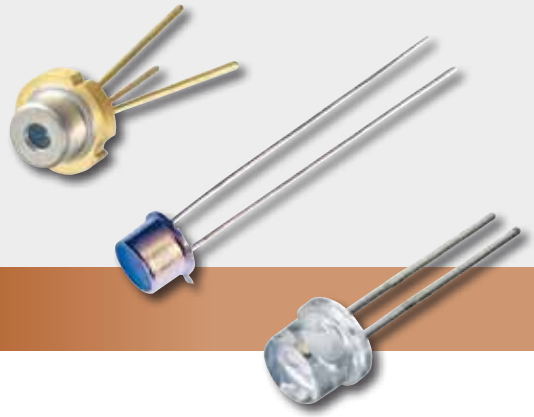


Pulsed Laser Diodes – PGA – PGEW Series

Applications

- Range finders
- Height of burst
- Proximity fuze

Features and Benefits

- Multi cavity lasers concentrate emitting source size
- Quantum well structure
- High peak pulsed power into aperture
- Excellent power stability with temperature
- Eye safe compliant
- Application specific designs

Product Description

Pulsed semiconductor lasers in the near IR are commonly used for long distance time-of-flight or phase-shift range finder systems. Excelitas offers a broad range of suited pulsed 905 nm lasers. Lasers designs include multi cavity monolithic structures with up to 4 active areas per chip resulting in up to 100 W of peak optical output power. Physical stacking of laser chips resulting in up to 300 W of peak optical output power.

Chip on board assemblies are available for hybrid integration. A selection of 6 metal, hermetically sealed package types are available for harsh environment applications. A molded epoxy resin TO-18 type package is available for high-volume applications.

Critical parameters are pulse-width and rise/fall times. The pulse width may be reduced allowing for increased current drive and resulting in higher peak optical power. Quantum well laser design offers rise and fall times of < 1 ns however the drive circuit lay out and package inductance play the greater role and should be designed accordingly. Excelitas offers a variety of package types with different inductive values to assist to this end.

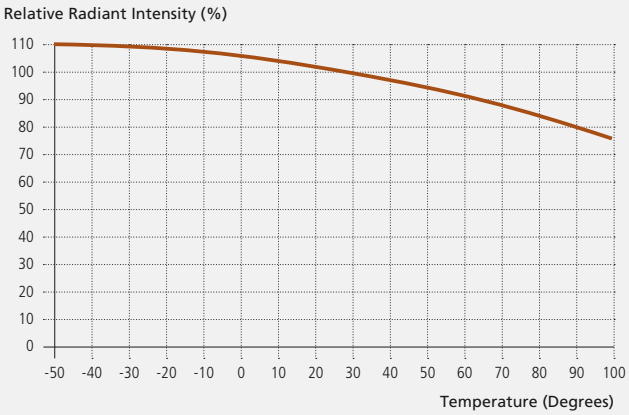
Product Table

PGA Pulsed Laser Family Selection Table, Typ. Wavelength 905 nm, 5 mm Spectral Width

Device (X = pkg) (H = RoHS Compliance)	Description		Emitting Area		Typical Peak Power at 10 A, 100 ns	Typical Peak Power at 30 A, 100 ns	Beam Spread Parallel to Junction (FWHM)	Beam Spread Perpendicular to Junction (FWHM)	Typical Temperature Coefficient	Preferred Packages	
	# of Chips	Total # of Emitting Stripes	Width µm	Height µm	75 µm (3 mils) Stripe Width	225 µm (9 mils) Stripe Width	Θ_{II}	$\Theta_{\perp}$	nm/° C	"S" Metall Can TO-18	"W" Plastic Encapsulated TO-18
PGAx1S03H	1	1	75	1	8 W		10	25	0.25	✓	✓
PGAx1S09H	1	1	225	1		30 W	10	25	0.25	✓	✓
DPGAx1S03H	1	2	75	5	15 W		10	25	0.25	✓	✓
DPGAx1S09H	1	2	225	5		50 W	10	25	0.25	✓	✓
TPGAx1S03H	1	3	75	10	23 W		10	25	0.25	✓	✓
TPGAx1S09H	1	3	225	10		75 W	10	25	0.25	✓	✓
QPGAx1S03H	1	4	75	15	33 W		10	25	0.25	✓	✓
QPGAx1S09H	1	4	225	15		100 W	10	25	0.25	✓	✓
TPGAx2S03H	2	6	75	175	45 W		10	25	0.25	✓	
TPGAx2S09H	2	6	225	175		150 W	10	25	0.25	✓	
QPGAx2S03H	2	8	75	225	65 W		10	25	0.25	✓	
QPGAx2S09H	2	8	225	225		200 W	10	25	0.25	✓	
QPGAx3S03H	3	12	75	450	95 W		10	25	0.25	✓	
QPGAx3S09H	3	12	225	450		300 W	10	25	0.25	✓	

