

Super-luminosity LED Lamps/ High-luminosity LED Lamps/ LED Lamps

SHARP ELEK/ MELEC DIV

17E D

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T-4/-21

Absolute Maximum Ratings

(Ta=25°C)

Series	Power dissipation P (mW)	Continuous forward current I _F (mA)	Peak forward current* I _{FM} (mA)	Derating factor (mA/°C)		Reverse voltage V _R (V)	Operating temperature T _{opr} (°C)	Storage temperature T _{stg} (°C)
				DC	Pulse			
UR	75	30	50	0.40	0.67	4	-25~+85	-25~+100
LR	110	50	300	0.67	4.00	5	-25~+85	-25~+100
TR	110	50	300	0.67	4.00	5	-25~+85	-25~+100
PR (GL8PR25)	23 (48)	10 (20)	50 (50)	0.13 (0.27)	0.67 (0.67)	5 (5)	-25~+85 (-25~+85)	-25~+100 (-25~+100)
HD	84	30	50	0.40	0.67	5	-25~+85	-25~+100
HS	84	30	50	0.40	0.67	5	-25~+85	-25~+100
HY	84	30	50	0.40	0.67	5	-25~+85	-25~+100
PY	84	30	50	0.40	0.67	5	-25~+85	-25~+100
EG	84	30	50	0.40	0.67	5	-25~+85	-25~+100
NG	84	30	50	0.40	0.67	5	-25~+85	-25~+100
KG	84	30	50	0.40	0.67	5	-25~+85	-25~+100
PG	84	30	50	0.40	0.67	5	-25~+85	-25~+100

* Duty ratio 1/10, Pulse width 0.1ms

Electro-optical Characteristics

(Ta=25°C)

Series	Forward voltage		Peak emission wavelength	Spectrum radiation bandwidth	Conditions I _F (mA)	Reverse current	Conditions V _R (V)	Terminal capacitance*
	V _F (V)		λ _P (nm)	Δλ(nm)		I _R (μA)		Ct(pF)
	TYP.	MAX.	TYP.	TYP.		MAX.		TYP.
UR	1.85	2.5	660	20	20	100	3	25
LR	1.75	2.2	660	20	20	10	4	30
TR	1.75	2.2	660	20	20	10	4	30
PR (GL8PR25)	1.9 (2.0)	2.3 (2.4)	695 (695)	100 (100)	5 (10)	10 (10)	4 (4)	55 (55)
HD	2.0	2.8	635	35	20	10	4	20
HS	2.0	2.8	610	35	20	10	4	15
HY	2.0	2.8	585	30	20	10	4	35
PY	2.1	2.8	568	30	20	10	4	35
EG	2.1	2.8	565	30	20	10	4	35
NG	2.1	2.8	565	30	20	10	4	35
KG	2.1	2.8	555	25	20	10	4	40
PG	2.1	2.8	555	25	20	10	4	40

* V=0V, f=1MHz

Super-luminosity LED Lamps/ High-luminosity LED Lamps

T-41-23
T-41-21

SHARP ELEK/ MELEC DIV

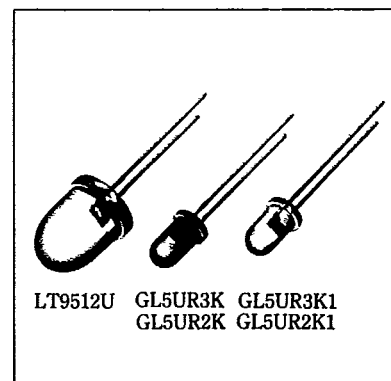
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Sharp GaAlAs super-luminosity LED lamp, UR series has been realized by our unique crystal growing technology and optical design technology. It provides the highest level of luminous intensity in the industry. In addition to the UR series, we also offer you high-luminosity LR series and TR series. These series have expanded their application range and become more suitable for use in electric information board, car equipment and road signs, etc.

Super-luminosity LED Lamps Line-up

Appearance	Radiation shape (mm)	Lens type					UR, U Red		Viewing angle* 2θ ½(°)	Outline dimensions (Fig.)
		Colored diffusion	Colored transparency	Colorless transparency	Milky diffusion	Model No.	Luminous intensity (mcd)			
							MIN.	TYP.		
Cylinder	5φ		●			GL5UR2K	1400	2000	12	6
				●		GL5UR2K1	1400	2000	12	
			●			GL5UR3K	2400	3000	12	
				●		GL5UR3K1	2400	3000	12	
			●			GL5UR46	250	400	30	7
				●		GL5UR2K6	1400	2000	12	38
	10φ			●		LT9512U	4000	5000	15	37
		●				LT9562U	700	1400	20	



High-luminosity LED Lamps Line-up

Appearance	Radiation shape (mm)	Lens type				LR, L Red			TR, T Red			Viewing angle* 2 θ ½ (°)	Outline dimensions (Fig.)
		Colored diffusion	Colored transparency	Colorless transparency	Milky diffusion	Model No.	Luminous intensity (mcd)		Model No.	Luminous intensity (mcd)			
							MIN.	TYP.		MIN.	TYP.		
Cylinder	3φ	●				GL3LR8	70	140	GL3TR8	30	60	40	1
				●					GL3TR44	45	110	40	
		●			GL3LR43	20	40	GL3TR43	10	20	80	2	
	3φ (Inverted cone)		●			GL3LR47	7	14	GL3TR47	2.5	5	110	3
	5φ	●				GL5LR8	100	200	GL5TR8	40	80	30	5
			●			GL5LR41	170	340				20	
				●		GL5LR44	170	340				20	
			●			GL5LR40	600	1200				12	6
				●		GL5LR43	600	1200	GL5TR43	200	500	12	
			●			GL5LR42	80	160				25	7
			●			GL5LR48	170	340				20	8
				●		GL5LR49	170	340				20	
	5φ (Inverted cone)		●			GL5LR47	5	17	GL5TR47	2	4	110	9
	7.5φ			●		LT9550L	200	400				25	36
		●				LT9552L	80	200				25	
	10φ			●		LT9560L	2000	4000	LT9560T	1000	2000	15	37
Arch	2.0×5.0	●				GL8LR2	25	50	GL8TR2	10	25	—	15
Rectangle	1.0×5.0	●							GL8TR24	2	5	—	16
	2.0×4.5	●							GL8TR23	2	5	—	24
	2.0×5.0	●							GL8TR21	1.5	4	—	25
Square	5.0×5.0	●							GL8TR22	2	5	—	32

* The inclination of 50%, termed the "half-value" angle, indicated as "2θ 1/2" on both sides, is employed as guide values for beam divergence.

