



High-Luminosity (AlGaInP) LED Lamps

(If = 20 mA, Ta = 25°C)

Appearance	Radiation shape (mm)	Resin type				High-luminosity									
		Colored diffusion	Colored transparency	Colorless transparency	Milky diffusion	JE (Yellow-green)		JV, ZV (Amber)		JS, ZS (Sunset orange)		ZJ, JJ (Orange)		ZR, JR (Red)	
						Model No.	Luminous intensity (mcd) TYP.	Model No.	Luminous intensity (mcd) TYP.	Model No.	Luminous intensity (mcd) TYP.	Model No.	Luminous intensity (mcd) TYP.	Model No.	Luminous intensity (mcd) TYP.
Cylinder	ø3	●				-	-	GL3ZV402B0SE	400	GL3ZS402B0SE	400	GL3ZJ402B0SE	400	GL3ZR402B0SE	250
			●			GL3JE402B0SE	200	-	-	-	-	-	GL3JR402B0S3	200	
				●		-	-	GL3ZV802B0SE	200	GL3ZS802B0SE	210	GL3ZJ802B0SE	230	GL3ZR802B0SE	150
					●	-	-	GL3JV404B0SE	280	GL3JS404B0SE	280	GL3JJ404B0SE	200	-	-
			●			-	-	GL3JV804B0SE	110	GL3JS804B0SE	120	GL3JJ804B0SE	100	-	-
	ø5				●	-	-	GL5ZV152B0SE	2 700	GL5ZS152B0SE	3 000	GL5ZJ152B0SE	3 000	GL5ZR152B0SE	2 000
					●	-	-	GL5ZV302B0SE	900	GL5ZS302B0SE	1 000	GL5ZJ302B0SE	900	GL5ZR302B0SE	600
					●	-	-	GL5JV302B0SE	640	GL5JS302B0SE	680	GL5JJ302B0SE	570	-	-
					●	-	-	GL0ZV042B0S	16 900	GL0ZS042B0S	22 600	GL0ZJ042B0S	18 500	-	-
					●	-	-	GL6ZV27	750	GL6ZS27	850	GL6ZJ27	750	GL6ZR27	360
ø10				●	-	-	GL5JV7D2D0SE	210	GL5JS7D2D0SE	230	GL5JJ7D2D0SE	190	-	-	
Oval	Long: 5.8 Short: 4.6				●	-	-	-	-	-	-	-	-	-	
					●	-	-	-	-	-	-	-	-	-	

Taped model is also available.

High-Luminosity LED Lamps

(If = 20 mA, Ta = 25°C)