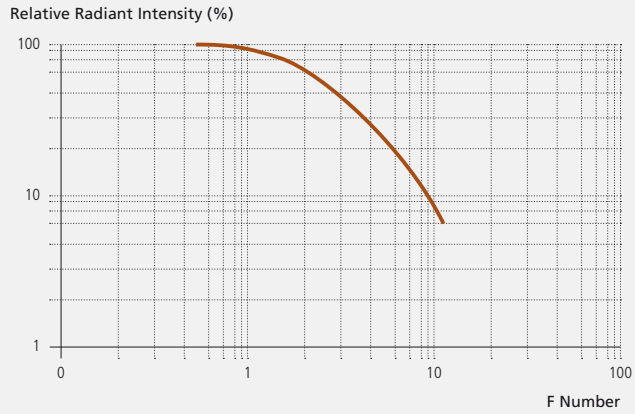
Graph 1

Peak Radiant Intensity vs. Temperature



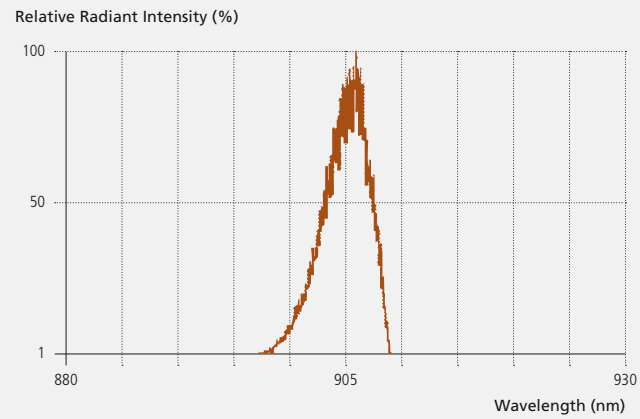
Graph 2

Radiant Intensity vs. F Number



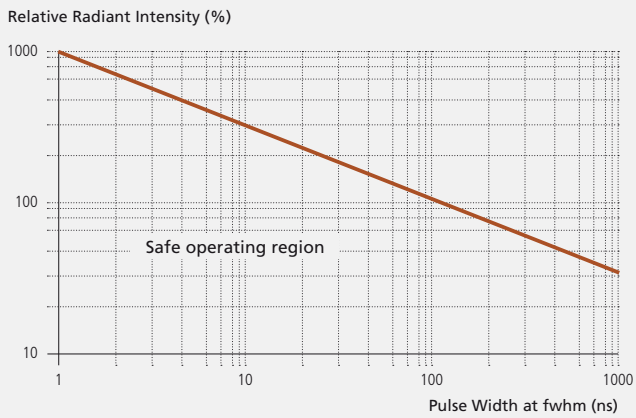
Graph 3

Spectral Plot Distribution



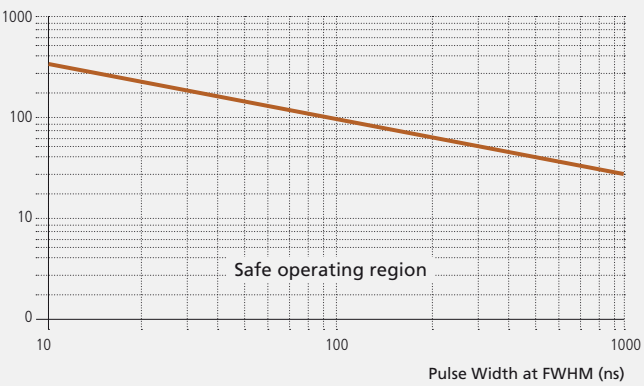
Graph 4

Radiant Intensity vs. Pulse Width for Safe Operation



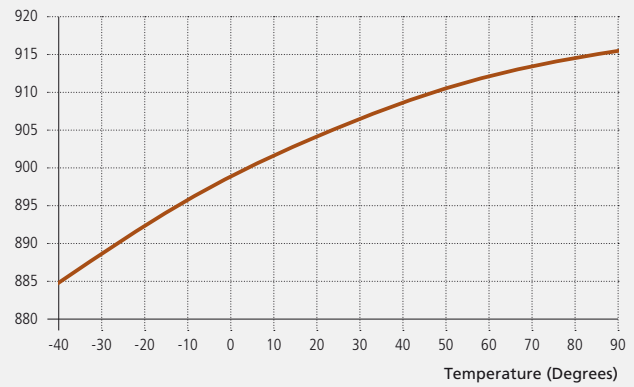
Graph 5

Safe Operation Region (Plastic Encaps.)