LED Lamps

■ LED lamps Line-up

Appearance	Radiation shape (mm)	Lens type				PR Red	HD Red	HS Sunset orange	HY Yellow	PY Lemon yellow	EG Yellow-green (HL)*	NG Yellow-green	KG Green (HL)*	PG Green	Remarks	Outline dimensions (Fig.)
		Colored diffusion	Colored transparency	Colorless transparency	Milky diffusion											
Cylinder	3φ	●				GL3PR8	GL3HD8	GL3HS8	GL3HY8	GL3PY8	GL3EG8	GL3NG8	GL3KG8	GL3PG8		1
					●		GL3HD18						GL3KG18			
				●		GL3PR44	GL3HD44	GL3HS44	GL3HY44	GL3PY44	GL3EG44	GL3NG44	GL3KG44	GL3PG44		
		3φ (Inverted cone)	●			GL3PR43	GL3HD43	GL3HS43	GL3HY43	GL3PY43	GL3EG43	GL3NG43	GL3KG43	GL3PG43	Point radiation	2
			●			GL3PR47	GL3HD47	GL3HS47	GL3HY47	GL3PY47	GL3EG47	GL3NG47	GL3KG47	GL3PG47	For backlight	3
	4φ	●				GL4PR8	GL4HD8	GL4HS8	GL4HY8		GL4EG8	GL4NG8		GL4PG8		4
	5φ	●				GL5PR8	GL5HD8	GL5HS8	GL5HY8	GL5PY8	GL5EG8	GL5NG8	GL5KG8	GL5PG8		5
		●				GL5PR41	GL5HD41	GL5HS41	GL5HY41	GL5PY41	GL5EG41	GL5NG41	GL5KG41	GL5PG41	For backlight	
				●		GL5PR44	GL5HD44	GL5HS44	GL5HY44	GL5PY44	GL5EG44	GL5NG44	GL5KG44	GL5PG44		
		●				GL5PR40	GL5HD40	GL5HS40	GL5HY40		GL5EG40	GL5NG40		GL5PG40		6
				●			GL5HD43	GL5HS43	GL5HY43		GL5EG43	GL5NG43		GL5PG43	High directivity	
		●				GL5PR42	GL5HD42	GL5HS42	GL5HY42	GL5PY42	GL5EG42	GL5NG42	GL5KG42	GL5PG42	For backlight	7
				●		GL5PR45	GL5HD45	GL5HS45	GL5HY45	GL5PY45	GL5EG45	GL5NG45	GL5KG45	GL5PG45	For backlight	
		●				GL5PR46							GL5KG46			8
		●									GL5EG48					
				●							GL5EG49					
			5φ (Inverted cone)	●			GL5PR47	GL5HD47	GL5HS47	GL5HY47	GL5PY47	GL5EG47	GL5NG47	GL5KG47	GL5PG47	For backlight
Convex	1.6φ	●				GL2PR7			GL2HY7			GL2NG7				10
		●				GL2PR9			GL2HY9			GL2NG9				11
	2φ	●				GL2PR1			GL2HY1			GL2NG1		GL2PG1		12
		●				GL2PR2										13
		●				GL2PR6	GL2HD6	GL2HS6	GL2HY6		GL2EG6	GL2NG6		GL2PG6		14
Arch	2.0×5.0	●				GL8PR2	GL8HD2	GL8HS2	GL8HY2		GL8EG2	GL8NG2		GL8PG2		15
Rectangle	1.0×5.0	●				GL8PR24	GL8HD24	GL8HS24	GL8HY24	GL8PY24	GL8EG24	GL8NG24	GL8KG24	GL8PG24		16
	1.2×5.9	●				GL8PR27	GL8HD27	GL8HS27	GL8HY27		GL8EG27	GL8NG27		GL8PG27		17
	1.5×2.8		●				GL8HD1		GL8HY1			GL8NG1		GL8PG1		18
	1.5×3.9	●				GL9PR10	GL9HD10		GL9HY10		GL9EG10	GL9NG10				19
	1.5×4.5	●				GL9PR25			GL9HY25		GL9EG25	GL9NG25				20
	1.8×3.9	●				GL9PR22	GL9HD22		GL9HY22		GL9EG22	GL9NG22				21
	1.9×3.9		●			GL8PR5	GL8HD5	GL8HS5	GL8HY5		GL8EG5	GL8NG5		GL8PG5		22
	2.0×3.2		●			GL8PR25	GL8HD25	GL8HS25	GL8HY25	GL8PY25	GL8EG25	GL8NG25	GL8KG25	GL8PG25		23
		●				GL8PR29										
	2.0×4.5	●				GL8PR23	GL8HD23	GL8HS23	GL8HY23		GL8EG23	GL8NG23		GL8PG23		24
	2.0×5.0	●				GL8PR21	GL8HD21	GL8HS21	GL8HY21	GL8PY21	GL8EG21	GL8NG21	GL8KG21	GL8PG21		25
				●		GL8PR31			GL8HY31					GL8PG31		
		●				GL8PR26	GL8HD26	GL8HS26	GL8HY26		GL8EG26	GL8NG26		GL8PG26		26
	2.5×5.0	●				GL8PR7	GL8HD7	GL8HS7	GL8HY7		GL8EG7	GL8NG7		GL8PG7		27
	2.5×6.0	●				GL8PR9	GL8HD9	GL8HS9	GL8HY9		GL8EG9	GL8NG9				28
	2.0×1.5×2pcs	●				GL8PR40	GL8HD40	GL8HS40	GL8HY40		GL8EG40	GL8NG40		GL8PG40	Two radiation chips	29
	1.9×1.9×2pcs	●				GL9PR41			GL9HY41			GL9NG41			Two radiation chips	30
Square	3.0×3.0	●				GL8PR48	GL8HD48	GL8HS48	GL8HY48		GL8EG48	GL8NG48		GL8PG48		31
	5.0×5.0	●				GL8PR22	GL8HD22	GL8HS22	GL8HY22	GL8PY22	GL8EG22	GL8NG22		GL8PG22		32
Triangle	Isosceles triangle	●				GL8PR28	GL8HD28	GL8HS28	GL8HY28	GL8PY28	GL8EG28	GL8NG28	GL8KG28	GL8PG28		33
	Equilateral triangle	●				GL8PR49	GL8HD49	GL8HS49	GL8HY49		GL8EG49	GL8NG49		GL8PG49		34
		●				GL9PR3			GL9HY3		GL9EG3	GL9NG3		GL9PG3		35

* HL: High-luminosity

LED Lamps

T-4123

T-4121

LED Lamps Luminous Intensity

Radiation shape (mm)	Series	Radiation color Iv (mcd)		PR Red		HD Red		HS Sunset orange		HY Yellow	
		MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.
3φ	GL3□□8	2.5	8	10	40	15	40	10	60		
	GL3□□18	—	—	10	40	—	—	—	—		
	GL3□□44	6	12	45	110	40	100	40	100		
	GL3□□43	1	3	7	25	7	25	7	25		
3φ (Inverted cone)	GL3□□47	0.4	1.5	2.5	10	1.5	10	2	10		
4φ	GL4□□8	4	15	40	110	15	110	30	110		
5φ	GL5□□8	4.5	15	20	80	15	80	25	120		
	GL5□□41	5	15	25	150	30	150	30	150		
	GL5□□44	5	15	40	150	30	150	25	150		
	GL5□□40	10	35	50	300	50	300	65	350		
	GL5□□43	—	—	100	300	120	250	100	300		
	GL5□□42	3.5	12	30	120	20	100	20	120		
	GL5□□45	3.5	12	30	120	20	100	20	100		
	GL5□□46	4	12	—	—	—	—	—	—		
	GL5□□48	—	—	—	—	—	—	—	—		
	GL5□□49	—	—	—	—	—	—	—	—		
5φ (Inverted cone)	GL5□□47	0.3	1.5	2.5	12	2	12	1.5	12		
1.6φ (Convex)	GL2□□7	0.2	0.5	—	—	—	—	0.5	1.5		
	GL2□□9	0.2	0.5	—	—	—	—	0.5	1.5		
2φ (Convex)	GL2□□1	0.09	0.3	—	—	—	—	0.1	0.35		
	GL2□□2	0.09	0.3	—	—	—	—	—	—		
	GL2□□6	0.5	2	4	15	3	15	3	15		
2.0×5.0 (Arch)	GL8□□2	1.3	5	7	35	7	30	4	40		
1.0×5.0	GL8□□24	0.4	1.5	2.5	9	2	8	3	12		
1.2×5.9	GL8□□27	0.3	1	2	7	1.5	6	1.5	8		
1.5×2.8	GL8□□1	—	—	2.5	10	—	—	1.5	10		
1.5×3.9	GL9□□10	0.1	0.25	0.5	1.2	—	—	0.17	0.5		
1.5×4.5	GL9□□25	0.1	0.25	—	—	—	—	0.15	0.5		
1.8×3.9	GL9□□22	0.1	0.3	0.5	1.2	—	—	0.17	0.4		
1.9×3.9	GL8□□5	0.9	3	5	25	5	25	2.5	30		
2.0×3.2	GL8□□25	0.7	1.8	4	15	3	15	3	10		
	GL8□□29	1	2	—	—	—	—	—	—		
2.0×4.5	GL8□□23	0.3	1	2	8	1.5	8	1.5	8		
2.0×5.0	GL8□□21	0.3	0.7	3	8	3	8	3	8		
	GL8□□31	0.3	0.7	—	—	—	—	3	8		
	GL8□□26	0.3	0.7	2	8	1.5	3	1.5	8		
2.5×5.0	GL8□□7	0.3	1	1.5	7	1.5	6	0.7	8		
2.5×6.0	GL8□□9	0.3	1	1.5	9	1.5	7	1.5	9		
2.0×1.5×2 pcs.	GL8□□40	0.3	1	2	8	1.7	7	2	8		
1.9×1.9×2 pcs.	GL9□□41	0.2	1	—	—	—	—	0.4	8		
3.0×3.0 (Square)	GL8□□48	0.35	1.2	2	10	2	10	2.5	10		
5.0×5.0 (Square)	GL8□□22	0.6	1.2	2	8	1.5	7	1.5	3.5		
Isosceles triangle	GL8□□28	0.15	0.5	1	2	2	10	0.2	0.6		
Equilateral triangle	GL8□□49	0.3	1	2	10	2	10	2.5	12		
	GL9□□3	0.3	0.8	—	—	—	—	0.6	2		

* HL: High-luminosity

Note) □□ indicates radiation color symbol.