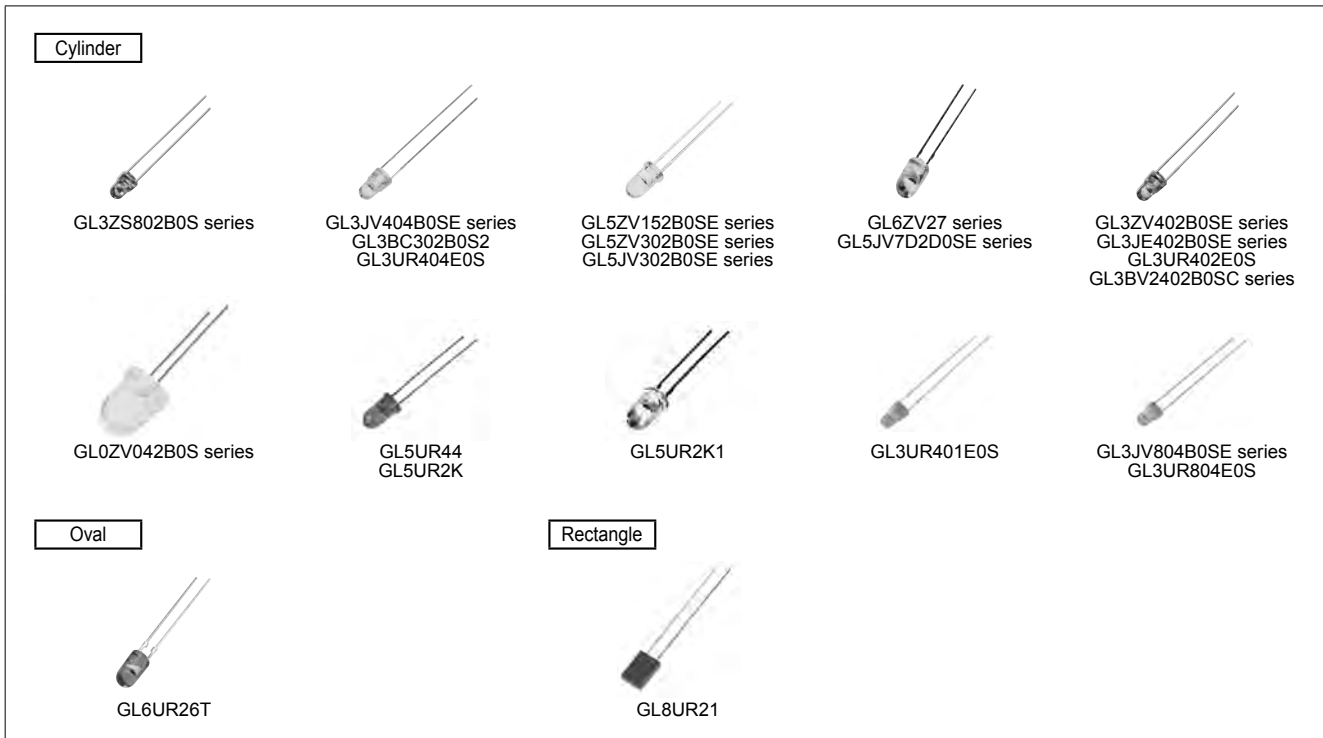
Appearance	Radiation shape (mm)	Resin type				High-luminosity					
		Colored diffusion	Colored transparency	Colorless transparency	Milky diffusion	BC (Blue)		GC (Green)		UR, U (Red)	
						Model No.	Luminous intensity (mcd) TYP.	Model No.	Luminous intensity (mcd) TYP.	Model No.	Luminous intensity (mcd) TYP.
Cylinder	ø3	●				-	-	-	-	GL3UR401E0S	250
					●	-	-	-	-	GL3UR402E0S	300
			●			-	-	-	-	GL3UR804E0S	150
					●	GL3BC302B0S2	900	-	-	GL3UR404E0S	250
					●	GL3B2402B0SC	650	GL3G2402B0SC	2 800	-	-
	ø5				●	-	-	-	-	GL5UR44	850
			●			-	-	-	-	GL5UR2K	2 000
Oval	Long: 5.8 Short: 4.6				●	-	-	-	-	GL5UR2K1	2 000
Rectangle	2.5 × 5.0	●				-	-	-	-	GL6UR26T*1	400
					●	-	-	-	-	GL8UR21	16

*1 With tie-bar

Taped model is also available.

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■ Dichromatic LED Lamps

(I_F = 20 mA, T_a = 25°C)

Appearance	Radiation shape (mm)	Resin type				Yellow-green + Red	Luminous intensity (mcd) TYP.
		Colored diffusion	Colored transparency	Colorless transparency	Milky diffusion		
Cylinder	∅3				●	GL3ED8	20/15
	∅5				●	GL5ED5	40/25
					●	GL5ED44	80/50
Rectangle	2.0 × 5.0				●	GL9ED2	8/3
	5.0 × 5.0				●	GL9ED4	7/4

(The values in luminous intensity are in radiation color order.)