Graph 6

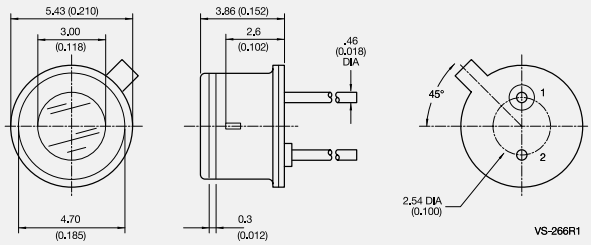
Center Wavelength vs. Temperature



QP6EW currently being verified.

Figure 1

Package Drawing

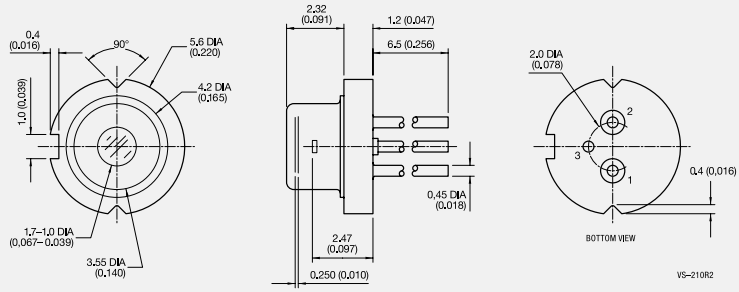


Package S (TO-18)

Pin out
1. LD Anode (+),
2. LD Cathode (-) Case,
Inductance 5.2 nH

Figure 2

Package Drawing

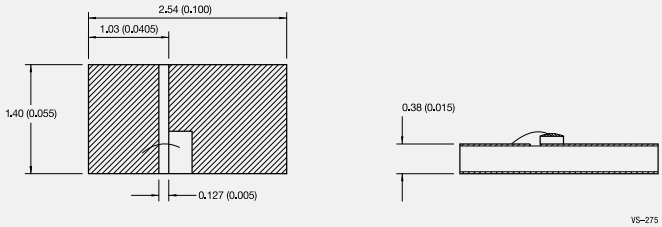


Package U (5 mm CD)

Pin out
1. LD Anode (+),
2. NC,
3. LD Cathode (-) Case,
Inductance 5.0 nH

Figure 3

Housing / Package Drawing • Laser Chip on Board

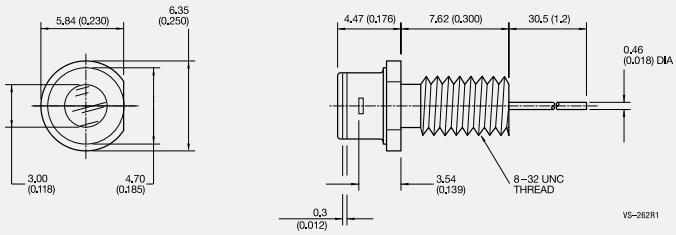


Package Y (Chip on Carrier)

Pin out
1. LD Cathode (-)
chip bottom,
2. LD Anode (+)
chip top,
Inductance 1.6 nH

Figure 4

Package Drawing

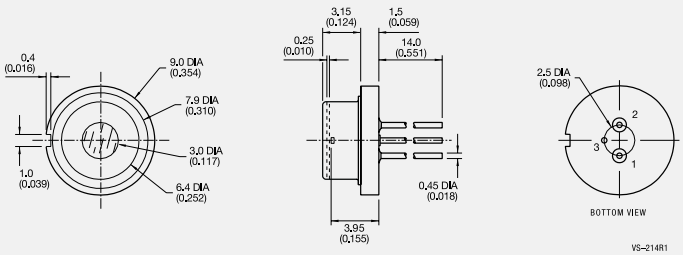


Package C (8–32 Coax)

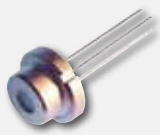
Pin out
1. LD Anode (+),
2. LD Cathode (-) Case,
Inductance 12 nH

Figure 5

Package Drawing



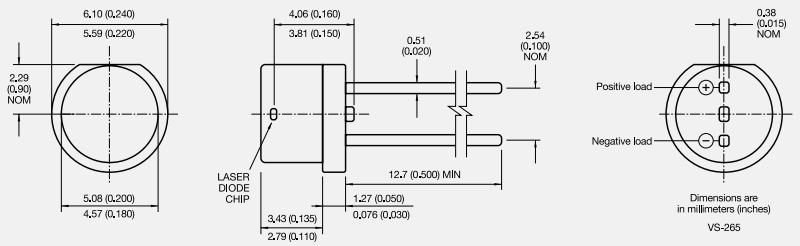
Package R (9 mm CD)



Pin out
1. LD Anode (+),
2. NC,
3. LD Cathode (-) Case,
Inductance 6.8 nH

Figure 6

Housing / Package Drawing • TO-18-"W" Plastic Package (1S Devices Only)



Package W (TO-18 Plastic)

Pin out
1. (Pkg Flat)
LD Anode (+),
2. LD Cathode (-),
Inductance 5.0 nH