temperature Range	-40°C to 85°C

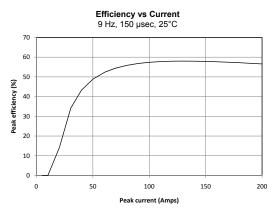
- (1) These specifications apply for operation at 808nm. Other wavelengths available upon request.
- (2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.
- (3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

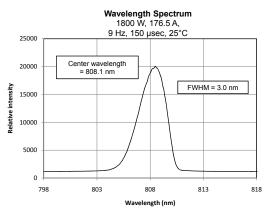
1800W QCW

OPTICAL CHARACTERISTICS (SAMPLE)

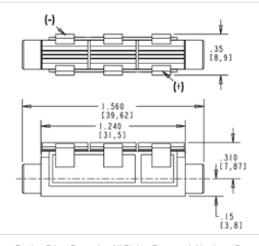


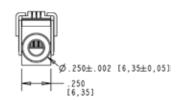






MECHANICAL CHARACTERISTICS







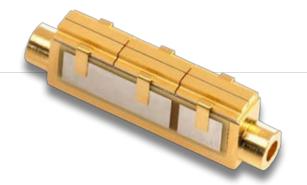
LASER DIODE ARRAY

2400W QCW

NORTHROP GRUMMAN

PART NUMBER: ARR01P2400 24-BAR DERRINGER 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
- Derringer Package Available With Up To 24 Bars And A Maximum Output Power Of 4.8 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	95A at 25°C Heat Sink	2400	W
Operating Current	2400W at 25°C Heat Sink	95	Α
Threshold Current	25°C Heat Sink	15	А
Slope Efficiency	25°C Heat Sink	30.0	W/A
Electrical-Optical Efficiency	2400W at 25°C Heat Sink	58	%
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	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	0.048	Ω
Operating Voltage	25°C Heat Sink, 2400W	43.2	V

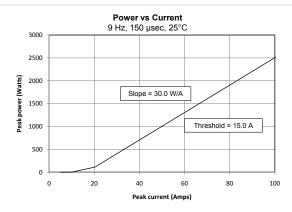
ABSOLUTE MAXIMUM RATINGS

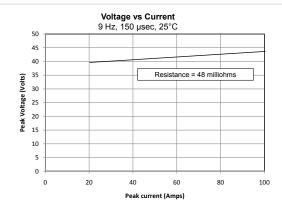
Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40°C to 70°C
Storage Temperature Range	-40°C to 85°C

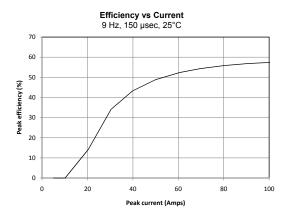
- (1) These specifications apply for operation at 808nm. Other wavelengths available upon request.
- (2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.
- (3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

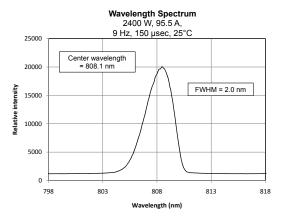
2400W QCW

OPTICAL CHARACTERISTICS (SAMPLE)

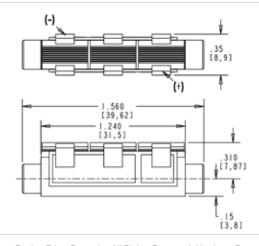


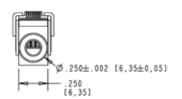






MECHANICAL CHARACTERISTICS







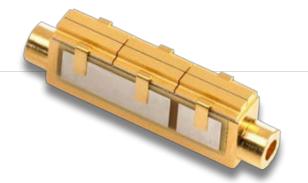
LASER DIODE ARRAY

3600W QCW

NORTHROP GRUMMAN

PART NUMBER: ARR01P3600 18-BAR DERRINGER PACKAGE





- 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 $\mu m,\,800~\mu m,\,and\,1200~\mu m$
- Small, Compact Water Cooled Design Is Ideal For Side Pumping Or Direct Diode Applications
- Derringer Package Available With Up To 24 Bars And A Maximum Output Power Of 4.8 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	175A at 25°C Heat Sink	3600	W
Operating Current	3600W at 25°C Heat Sink	175	Α
Threshold Current	25°C Heat Sink	15	А
Slope Efficiency	25°C Heat Sink	22.5	W/A
Electrical-Optical Efficiency	3600W at 25°C Heat Sink	57	%
Center Wavelength	3600W at 25°C Heat Sink	808	nm
Wavelength Tolerance	3600W at 25°C Heat Sink	+/-3	nm
Spectral Width	3600W at 25°C Heat Sink	3.0	nm
Wavelength Shift	_	0.25	nm/°C
Beam Divergence FWHM	_	38x7	X°
Beam Divergence FWHM (Lensed)	_	1x7	Χ°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25°C Heat Sink	0.036	Ω
Operating Voltage	25°C Heat Sink, 3600W	36.0	V