PY Lemon yellow		EG Yellow-green (HL)*		NG Yellow-green		KG Green (HL)*		PG Green		Series
MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	MIN.	TYP.	
40	80	20	80	6	3.5	16	30	4	20	GL3□□8
—	—	—	—	—	—	16	30	—	—	GL3□□18
80	130	80	130	25	60	30	60	15	40	GL3□□44
20	35	10	20	5	20	8	20	2	10	GL3□□43
5	15	5	15	1.5	5	2	5	0.85	3.5	GL3□□47
—	—	40	100	10	40	—	—	5	40	GL4□□8
60	150	30	150	15	60	25	60	8	40	GL5□□8
120	200	50	160	25	90	30	70	10	50	GL5□□41
120	200	50	160	25	90	30	70	10	50	GL5□□44
—	—	100	300	50	150	—	—	25	90	GL5□□40
—	—	100	400	80	200	—	—	20	140	GL5□□43
80	130	40	120	15	60	20	50	6	35	GL5□□42
80	130	40	120	15	60	20	50	6	35	GL5□□45
—	—	—	—	—	—	25	50	—	—	GL5□□46
—	—	100	200	—	—	—	—	—	—	GL5□□48
—	—	100	200	—	—	—	—	—	—	GL5□□49
3	7	4.5	15	1.5	8	2	4	0.3	4.5	GL5□□47
—	—	—	—	0.7	1.6	—	—	—	—	GL2□□7
—	—	—	—	0.7	1.6	—	—	—	—	GL2□□9
—	—	—	—	0.5	1.7	—	—	0.09	0.3	GL2□□1
—	—	—	—	—	—	—	—	—	—	GL2□□2
—	—	6	15	1.5	6	—	—	1	5	GL2□□6
—	—	10	50	6	20	—	—	2.5	15	GL8□□2
4	12	4	12	1.5	6	2	5	0.6	3.5	GL8□□24
—	—	2.5	4	0.8	2	—	—	0.4	2	GL8□□27
—	—	—	—	2.5	7	—	—	1	4	GL8□□1
—	—	3	5	0.4	1	—	—	—	—	GL9□□10
—	—	1.5	3.5	0.4	1	—	—	—	—	GL9□□25
—	—	1.5	3.5	0.4	1	—	—	—	—	GL9□□22
—	—	9	40	5	20	—	—	2	10	GL8□□5
10	20	5	20	2	9	3.5	7	1	6	GL8□□25
—	—	—	—	—	—	—	—	—	—	GL8□□29
—	—	2	6	0.6	3	—	—	0.4	2.5	GL8□□23
5	10	4	8	0.8	3	1.6	4	0.8	2.5	GL8□□21
—	—	—	—	—	—	—	—	0.8	2.5	GL8□□31
—	—	2	8	0.8	3	—	—	0.4	2.5	GL8□□26
—	—	2	8	1	4	—	—	0.5	2.5	GL8□□7
—	—	1	4	0.5	2	—	—	0.4	2	GL8□□9
—	—	2.5	6	1	3.5	—	—	0.6	3	GL8□□40
—	—	—	—	0.8	3	—	—	—	—	GL9□□41
—	—	2.5	12	1	5	—	—	0.6	3	GL8□□48
2	6	2	6	0.8	3	—	—	0.4	2.5	GL8□□22
2	6	2.5	6.5	0.3	1.5	2	6	0.15	0.6	GL8□□28
—	—	2.5	12	1	4	—	—	0.6	3.5	GL8□□49
—	—	2	4	0.7	1.8	—	—	0.15	0.5	GL9□□3

UR/LR/TR Series

SHARP ELEK/ MELEC DIV

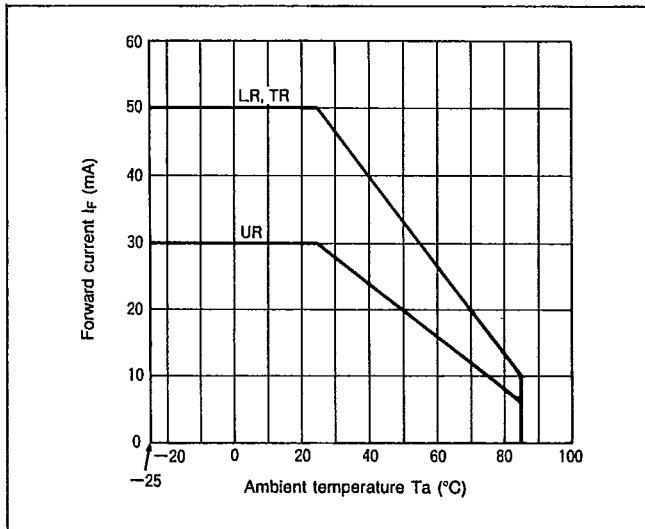
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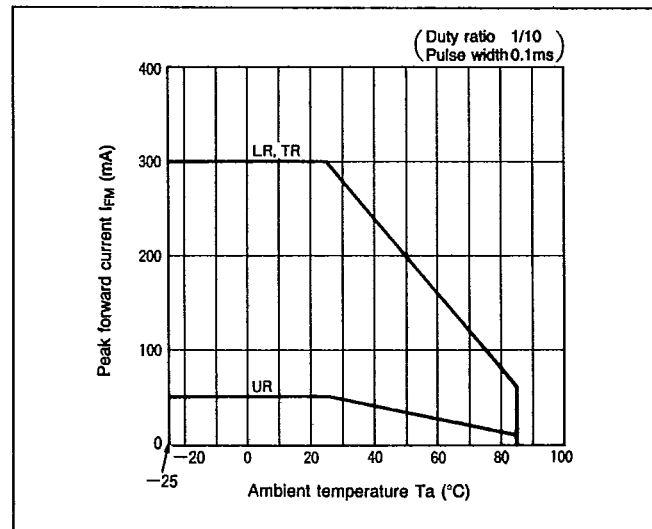
Super-luminosity LED Lamps/
High-luminosity LED Lamps/
Characteristics Diagrams