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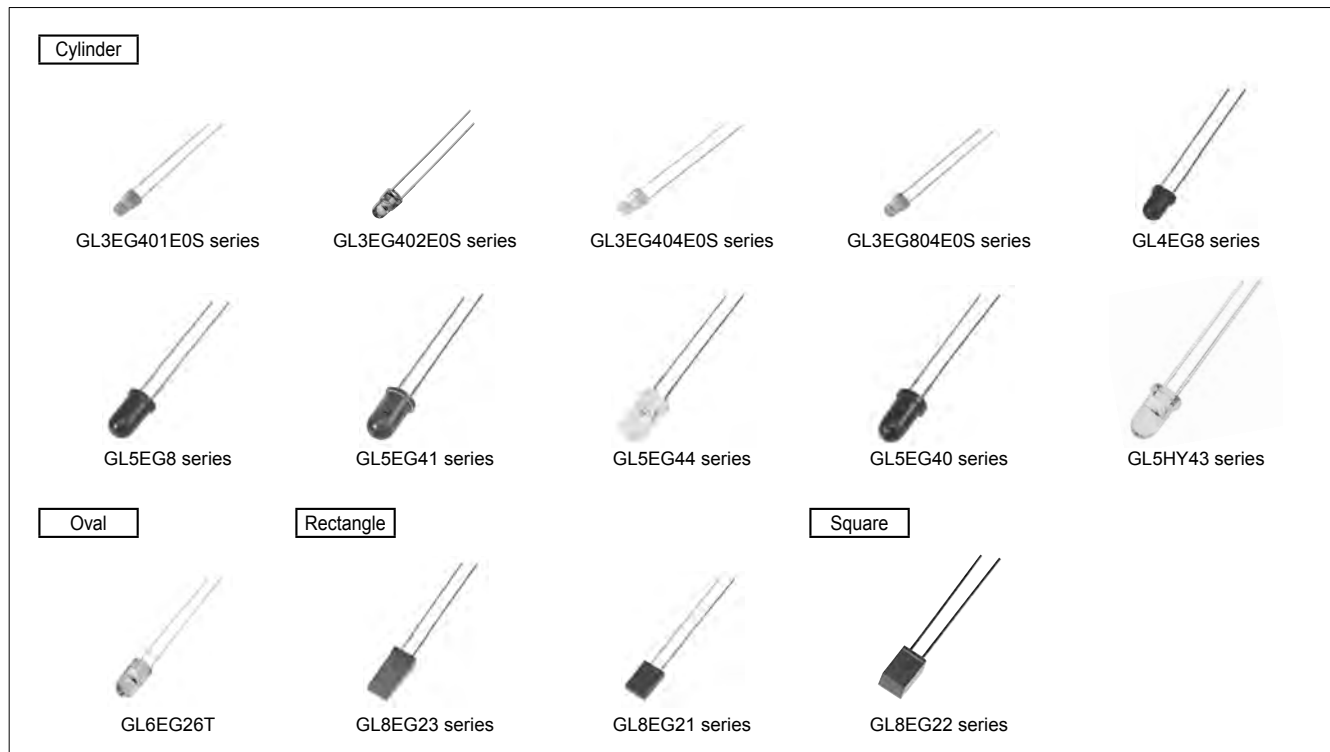
LED Lamps

(I_F = 20 mA, T_a = 25°C)

Appearance	Radiation shape (mm)	Resin type				JG Green		EG Yellow-green		HY Yellow		HS Sunset orange		HD Red	
		Colored diffusion	Colored transparency	Colorless transparency	Milky diffusion	(564 nm)	Luminous intensity (mcd) TYP.	(565 nm)	Luminous intensity (mcd) TYP.	(585 nm)	Luminous intensity (mcd) TYP.	(610 nm)	Luminous intensity (mcd) TYP.	(635 nm)	Luminous intensity (mcd) TYP.
		●	●	●	●										
Cylinder	ø3	●				GL3JG401E0S	80	GL3EG401E0S	80	GL3HY401E0S	60	GL3HS401E0S	60	GL3HD401E0S	60
			●			GL3JG402E0S	85	GL3EG402E0S	85	GL3HY402E0S	70	GL3HS402E0S	70	GL3HD402E0S	70
		●				GL3JG804E0S	40	GL3EG804E0S	40	GL3HY804E0S	30	GL3HS804E0S	30	GL3HD804E0S	30
			●			GL3JG404E0S	80	GL3EG404E0S	80	GL3HY404E0S	60	GL3HS404E0S	60	GL3HD404E0S	60
	ø4	●				GL4JG8	85	GL4EG8	100	GL4HY8	110	GL4HS8	80	GL4HD8	110
		●				GL5JG8	140	GL5EG8	150	GL5HY8	120	GL5HS8	80	GL5HD8	80
	ø5	●				GL5JG41	160	GL5EG41	160	GL5HY41	100	GL5HS41	100	GL5HD41	150
			●			GL5JG44	160	GL5EG44	160	GL5HY44	100	GL5HS44	100	GL5HD44	100
		●				-	-	GL5EG40	250	GL5HY40	250	GL5HS40	200	GL5HD40	250
			●			GL5JG43	360	GL5EG43	300	GL5HY43	250	GL5HS43	250	GL5HD43	300
Oval	Long: 5.8 Short: 4.6	●			-	-	GL6EG26T ^{*1}	140	-	-	-	-	-	-	
Rectangle	2.0 × 4.5	●			-	-	GL8EG23	6	GL8HY23	8	-	-	GL8HD23	6	
	2.0 × 5.0	●			GL8JG21	7	GL8EG21	8	GL8HY21	8	GL8HS21	8	GL8HD21	8	
Square	5.0 × 5.0	●			GL8JG22	8	GL8EG22	6	GL8HY22	5	GL8HS22	5	GL8HD22	8	

*1 With tie-bar

Taped model is also available.



