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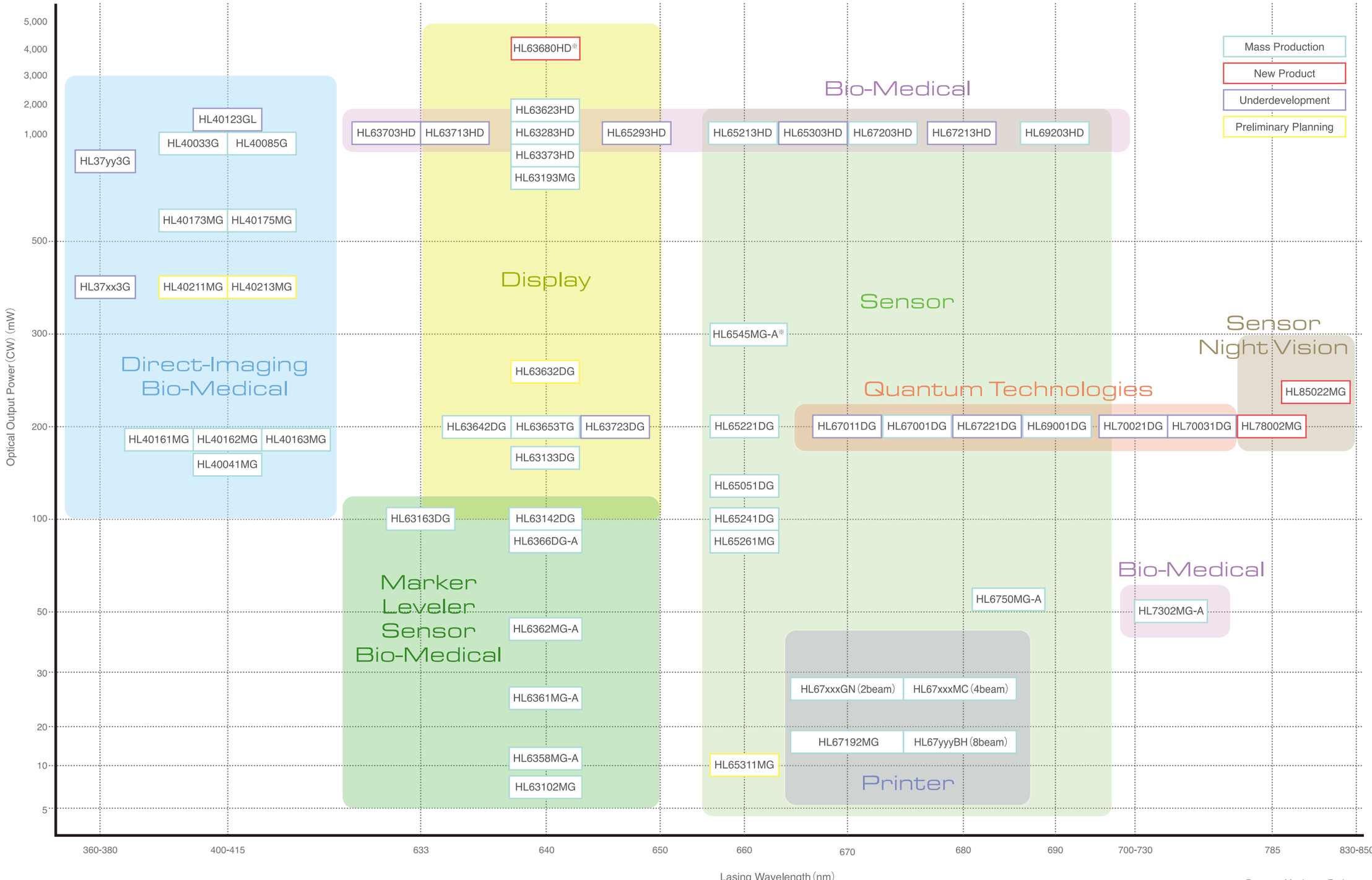
2412K⑧-200Ei①