T-41-23
T-41-21

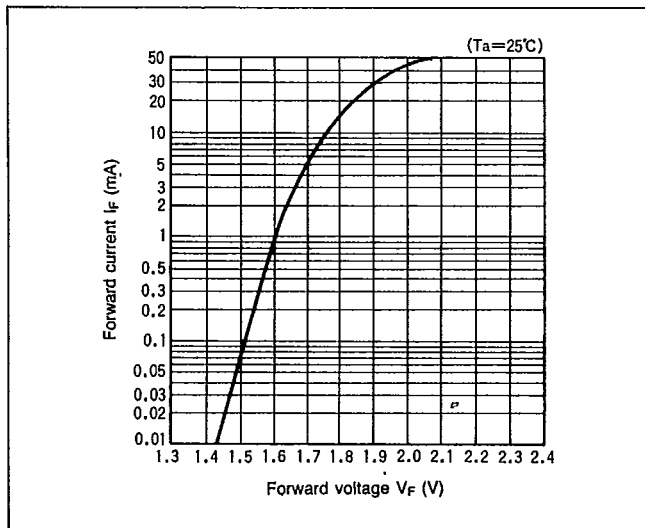
Forward current derating curve



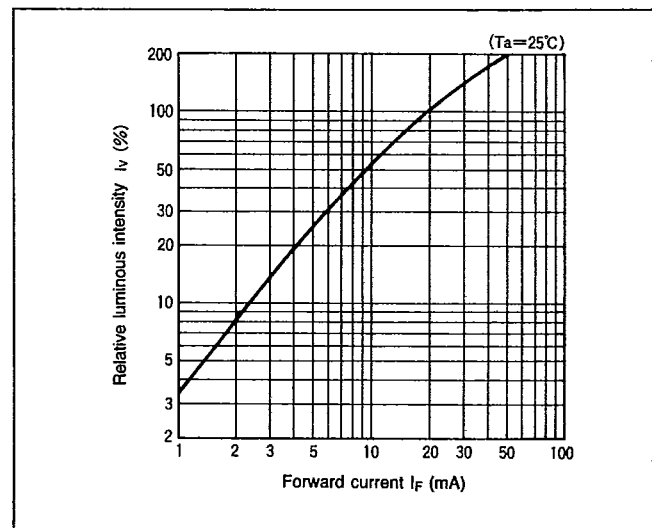
Peak forward current derating curve



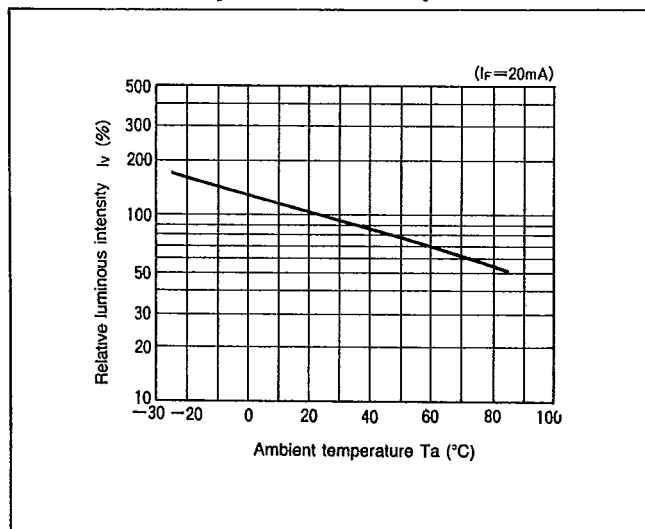
Forward current vs. forward voltage



Luminous intensity vs. forward current



Luminous intensity vs. ambient temperature



PR Series

SHARP ELEK/ MELEC DIV

17E D



8180798

0003600 7

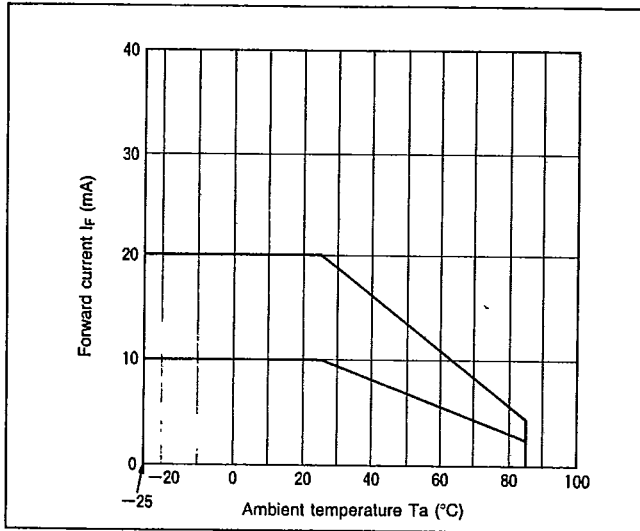


T-41-23

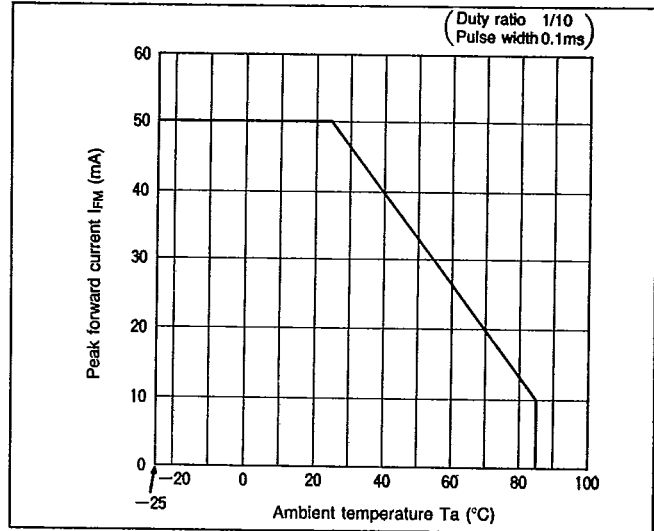
T-41-21

LED Lamps Characteristics Diagrams

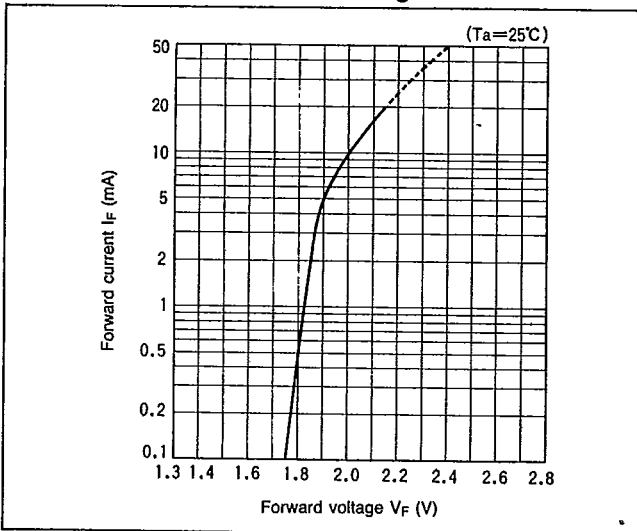
Forward current derating curve



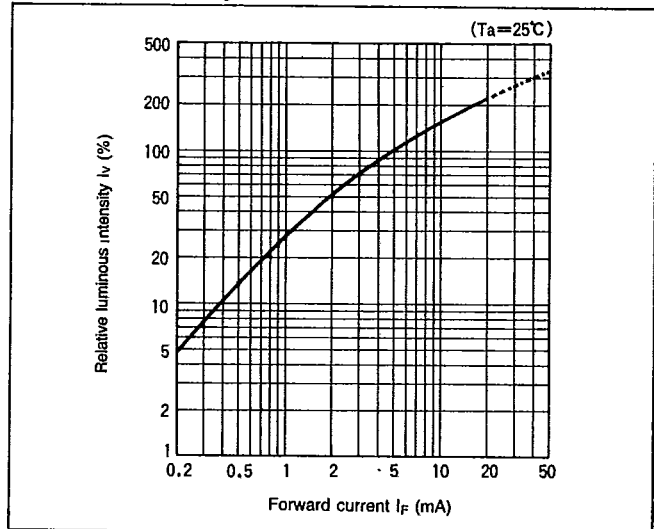
Peak forward current derating curve



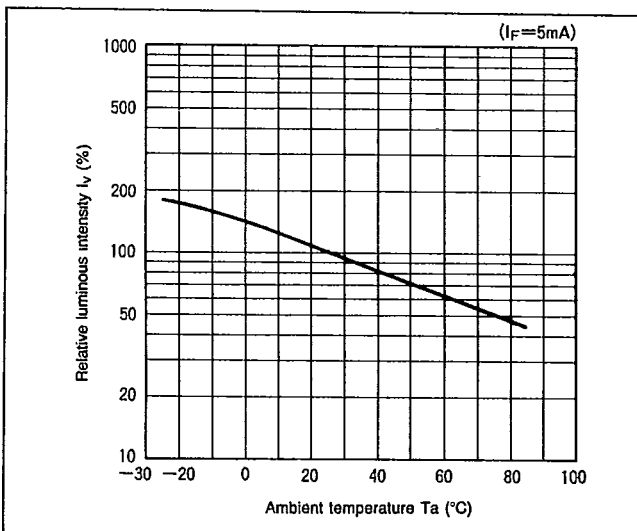
Forward current vs. forward voltage



Luminous intensity vs. forward current



Luminous intensity vs. ambient temperature



HD Series

SHARP ELEK/ MELEC DIV

17E D

8180798

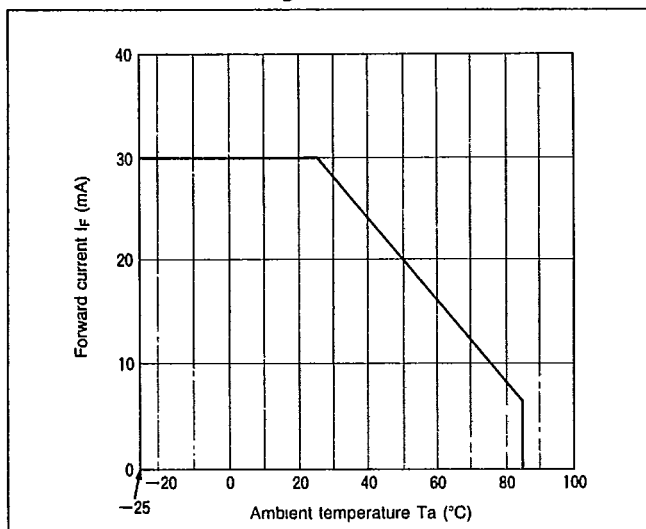
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T-41-23