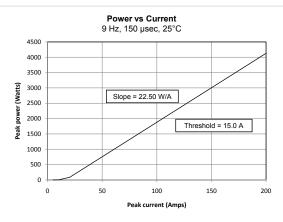
ABSOLUTE MAXIMUM RATINGS

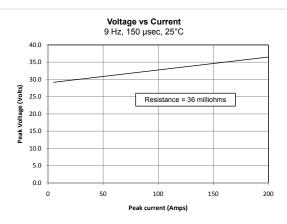
Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40°C to 70°C
Storage Temperature Range	-40°C to 85°C

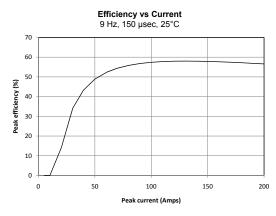
- (1) These specifications apply for operation at 808nm. Other wavelengths available upon request.
- (2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.
- (3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

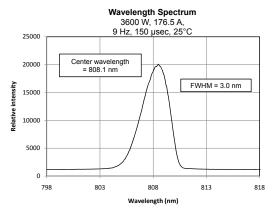
3600W QCW

OPTICAL CHARACTERISTICS (SAMPLE)

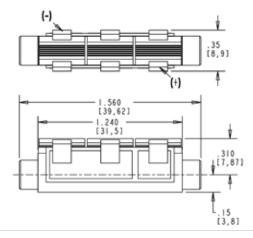


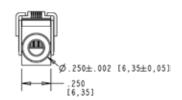






MECHANICAL CHARACTERISTICS







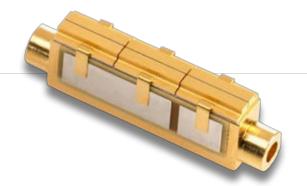
LASER DIODE ARRAY

4800W QCW

NORTHROP GRUMMAN

PART NUMBER: ARR01P4800 24-BAR DERRINGER 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
- Derringer Package Available With Up To 24 Bars And A Maximum Output Power Of 4.8 kW

OPTICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
QCW Power Output	175A at 25°C Heat Sink	4800	W
Operating Current	4800W at 25°C Heat Sink	175	А
Threshold Current	25°C Heat Sink	15	А
Slope Efficiency	25°C Heat Sink	30.0	W/A
Electrical-Optical Efficiency	4800W at 25°C Heat Sink	57	%
Center Wavelength	4800W at 25°C Heat Sink	808	nm
Wavelength Tolerance	4800W at 25°C Heat Sink	+/-3	nm
Spectral Width	4800W at 25°C Heat Sink	3.0	nm
Wavelength Shift	_	0.25	nm/°C
Beam Divergence FWHM	_	38x7	x°
Beam Divergence FWHM (Lensed)	_	1x7	Χ°

ELECTRICAL CHARACTERISTICS

Parameter	Conditions	Typical	Units
Series Resistance	25°C Heat Sink	0.048	Ω
Operating Voltage	25°C Heat Sink, 4800W	48.0	V

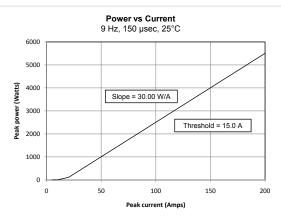
ABSOLUTE MAXIMUM RATINGS

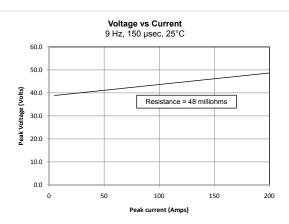
Parameter	Conditions
Reverse Current	0 A
Reverse Voltage	0 V
Operating Temperature Range	-40°C to 70°C
Storage Temperature Range	-40°C to 85°C

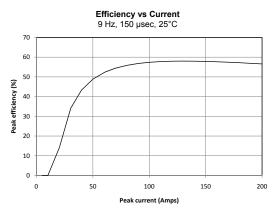
- (1) These specifications apply for operation at 808nm. Other wavelengths available upon request.
- (2) A dry nitrogen environment should be provided by the user when storing and operating at temperatures below ambient dew point.
- (3) Fast axis and slow axis lensing options are available for most NG-CEO heat exchanger designs.

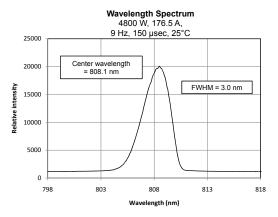
4800W QCW

OPTICAL CHARACTERISTICS (SAMPLE)









MECHANICAL CHARACTERISTICS