USHIO *Applying Light to Life*

Laser Diode

Product Information

Product Map



Power : Maximum Ratings
※ pulse : pulse optical power

Laser Diode Line Up

Part Number	Internal Circuit *5	Maximum Ratings		Po (mW)	Ith (mA)	Iop (mA)	Vop (V)	Is (mA)	λp (nm)	θ// (°)	θ⊥ (°)
		Po (mW)	Topr (℃)								
HL40041MG*1	CC	150	-10 to 50	150	60	150	4.5	0.2	404	13*3	45*3
HL40093MG*1	FN	500	0 to 30	400	110	370	4.9	-	404	13*3	42*3
HL40161MG	CC	210	-5 to 85	175	35	150	5	0.15	405	9	20
HL40162MG	AC	210	-5 to 85	175	35	150	5	0.15	405	9	20
HL40163MG	FN	210	-5 to 85	175	35	150	5	-	405	9	20
HL40071MG	CC	360	0 to 70	300	50	280	6	0.09	405	6	15
HL40211MG (UD)	CC	450	-5 to 85	400	65	250	5.5	0.3	405	8	20
HL40213MG (UD)	FN	450	-5 to 85	400	65	250	5.5	-	405	8	20
HL40173MG*1	FN	700	0 to 30	600	110	450	4.2	-	405	13*3	42*3
HL40175MG*1	BC	700	0 to 30	600	110	450	4.2	2	405	13*3	42*3
HL40033G*1	FN	1,000	0 to 30	1,000	320	1,000	4.3	-	405	13*3	42*3
HL40085G*1	BC	1,000	0 to 30	1,000	320	1,000	4.3	1.3	405	13*3	42*3
HL40123GL*1 (UD)	FN	1,400	0 to 30	1,200	200	950	5	-	405	17*3	41*3
HL63703HD*1 (UD)	FN	1,300	-10 to 25	1,200	440	1,550	2.4	-	630	10	32
HL63163DG	FN	100	-10 to 40	100	70	170	2.6	-	633	8.5	18
HL63713HD*1 (UD)	FN	1,300	-10 to 45	1,200	340	1,350	2.3	-	635	10	32
HL63102MG	AC	7	-10 to 60	5	15	20	2.2	0.2	637	8	34
HL63142DG	AC	120	-10 to 50	100	50	140	2.7	0.3	637	8	18
HL63283HD*1	FN	1,200 (1,500*2)	-10 to 45	1,200	340	1,300	2.3	-	637	10	33
HL6312G-A*6	AC	5	-10 to 50	5	45	55	2.3	0.4	638	8	31
HL6319G-A*6	CC	10	-10 to 50	10	50	70	2.3	0.17	638	8	31
HL6320G-A*6	AC	10	-10 to 50	10	50	70	2.3	0.17	638	8	31
HL6321G-A*6	CC	15	-10 to 50	15	55	85	2.5	0.2	638	8	30
HL6322G-A*6	AC	15	-10 to 50	15	55	85	2.5	0.2	638	8	30