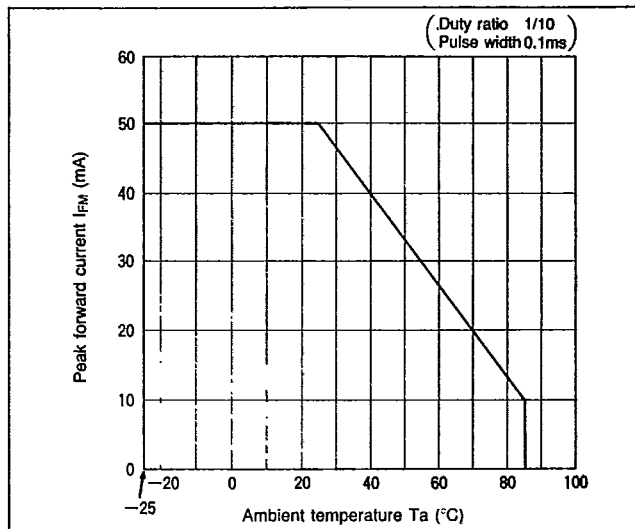
LED Lamps Characteristics Diagrams

T-41-21

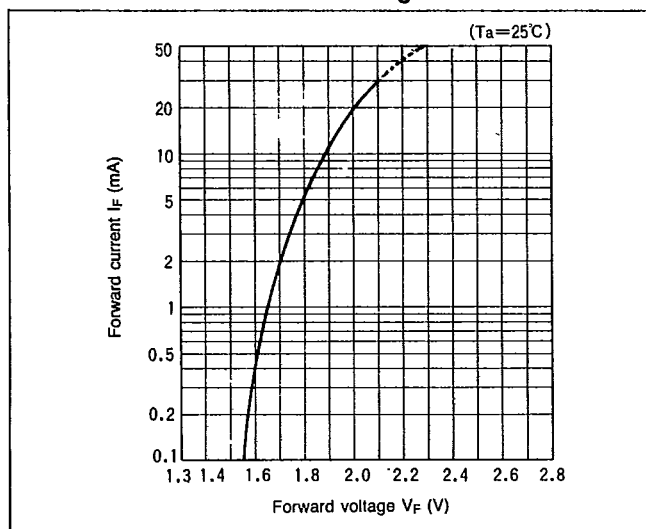
Forward current derating curve



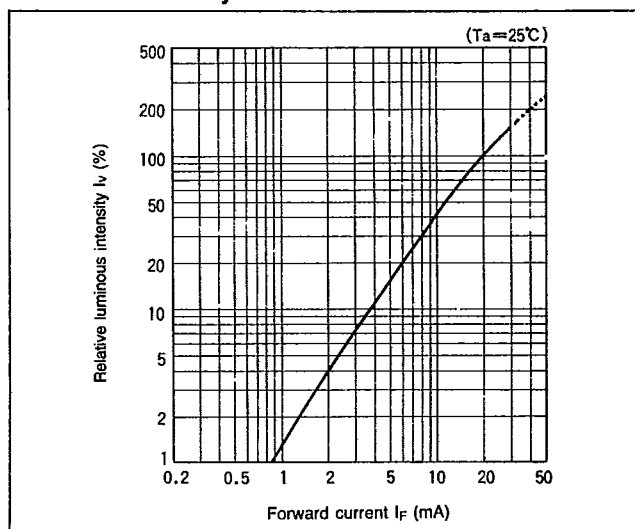
Peak forward current derating curve



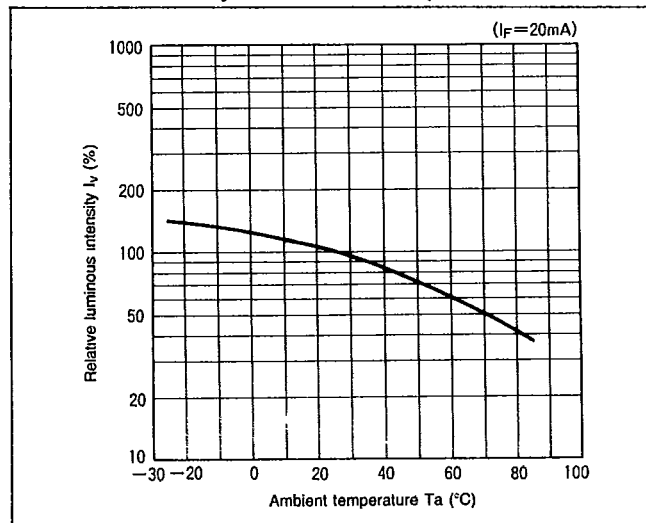
Forward current vs. forward voltage



Luminous intensity vs. forward current



Luminous intensity vs. ambient temperature



HS Series

SHARP ELEK/ MELEC DIV

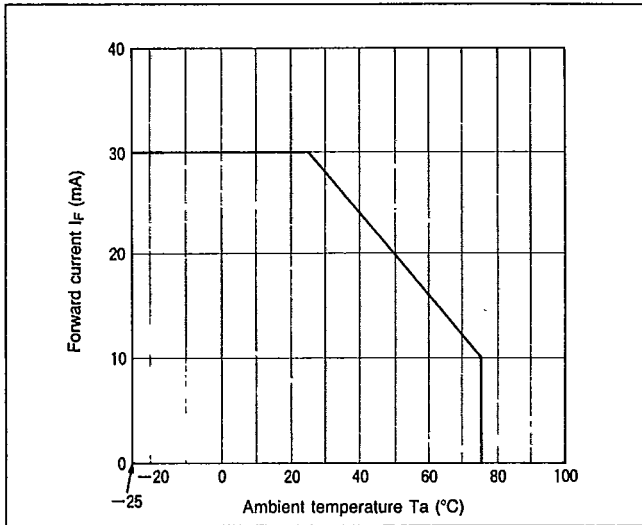
17E D

8180798 0003602 0

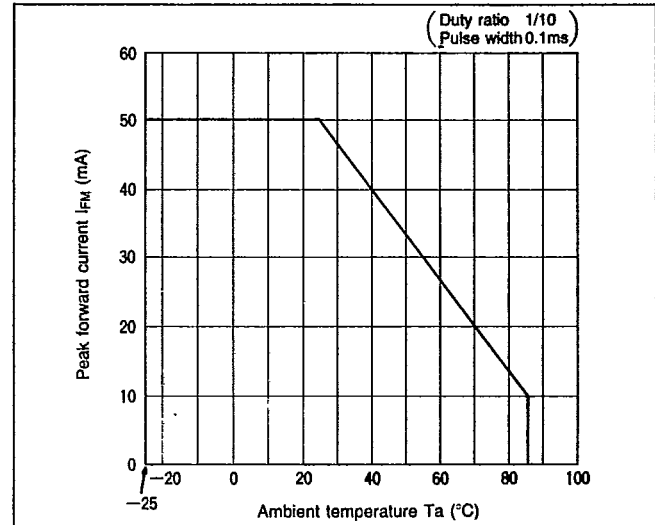
LED Lamps Characteristics Diagram

T-41-23
T-41-21

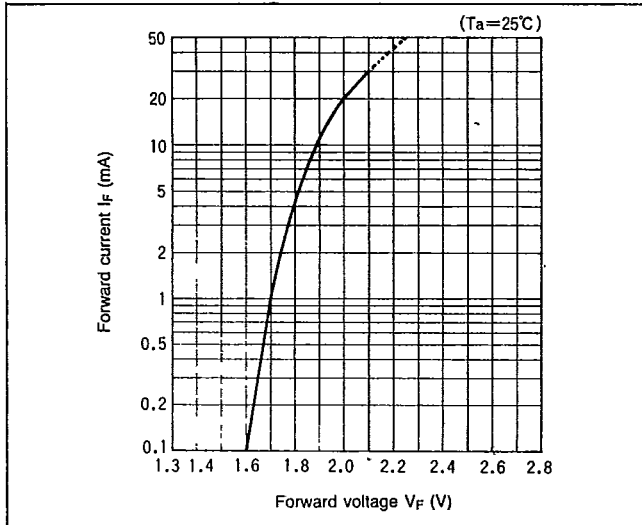
Forward current derating curve



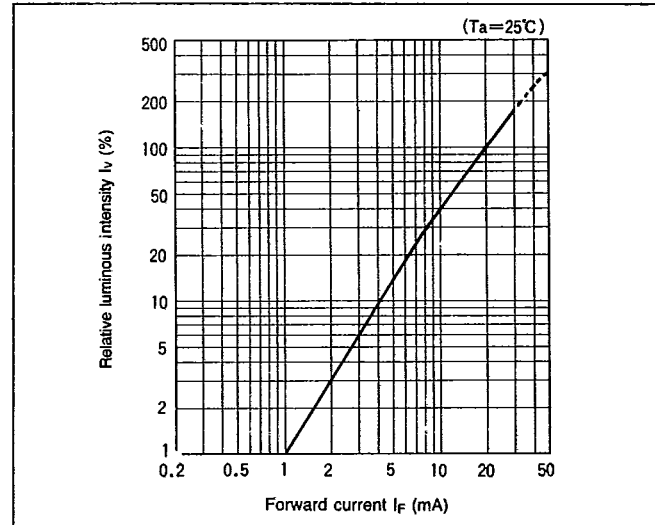
Peak forward current derating curve



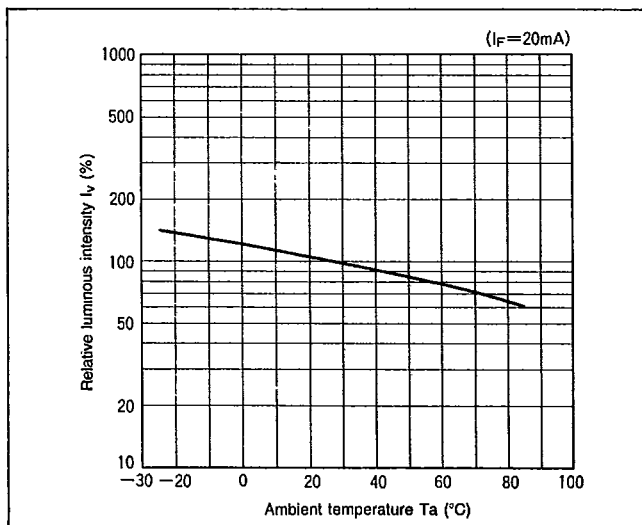
Forward current vs. forward voltage



Luminous intensity vs. forward current



Luminous intensity vs. ambient temperature



HY Series

LED Lamps Characteristics Diagrams

SHARP ELEK/ MELEC DIV

17E D



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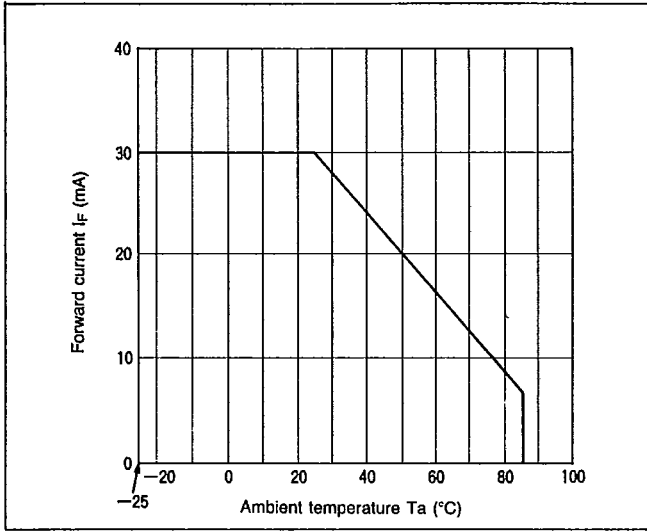
0003603 2