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High-Luminosity (AlGaInP) Surface Mount LEDs (Taped Models Only)

(I_F = 20 mA, T_a = 25°C*³)

Outline dimensions (mm)	Resin type				JE		ZVJV		ZSJS		ZJJJ		ZRJR	
	Colored diffusion	Colored transparency	Colorless transparency	Milky diffusion	Yellow-green	Luminous intensity (mcd) TYP.	Amber	Luminous intensity (mcd) TYP.	Sunset orange	Luminous intensity (mcd) TYP.	Orange	Luminous intensity (mcd) TYP.	Red	Luminous intensity (mcd) TYP.
1.6 × 0.8 (t = 0.35)			●		GM1JE35200AE* ¹	13	GM1JV35200AE* ¹	18.8	GM1JS35200AE* ¹	19	GM1JJ35200AE* ¹	19	GM1JR35200AE* ¹	13
3.2 × 2.8 (t = 1.9)			●		-	-	GM5ZV96270A	600	-	-	-	-	GM5ZR96270A	600
6.0 × 5.0 (t = 2.5)			●		-	-	GM5ZV01200A* ²	500	GM5ZS01200A* ²	700	GM5ZJ01200A* ²	500	GM5ZR01200A* ²	400
6.0 × 5.0 (t = 2.3) (board insertion type)			●		-	-	GM5ZV03200Z* ²	500	GM5ZS03200Z* ²	700	GM5ZJ03200Z* ²	500	GM5ZR03200Z* ²	400

*¹ GM1JV35200AE series: I_F = 5 mA

*² GM5ZR01200A series, GM5ZR03200Z series: I_F = 60 mA

*³ GM5ZV96270A series, GM5ZV01200A series, GM5ZV03200Z series: T_c = 25°C

High-Luminosity (InGaN) Surface Mount LEDs (Taped Models Only)

(I_F = 10 mA, T_a = 25°C*⁴)

Outline dimensions (mm)	Resin type					BC		GC	
	Colored diffusion	Colored transparency	Colorless transparency	Milky diffusion	Blue	Luminous intensity (mcd) TYP.	Green	Luminous intensity (mcd) TYP.	
1.6 × 0.8 (t = 0.35)				●	GM1BC35372AC* ¹	35	GM1GC35370AC* ¹	80	
3.2 × 2.8 (t = 1.9)			●		GM5BC96270A* ²	500	GM5GC96270A* ²	1 300	
6.0 × 5.0 (t = 2.5)			●		GM5BC01250AC* ³	400	GM5GC01250AC* ³	1 200	
6.0 × 5.0 (t = 2.3) board insertion type			●		GM5BC03210Z* ³	400	GM5GC03210Z* ³	1 200	

*¹ GM1BC35372AC series: I_F = 5 mA

*² GM5BC96270A series: I_F = 20 mA

*³ GM5BC01250AC series, GM5BC03210Z series: I_F = 50 mA

*⁴ GM5BC96270A series, GM5BC01250AC series, GM5BC03210Z series: T_c = 25°C

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■ Surface Mount LEDs (Taped Models Only)

(If = 20 mA, Ta = 25°C)

Outline dimensions (mm)	Resin type				EG		HY		HS		HD	
	Colored diffusion	Colored transparency	Colorless transparency	Milky diffusion	Yellow-green	Luminous intensity (mcd) TYP.	Yellow	Luminous intensity (mcd) TYP.	Sunset orange	Luminous intensity (mcd) TYP.	Red	Luminous intensity (mcd) TYP.
1.6 × 0.8 (t = 0.55)			●		GM1EG55200A	19	GM1HY55200A	11.5	GM1HS55200A	11.4	GM1HD55200A	12.5

 GM1EG55200A series	 GM1JV35200AE series GM1BC35372AC GM1GC35370AC	 GM5ZV96270A series GM5BC96270A series
 GM5ZR01200A series GM5BC01250AC series	 GM5ZV03200Z series GM5BC03210Z series	 Taped model