HL63133DG	FN	170	-10 to 40	170	60	250	2.8	-	638	9	17
HL63192DG*1	AC	700	-10 to 40	700	200	820	2.2	2	638	9	35
HL63193MG*1	FN	700	-10 to 40	700	200	820	2.2	-	638	9	35
HL63373HD*1	FN	1,100	-10 to 45	1,000	200	1,000	2.4	-	638	10	35
HL63623HD*1	FN	1,600 (1,900*2)	-10 to 55	1,500 (1,800*2)	420	1,550 (1,850*2)	2.25	-	638	10	33
HL63520HD*1*6	FN	2,400*4 (3,500*2*4)	-10 to 55	2,400 (3,500*2)	570	2,400 (3,300*2)	2.4	-	638	10	33
HL63680HD*1	FN	3,000*4 (4,200*2*4)	-10 to 55	3,000 (4,200*2)	570	3,000 (3,800*2)	2.5	-	638	12	30
HL63391DG*6	CC	200	-10 to 60	200	65	255	2.8	0.8	639	8.5	14
HL63392DG*6	AC	200	-10 to 60	200	65	255	2.8	0.8	639	8.5	14
HL6358MG-A	AC	12	-10 to 50	10	30	40	2.3	1	639	8	21
HL6395MG-A	CC	12	-10 to 60	10	45	55	2.3	0.07	639	9	21
HL6360MG-A	AC	25	-10 to 50	20	45	65	2.5	0.2	639	9	21
HL6361MG-A	CC	25	-10 to 50	20	45	65	2.5	0.2	639	9	21
HL6397MG-A*6	CC	25	-10 to 60	20	45	65	2.3	0.2	639	9	21
HL6323MG-A*6	AC	35	-10 to 50	30	45	95	2.3	0.15	639	8.5	30
HL63641DG	CC	210	-40 to 60	200	50	225	2.7	0.25	639	8	14
HL63642DG	AC	210	-40 to 60	200	50	225	2.7	0.25	639	8	14
HL63643DG	FN	210	-40 to 60	200	50	225	2.7	-	639	8	14
HL63653TG	FN	210	-10 to 60	200	50	230	2.7	-	640	8	14
HL6362MG-A	AC	45	-10 to 50	40	45	90	2.4	0.3	640	10	21
HL6363MG-A	CC	45	-10 to 50	40	45	90	2.4	0.3	640	10	21
HL6364DG-A*6	AC	65	-10 to 50	60	65	125	2.5	0.4	642	10	21
HL6366DG-A	AC	90	-10 to 50	80	80	155	2.5	0.3	642	10	21
HL6367DG-A	CC	90	-10 to 50	80	80	155	2.5	0.3	642	10	21
HL6385DG-A*6	LN	150	-10 to 40	150	110	280	2.6	-	642	9	17
HL63723DG (UD)	FN	210	-40 to 85	200	55	235	2.7	-	642	8	15
HL65293HD*1 (UD)	FN	1,300	-10 to 45	1,200	400	1,350	2.25	-	652	10	32
HL6501MG-A*6	CC	35 (50*2)	-10 to 60	30 (50*2)	45	85	2.6	0.3	658	8.5	22