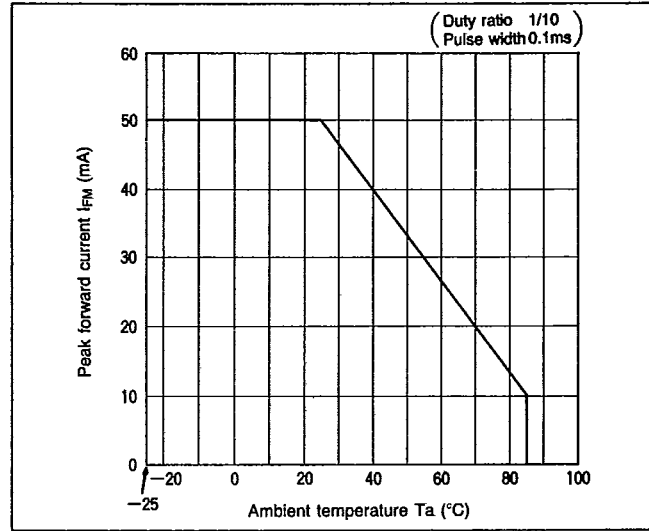
T-41-23

T-41-21

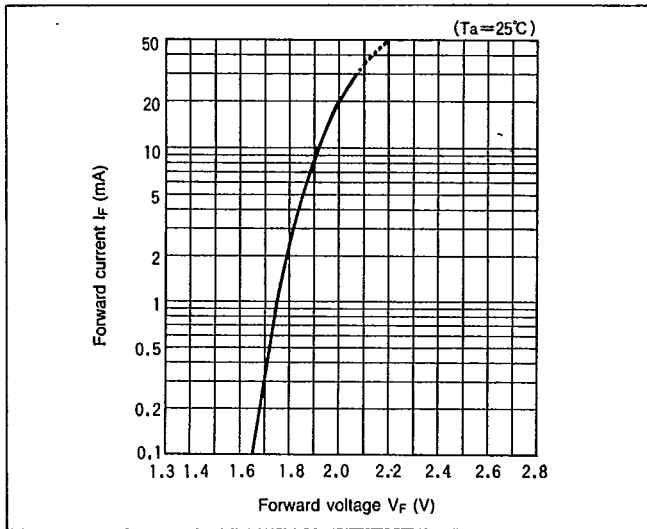
Forward current derating curve



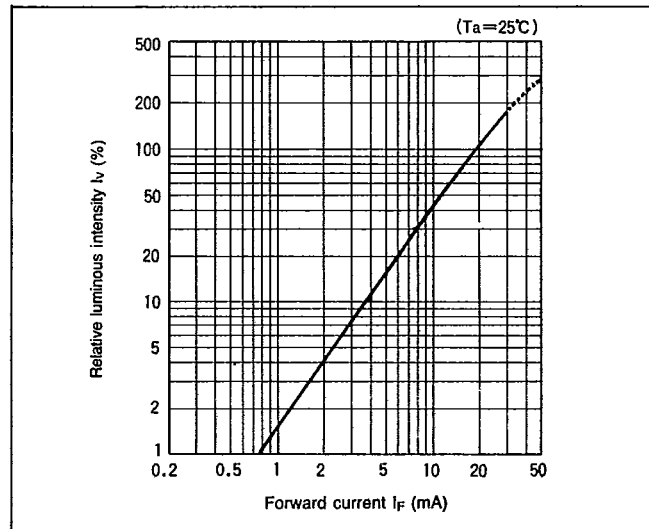
Peak forward current derating curve



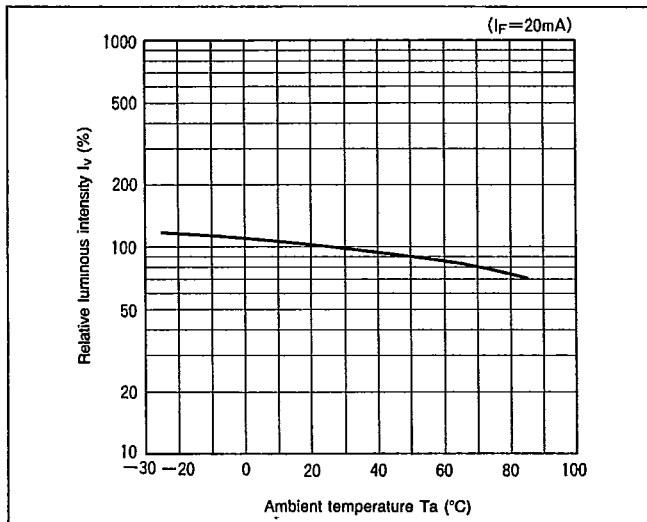
Forward current vs. forward voltage



Luminous intensity vs. forward current



Luminous intensity vs. ambient temperature



PY/EG/NG Series

LED Lamps Characteristics Diagrams

SHARP ELEK/ MELEC DIV

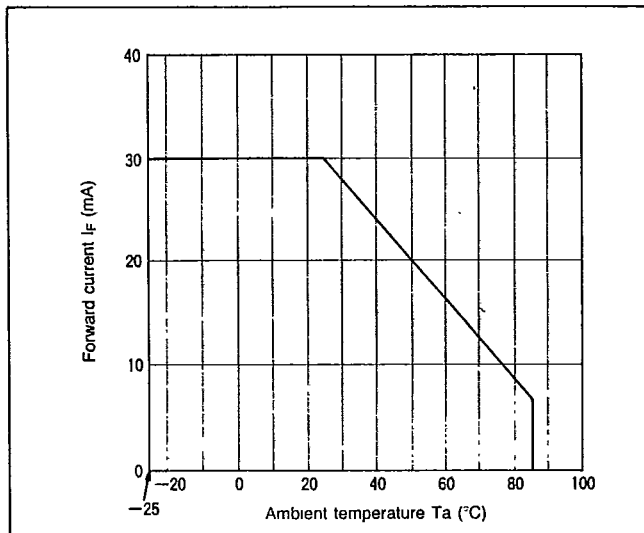
17E D

8180798 0003604 4

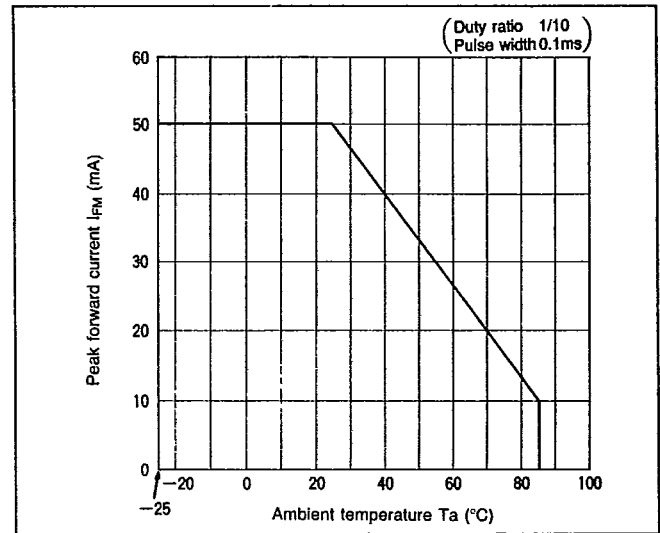
T-41-23

T-41-21

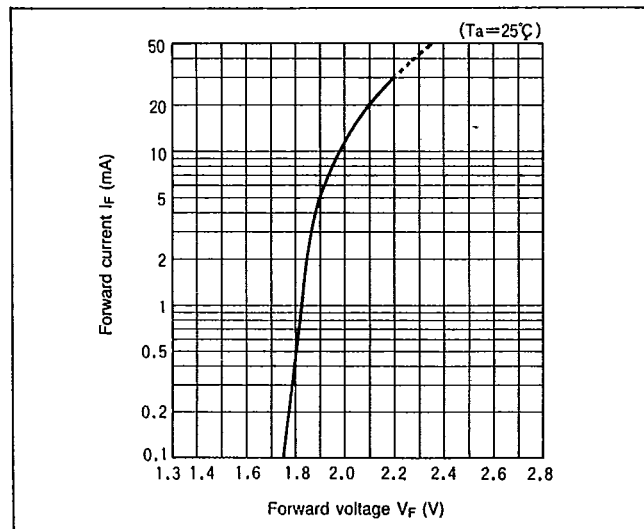