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High-Luminosity White Surface Mount LEDs (Taped Models Only)

(Ta = 25°C*5)

Outline dimensions (mm)	Color coordinates (x, y) TYP.	BW			BN		
		White		Color temperature (K) TYP.	High rendering color		
		Luminous intensity (mcd) TYP.			Luminous intensity (mcd) TYP.	Color temperature (K) TYP.	
1.6 × 0.8 (t = 0.2)	(0.27, 0.23)	GM1BW20300A*1	50	–	–	–	
2.8 × 1.2 (t = 0.8) Side view type	(0.30, 0.29)	GM4BW853A0A*1	1 900	–	–	–	
		GM4BW853B0A*1	2 200	–	–	–	
3.85 × 1.0 (t = 0.6) Side view type	(0.30, 0.29)	GM4BW653A0A*1	1 900	–	–	–	
	(0.29, 0.28)	GM4BW653B0A*1	2 200	–	–	–	
3.85 × 1.0 (t = 0.5) Side view type	(0.30, 0.29)	GM4BW53340A*1	1 800	–	–	–	
3.2 × 2.8 (t = 1.9)	(0.31, 0.31)	☆GM5BW96381A*1	2 250	–	–	–	
	(0.338, 0.365)	☆GM5BW97330A*2	6 400	5 300	–	–	
	(0.312, 0.311)	☆GM5BW97332A*2	5 800	6 700	–	–	
	(0.283, 0.262)	☆GM5BW97333A*2	5 100	11 500	–	–	
3.2 × 2.8 (t = 1.4)	(0.3398, 0.3472)	–	–	–	☆GM5BN97330A*2,4	6 000 5 200	
3.2 × 2.8 (t = 1.4)	(0.32, 0.33)	☆GM5BW94370A*3	5 200	–	–	–	

*1 GM1BW20300A, GM4BW853A0A series, GM4BW653A0A series, GM4BN653C0A, GM4BW53340A, GM5BW96381A: If = 20 mA

*2 GM5BW97330A series, GM5BN97330A: If = 20 mA/chip

*3 GM5BW94370A: If = 25 mA/chip

*4 GM4BN653C0A and GM5BN97330A are high-NTSC-ratio products.

*5 GM5BW96381A, GM5BW97330A series, GM5BW94370A, GM5BN97330A: Tc = 25°C



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High-Luminosity Surface Mount LEDs (RGB 3-color) (Taped Models Only)

(Ta = 25°C*5)

Outline dimensions (mm)	Resin type				Luminous intensity (mcd) TYP.
	Colored diffusion	Colored transparency	Colorless transparency	Milky diffusion	
1.6 × 1.6 (t = 0.55)				●	GM1WA55311A*2
3.2 × 2.8 (t = 1.4)				●	GM5WA94310A*3
5.0 × 2.5 (t = 2.5)				●	GM4WA25300A*4
6.0 × 5.0 (t = 2.5) 6-terminal leadless				●	☆GM5WA06310A*1

WA

Red + Green + Blue

- *1 GM5WA06310A: If = 35 mA (Red), If = 40 mA (Green), If = 10 mA (Blue)
 *2 GM1WA55311A: If = 5 mA (Red, Green, Blue)
 *3 GM5WA94310A: If = 20 mA (Red), If = 20 mA (Green), If = 7 mA (Blue)
 *4 GM4WA25300A: If = 21 mA (Red), If = 25 mA (Green), If = 7 mA (Blue)
 *5 GM1WA55311A, GM5WA94310A, GM4WA25300A: Tc = 25°C



ZENIGATA LEDs for Lighting

<3.6W>

(If = 360 mA, Tc = 25°C)

Outline dimensions (mm)	Model No.	Color coordinates (x, y) TYP.	Color temperature (K) TYP.	Total luminous flux (lm) TYP.	Average color rendering index Ra TYP.
18.0 × 18.0 (t = 2.0)	☆GW5BQC15L02	(0.458, 0.410)	(2 725)	(160)	(85)
	GW5BDC15L02	(0.45, 0.41)	2 800	200	70
	☆GW5BTC15L02	(0.434, 0.403)	(3 045)	(190)	(85)
	☆GW5BRC15L02	(0.382, 0.380)	(3 985)	(180)	(94)
	GW5BWC15L02	(0.35, 0.36)	5 000	280	60
	GW5BNC15L02	(0.35, 0.35)	5 000	190	90
	GW5BNC15L12	(0.31, 0.32)	6 500	190	90