Part Number	Internal Circuit *5	Maximum Ratings		Po (mW)	Ith (mA)	Iop (mA)	Vop (V)	Is (mA)	λp (nm)	θ// (°)	θ⊥ (°)
		Po (mW)	Topr (℃)								
HL65261MG	CC	85 (310*2)	-10 to 60 -10 to 75*2	80 (300*2)	30	90	2.6	0.6	658	7.5	15
HL65262MG	AC	85 (310*2)	-10 to 60 -10 to 75*2	80 (300*2)	30	90	2.6	0.6	658	7.5	15
HL65263MG	FN	85 (310*2)	-10 to 60 -10 to 75*2	80 (300*2)	30	90	2.6	-	658	7.5	15
HL65264MG	LN	85 (310*2)	-10 to 60 -10 to 75*2	80 (300*2)	30	90	2.6	-	658	7.5	15
HL65213HD*1	FN	1,200	-10 to 45	1,200	450	1,350	2.3	-	659	10	33
HL65051DG	CC	130	-10 to 60	120	60	175	2.5	0.4	660	10	17
HL65055DG	BC	130	-10 to 60	120	60	175	2.5	0.4	660	10	17
HL6544FM-A*6	FN	130	-10 to 75	50	60	115	2.3	-	660	10	17
HL6545MG-A	LN	130 (300*2)	-10 to 75	120 (300*2)	60	175	2.5	-	660	10	17
HL65221DG	CC	210 (420*2)	-10 to 75	200 (400*2)	60	230	2.7	0.7	660	8	15
HL65222DG	AC	210 (420*2)	-10 to 75	200 (400*2)	60	230	2.7	0.7	660	8	15
HL65223DG	FN	210 (420*2)	-10 to 75	200 (400*2)	60	230	2.7	0.7	660	8	15
HL65232DG	AC	160 (320*2)	-10 to 75	150 (300*2)	60	190	2.55	0.55	660	7.5	15
HL65241DG	CC	110 (220*2)	-10 to 90	100 (200*2)	60	145	2.45	0.35	660	7	15
HL65242DG	AC	110 (220*2)	-10 to 90	100 (200*2)	60	145	2.45	0.35	660	7	15
HL65311MG (UD)	CC	12	-40 to 90	10	10	20	2.2	0.4	662	7	30
HL65312MG (UD)	AC	12	-40 to 90	10	10	20	2.2	0.4	662	7	30
HL65303HD*1 (UD)	FN	1,300	-10 to 55	1,200	370	1,350	2.25	-	665	10	32
HL6714G-A*6	AC	10	-10 to 50	10	30	50	2.2	0.9	670	8	22
HL6748MG-A*6	AC	10	-10 to 60	10	20	30	2.2	1	670	8	25
HL67192MG	AC	16	-10 to 70	15	15	30	2.25	1.5	670	7.5	24
HL67011DG (UD)	CC	210	-10 to 75	200	50	210	2.7	0.8	671	8	15
HL67001DG	CC	210	-10 to 75	200	55	215	2.7	0.8	675	8	15
HL67203HD*1	FN	1,300	-10 to 75	1,200	350	1,350	2.2	-	675	12	32
HL67221DG	CC	210	-10 to 75	200	50	210	2.7	0.8	680	8	15
HL67213HD*1 (UD)	FN	1,300	-10 to 75	1,200	320	1,350	2.2	-	683	11	32
HL6750MG-A	CC	55	-10 to 70	50	30	75	2.3	0.12	685	9	21
HL6738MG-A*6	CC	35 (50*2)	-10 to 70	30 (50*2)	45	90	2.5	0.1	690	8.5	19
HL69001DG	CC	210	-10 to 75	200	50	220	2.7	0.8	690	8	15
HL69203HD*1	FN	1,300	-10 to 75	1,200	320	1,300	2.2	-	690	11	31
HL70021DG (UD)	CC	210	-10 to 75	200	50	225	2.7	0.8	700	8	15
HL70031DG (UD)	CC	210	-10 to 75	200	50	235	2.8	0.8	705	8	15
HL7301MG-A	CC	50	-10 to 60	40	30	75	2.5	0.3	730	9	18
HL7302MG-A	AC	50	-10 to 60	40	30	75	2.5	0.3	730	9	18
HL78002MG	AC	210	-10 to 75	200	45	230	2.8	0.5	785	8.5	15
HL83013MG*6	FN	50	-10 to 60	50	20	75	1.9	-	830	9	22
HL8337MG-A*6	AC	50	-10 to 60	50	20	75	1.9	0.25	830	9	22
HL8338MG-A*6	CC	50	-10 to 60	50	20	75	1.9	0.25	830	9	22
HL85021MG	CC	260	-40 to 75	250	45	270	2.6	1.4	850	8	15
HL85022MG	AC	260	-40 to 75	250	45	270	2.6	1.4	850	8	15
HL85023MG	FN	260	-40 to 75	250	45	270	2.6	-	850	8	15
HL8340MG-A*6	AC	50	-10 to 60	50	20	75	1.9	0.25	852	9	22
HL8341MG-A*6	CC	50	-10 to 60	50	20	75	1.9	0.25	852	9	22