Forward current derating curve



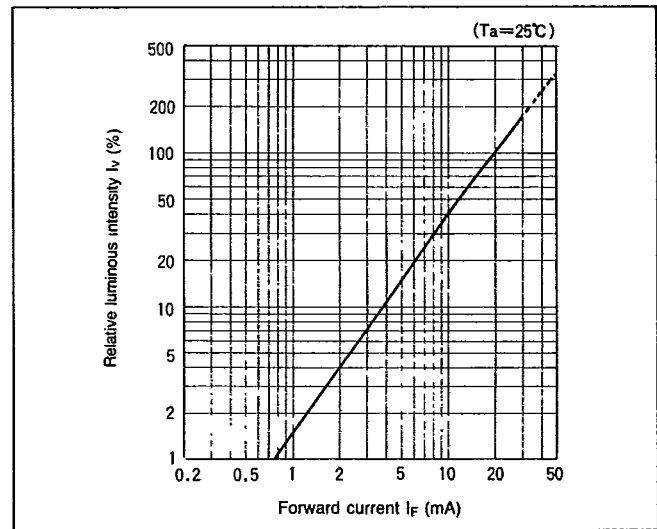
Peak forward current derating curve



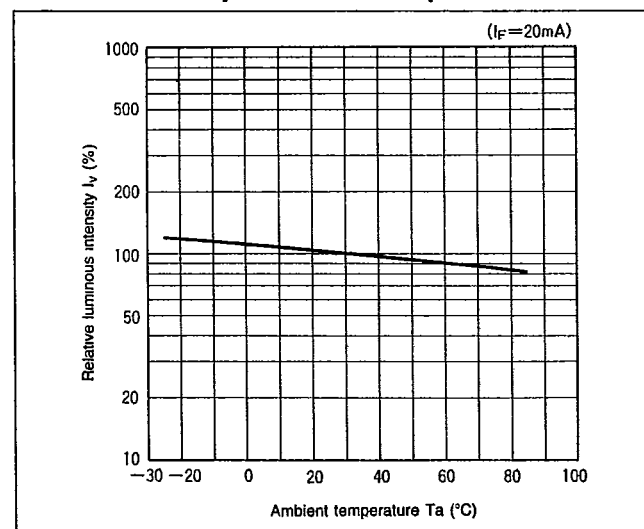
Forward current vs. forward voltage



Luminous intensity vs. forward current



Luminous intensity vs. ambient temperature



KG/PG Series

SHARP ELEK/ MELEC DIV

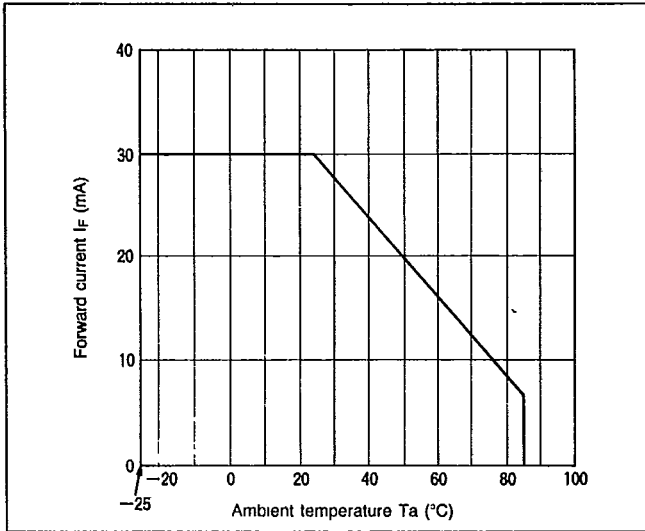
17E D

8180798 0003605 6

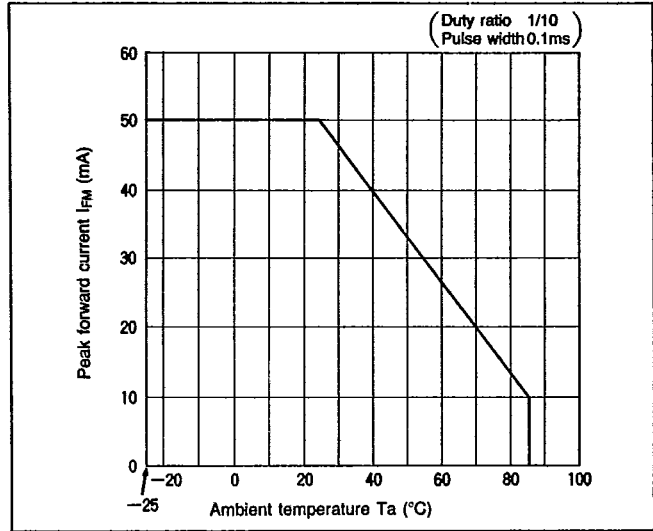
LED Lamps Characteristics Diagrams

T-4123
T-4121

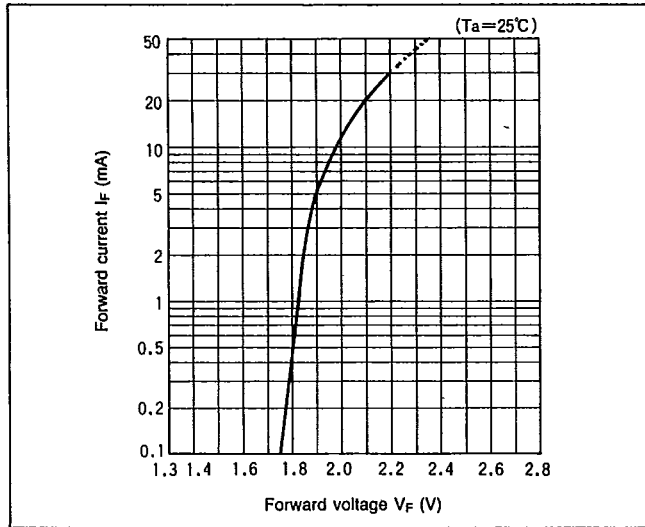
Forward current derating curve



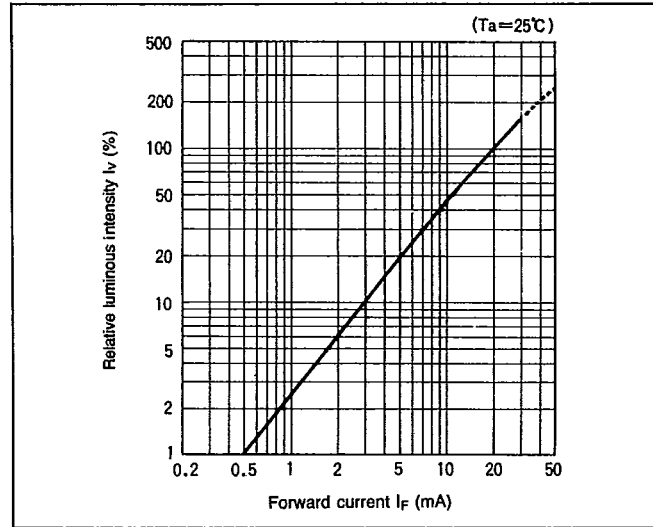