<6.7W>

(If = 640 mA, Tc = 25°C)

Outline dimensions (mm)	Model No.	Color coordinates (x, y) TYP.	Color temperature (K) TYP.	Total luminous flux (lm) TYP.	Average color rendering index Ra TYP.
18.0 × 18.0 (t = 2.0)	☆GW5BQF15L0B	(0.458, 0.410)	(2 725)	(300)	(85)
	GW5BDF15L00	(0.45, 0.41)	2 800	400	70
	☆GW5BTF15L0B	(0.434, 0.403)	(3 045)	(360)	(85)
	☆GW5BRF15L0B	(0.382, 0.380)	(3 985)	(340)	(94)
	GW5BWF15L00	(0.35, 0.36)	5 000	540	60
	GW5BNF15L00	(0.35, 0.35)	5 000	350	90
	GW5BNF15L10	(0.31, 0.32)	6 500	350	90

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☆New product
★Under development



■ Surface Mount LEDs for Lighting (Taped Models Only)

(I_F = 20 mA, T_c = 25°C)

Outline dimensions (mm)	Model No.	Color coordinates (x, y) TYP.	Color temperature (K) TYP.	Luminous intensity (mcd) TYP.	Average color rendering index Ra TYP.
3.2 × 2.8 (t = 1.9)	GM5BW96382A	(0.31, 0.31)	6 800	2 300	–
	GM5BW96385A	(0.34, 0.36)	5 200	2 300	–
	GM5BW96387A	(0.29, 0.28)	11 500	2 000	–
	☆GM5SAE27P0A	(0.4578, 0.4101)	(2 700)	(2 000)	(85)
	☆GM5SAE30P0A	(0.4338, 0.4030)	(3 000)	(1 900)	(85)
	☆GM5SAE35P0A	(0.4073, 0.3917)	(3 500)	(2 100)	(83)
	☆GM5SAE40P0A	(0.3818, 0.3797)	(4 000)	(2 100)	(83)
	☆GM5SAE45P0A	(0.3611, 0.3658)	(4 500)	(2 200)	(83)
	☆GM5SAE50P0A	(0.3447, 0.3553)	(5 000)	(2 200)	(83)
	☆GM5SAE57P0A	(0.3287, 0.3417)	(5 700)	(2 200)	(80)
	☆GM5SAE65P0A	(0.3123, 0.3282)	(6 500)	(2 200)	(80)
	GM5BN96385A	(0.34, 0.35)	(5 200)	1 500	(90)

■ Surface Mount LEDs for Lighting (RGB 3-color)

(I_F = 20 mA/chip, T_c = 25°C)

Outline dimensions (mm)	Model No.	Radiation color	Luminous intensity (mcd) TYP.
3.2 × 2.8 (t = 1.4)	★GM5WA94315A	Red	(680)
		Green	(1 500)
		Blue	(450)



GW5BWC15L02 series
GW5BWF15L00 series



GM5BW96382A series
GM5SAE27P0A series
GM5BN96385A



GM5WA94315A

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☆New product
★Under development



■ Laser Diodes




◆ Model Configurations

• For applications other than optical discs

Wavelength (nm)	Absolute maximum ratings (mW)*1	Package	
		 ø5.6 mm Metal type	 ø3.3 mm Metal type
660 band	10	–	GH06510F4A
785 band	10	GH07810C2K	–
	25	GH07825C2K	–

*1 The absolute maximum ratings are the limits that are not to be exceeded under any condition whatsoever, whether in testing or in actual use.

• For optical disc use*3

Wavelength (nm)	Absolute maximum ratings (mW)*1	Package		
		 ø5.6 mm Metal type	 ø3.3 mm Metal type	 1.8 mm t Resin type
405 band	20	GH04020A2G	GH04020A4G	–
	210*2	GH04P21A2G	–	–
	250*2	☆GH04P25A2G	☆GH04P25A4G	–
660 band	240*2	GH06P24A2C	–	GH16P24A8C
	350*2	–	–	GH16P35A8C
	400*2	–	–	☆GH16P40A8C
785 band	240*2	GH07P24C1C	GH07P24C4C	–
	280*2	★GH07P28F1C	★GH07P28F4C	–

*1 The absolute maximum ratings are the limits that are not to be exceeded under any condition whatsoever, whether in testing or in actual use.