(UD): Under development *1 Multi transverse mode (The other products without *1 are single transverse mode) *2 Pulse optical power and pulse operation
*3 Full angle,⅛ *4 Typical PO at maximum current rating *5 Please refer to the following diagrum for internal circuit *6 NRND: Not Recommended for New Design

Part Numbering

Example 1 : HL6545MG-A — **HL 65 45 MG –A** (a) (b) (c) (e) (f)

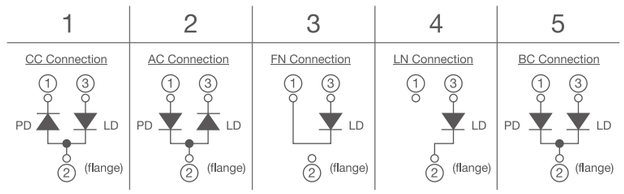
Example 2 : HL63102MG — **HL 63 10 2 MG** (a) (b) (c) (d) (e)

(a) HL: Ushio Laser Diode
(b) Wavelength: (first 2-number of wavelength)
37: 375nm 69: 690nm
40: 404~405nm 70: 705nm
63: 633~642nm 73: 730nm
65: 648.5~660nm 83: 830nm (or 850nm)
67: 670~690nm
(c) 45: Serial Number
(d) 2: Internal Circuit(assigned either 1, 2, 3, 4or 5)

(e) MG: Package Type (CAN package)
G, HD, GL: ⌀9.0mm MG: ⌀5.6mm(short can)
DG: ⌀5.6mm (tall can) TG: ⌀3.8mm
(f) -A: RoHS compliant*

* All of current available Ushio are RoHS compliant
* All products with new numbering like example 2 are RoHS compliant. (Therefore, No "-A".)

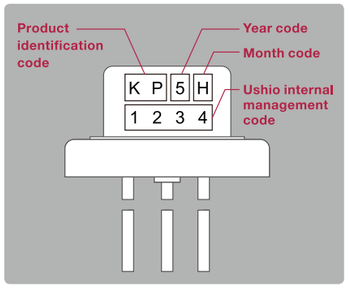
Internal circuit diagrum



Marking

Package Type : MG, DG, G, FM, HD

combination of numerical and alphabetical letters are laser marked on cap.



1st line :

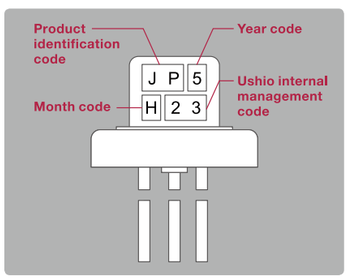
1st and 2nd letters :
Product identification code
If code is one character, 1st line is 3 characters.
3rd letter : Year code
The year code is the last number of the produced year.
(ex; "5" means the year 2025)
4th letter : Month code
The month code is marked with alphabet character. (see Table-1)

2nd line :

5th to 8th letters :
Ushio internal management code

Package Type : TG

combination of numerical and alphabetical letters are laser marked on cap.



1st line :

1st and 2nd letters :
Product identification code
3rd letter : Year code
The year code is the last number of the produced year.
(ex; "5" means the year 2025)

2nd line :

4th letter : Month code
The month code is marked with alphabet character. (see Table-1)
5th to 6th letters :
Ushio internal management code

Table-1) Month code

Month	1	2	3	4	5	6	7	8	9	10	11	12
Code	A	B	C	D	E	F	G	H	J	K	L	M

History of Ushio Laser Diode

Product Development History (Laser Diode)

1978 IRED awarded "IR100".
1979 830nm LD awarded "IR100".
1980 World first shipment of 830nm LD.
1983 World first shipment of 830nm high power LD for Optical Disc.
1984 World first shipment of 780nm LD for printer.
1989 Started 670nm LD shipment for pointer
2005 Started shipment of high efficiency Red LD with Air Ridge Structure
2006 World first shipment of 640nm/40mW LD and 642nm/60mW LD
2007 World first shipment of 642nm/80mW LD
2008 World first released of 642nm/150mW LD for Show Laser and 705nm/50mW for Medical
2010 World first release of 638nm/120mW LD for small Projector
2011 Started shipment of Violet high power (404nm/400mW) LD for industrial market.
2013 Started shipment of 633nm/100mW LD for Biomedical and Inspection
2014 Started shipment of 638nm/700mW LD for Projector and Laser TV.
2019 Started shipment of 638nm/3.5W Pulse LD for Projector and Laser TV.
2021 Started shipment of 675nm/690nm/200mW LD for Medical and Quantum technology
2022 Started shipment of 405nm/600mW LD for Direct Imaging
2022 Started Shipment of 639nm/200mW LD for Sensing and Measurement
2023 700nm/200mW LD won LASER World of PHOTONICS Innovation Award 2023 in the Quantum Technology category
2024 Started shipment of 638nm/4.2W Pulse LD for Projector and Laser TV.

Global Networks

We deliver our products developed and produced in Japan through global networks