Peak forward current derating curve



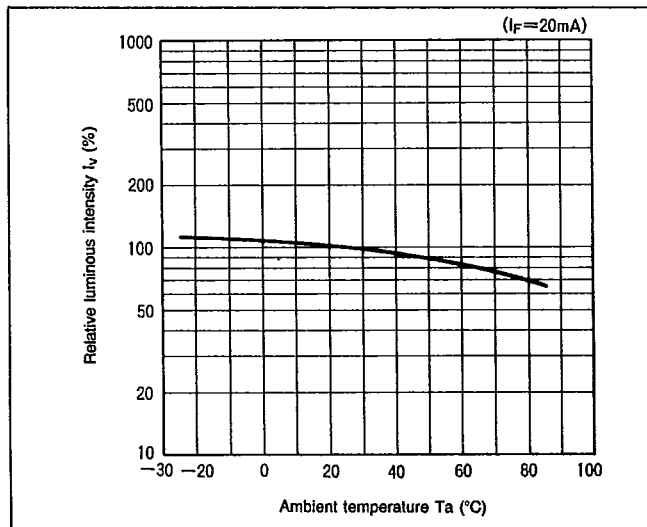
Forward current vs. forward voltage



Luminous intensity vs. forward current



Luminous intensity vs. ambient temperature



Radiation Diagrams

SHARP ELEK/ MELEC DIV

17E D

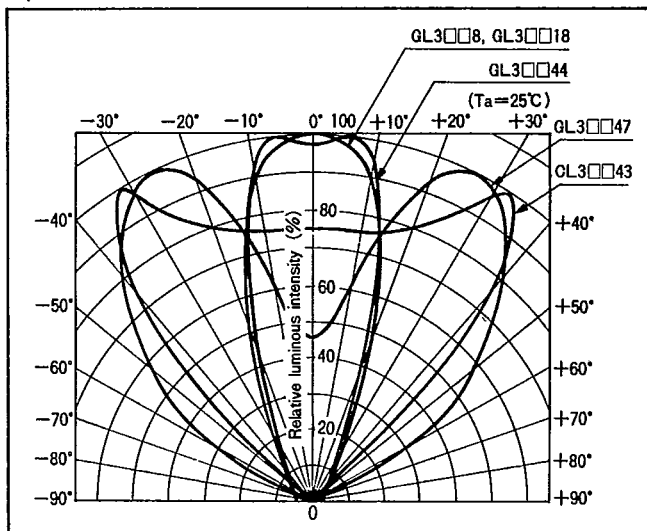
8180798 0003606 8

Super-luminosity LED Lamps/
High-luminosity LED Lamps/
LED Lamps

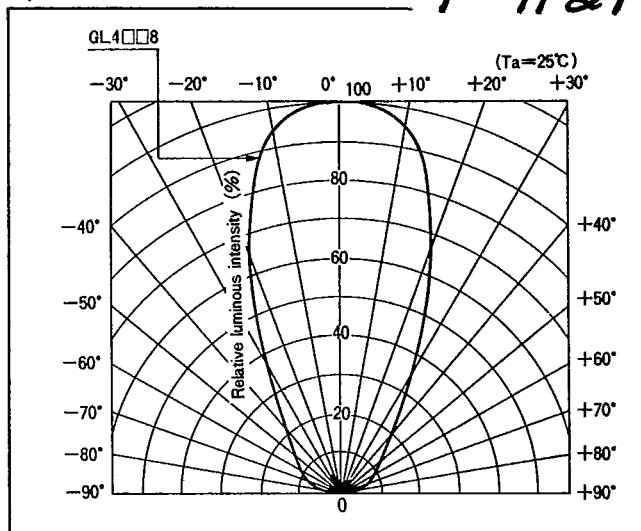
T-41-23

Note) □ and □ indicates radiation color symbol.

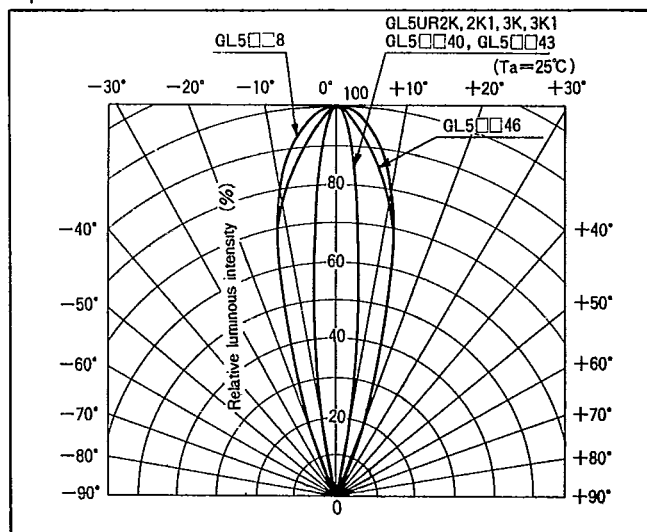
3φ



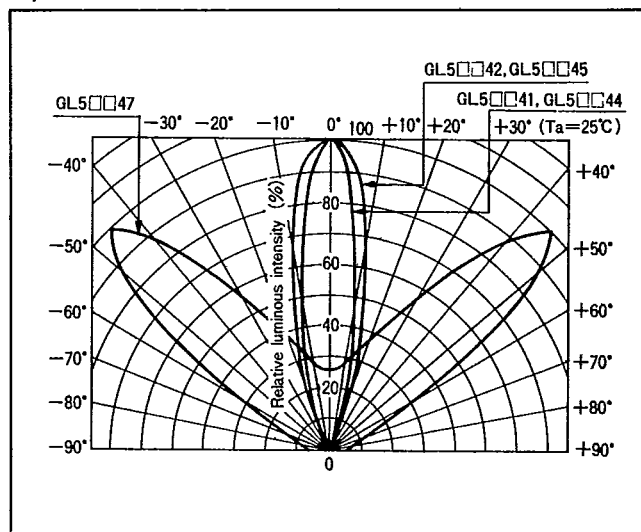
4φ



5φ



5φ



7.5φ, 10φ