*2 Optical power output MAX. (mW)

*3 New models for optical disc use are introduced frequently, and it is possible the model you wish to order may no longer be in production. Sample sales may not be available, either. We ask for your understanding in this matter.

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☆New product
★Under development



◆ Specifications

• Laser diodes lineup for applications other than optical discs

(T_c = 25°C)

Model No.	Wave-length (nm)	Absolute maximum ratings*1		Features	Applications	Terminal connections
		CW (Continuous wave)				
GH06510F4A	660 band	10		ø3.3 mm CAN package, operating temperature: 70°C MAX., with built-in monitor PD	Bar code reader, laser displacement gauge, etc.	A
GH07810C2K	785 band	10		ø5.6 mm CAN package, operating temperature: 60°C MAX., with built-in monitor PD	Printer, copier, complex machine	D
GH07825C2K		25		ø5.6 mm CAN package, operating temperature: 60°C MAX., with built-in monitor PD	Printer, copier, complex machine	

• Laser diodes lineup for optical disc use*2

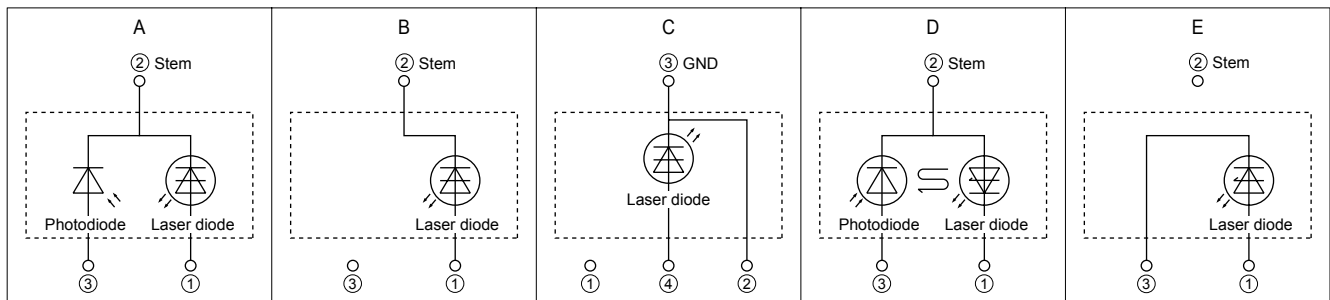
(T_c = 25°C)

Model No.	Wave-length (nm)	Absolute maximum ratings*1		Features	Applications	Terminal connections
		CW (Continuous wave)	Pulse			
GH04020A2G	405 band	20	—	ø5.6 mm CAN package, operating temperature: 70°C MAX.	Blu-ray disc playback	E
GH04020A4G		20	—	ø3.3 mm CAN package, operating temperature: 70°C MAX.	Blu-ray disc playback	E
GH04P21A2G		105	210	ø5.6 mm CAN package, operating temperature: 70°C MAX. (pulse drive)	Blu-ray disc recording	E
☆GH04P25A2G		125	250	ø5.6 mm CAN package, operating temperature: 80°C MAX. (pulse drive)	Blu-ray disc recording	E
☆GH04P25A4G		125	250	ø3.3 mm CAN package, operating temperature: 80°C MAX. (pulse drive)	Blu-ray disc recording	E
GH06P24A2C	660 band	100	240	ø5.6 mm CAN package, operating temperature: 75°C MAX. (pulse drive)	Double-layer DVD 4× writing	B
GH16P24A8C		100	240	1.8 mm frame package, operating temperature: 80°C MAX. (pulse drive)	Double-layer DVD 4× writing	C
GH16P35A8C		125	350	1.8 mm frame package, operating temperature: 80°C MAX. (pulse drive)	Double-layer DVD 8× to 16× recording	
☆GH16P40A8C		135	400	1.8 mm frame package, operating temperature: 80°C MAX. (pulse drive)	Double-layer DVD 8× to 16× recording	
GH07P24C1C	785 band	120	240	ø5.6 mm CAN package, operating temperature: 75°C MAX. (pulse drive)	CD-R/RW (MAX. 48× to 52× writing)	B
★GH07P28F1C		150	280	ø5.6 mm CAN package, operating temperature: 80°C MAX. (pulse drive)	CD-R/RW (MAX. 48× to 52× writing)	
GH07P24C4C		120	240	ø3.3 mm CAN package, operating temperature: 75°C MAX. (pulse drive)	CD-R/RW (H/H, slim dual-purpose) (MAX. 48× to 52× writing)	
★GH07P28F4C		150	280	ø3.3 mm CAN package, operating temperature: 80°C MAX. (pulse drive)	CD-R/RW (H/H, slim dual-purpose) (MAX. 48× to 52× writing)	

*1 The absolute maximum ratings are the limits that are not to be exceeded under any condition whatsoever, whether in testing or in actual use. For recommended optical power output, consult the specification sheet or data sheet for each model.

*2 New models for optical disc use are introduced frequently, and it is possible the model you wish to order may no longer be in production. Sample sales may not be available, either. We ask for your understanding in this matter.

• Terminal Connections



Notice

In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc.

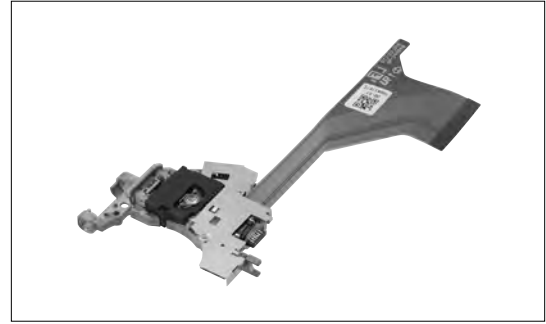
Except where specially indicated, models listed on this page comply with the RoHS Directive*. For details, please contact SHARP. *RoHS Directive: Prohibits use of lead, cadmium, hexavalent chromium, mercury and specific brominated flame retardants (PBBs and PBDEs), with certain exceptions.

Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.

■ Slim Combo Drive Pickup <DD-57>

◆ Features

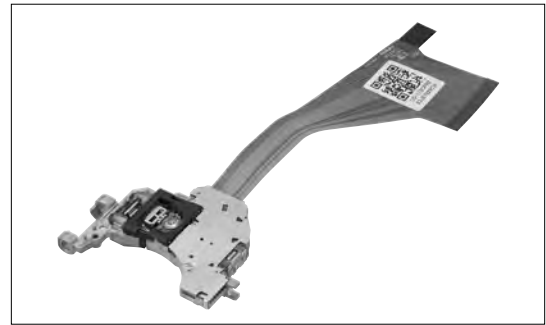
- Thin type pickup compatible with half-inch-height drive (12.7 mm thickness)
- Playback speed: 8× (DVD-ROM), 24× (CD-ROM)
- Recording speed: 24× (CD-R), 24× (CD-RW)
- DVD-RAM readable
- Outline dimensions: W 38.6 × H 7.3 × D 48.7 (mm)
- Weight: Approx. 11 g



■ Slim DVD Super-Multi Drive Pickup <DD-115>

◆ Features

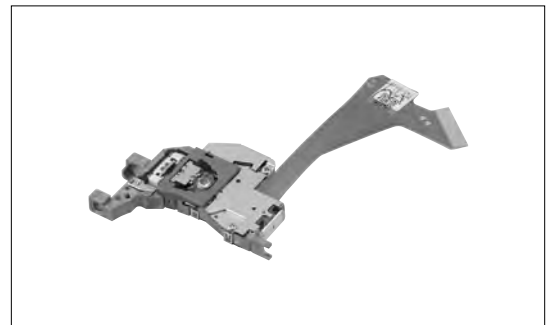
- Thin type pickup compatible with half-inch-height drive (12.7 mm thickness)
- Playback speed: 8× (DVD-ROM), 24× (CD-ROM)
- Recording speed: 8× (DVD±R, +RW, ±R/+RW(DL))
6× (DVD-RW, -RW(DL))
5× (DVD-RAM)
24× (CD-R/RW)
- Outline dimensions: W 35.6 × H 7.3 × D 48.7 (mm)
- Weight: Approx. 13.5 g



■ DVD Pickup for Automotive Use <HPD-61>

◆ Features

- Compact, thin (7.3 mm) pickup
- Playable disk: DVD-ROM, CD-ROM
- Operating temperature: -20 to +80°C
- Outline dimensions: W 30.2 × H 7.3 × D 48.7 (mm)
- Weight: Approx. 13.5 g



Notice

In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.