

LF59	LF819
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Part No.	Emitting Color + Material	Wave-length (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2q1/2	Dimension
				Min.	Max.		

LF59EMBGMBBC	GaAsP/GaP	625	water clear	90	200	15°	T-1 3/4 (5mm) Round
	GaN	430		12.5	40		
	GaP	565		50	150		
	GaN	430		12.5	40		
LF59EMBGMBW	GaAsP/GaP	625	white diffused	20	90	30°	
	GaN	430		3.2	12.5		
	GaP	565		10	70		
	GaN	430		3.2	12.5		

LF819EMBGMBBC	GaAsP/GaP	625	water clear	80	200	30°	10mm Round
	GaN	430		20	60		
	GaP	565		100	200		
	GaN	430		20	60		

NOTES :

1. All dimensions are in millimeters (inches)
2. Tolerance is $\pm 0.25\text{mm}$ ($0.01''$) unless otherwise noted.

Absolute maximum ratings (TA=25°C)		H Bright Red (GaP)	G+SG Green Super Bright Green (GaP)	PG Pure Green (GaP)	I+E Hi.Eff. Red Orange (GaAsP/GaP)	N Pure Orange (GaAsP/GaP)	Y Yellow (GaAsP/GaP)	SR+UR Super Bright Red (GaAlAs)	Unit
Reverse voltage	V _R	5	5	5	5	5	5	5	V
Forward current	I _F	25	25	25	30	30	30	30	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i _{FS}	150	150	150	150	150	150	150	mA
Power dissipation	P _T	120	105	105	105	105	105	100	mW
LED LAMPS:									
Operating temperature	T _A	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	°C
Storage temperature	T _{STG}	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	°C
LED DISPLAYS:									
Operating temperature	T _A	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	°C
Storage temperature	T _{STG}	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	°C

Operating characteristics (TA=25°C)		H Bright Red (GaP)	G+SG Green Super Bright Green (GaP)	PG Pure Green (GaP)	I+E Hi.Eff. Red Orange (GaAsP/GaP)	N Pure Orange (GaAsP/GaP)	Y Yellow (GaAsP/GaP)	SR+UR Super Bright Red (GaAlAs)	Unit
Forward voltage (typ.) I _F =20mA	V _F	2.0	2.2	2.25	2.0	2.0	2.1	1.85	V
Forward voltage (max.) I _F =20mA	V _F	2.5	2.5	2.6	2.5	2.6	2.5	2.5	V
Reverse current V _R =5V	I _R	10	10	10	10	10	10	10	uA
Wavelength at peak emission I _F =20mA	λ _P	700	565	555	625	610	590	660	nm
Spectral line half-width I _F =20mA	Δλ	45	30	30	45	35	35	20	nm
Capacitance V _F =0V, f=1MHz	C	40	45	45	12	15	10	95	pF

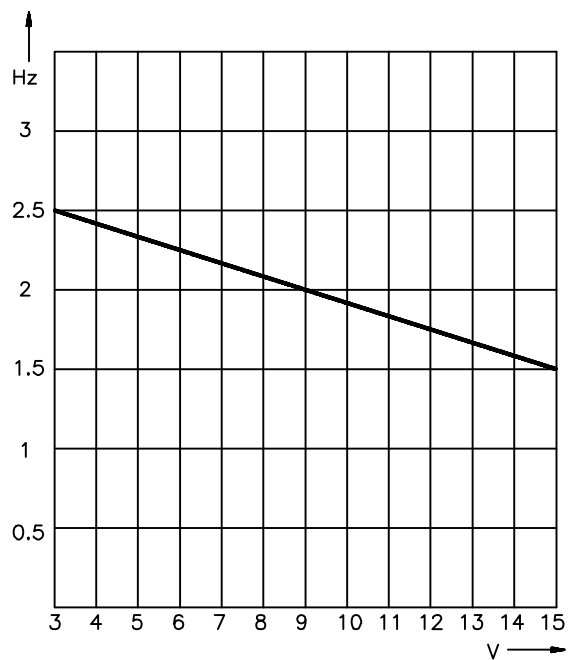
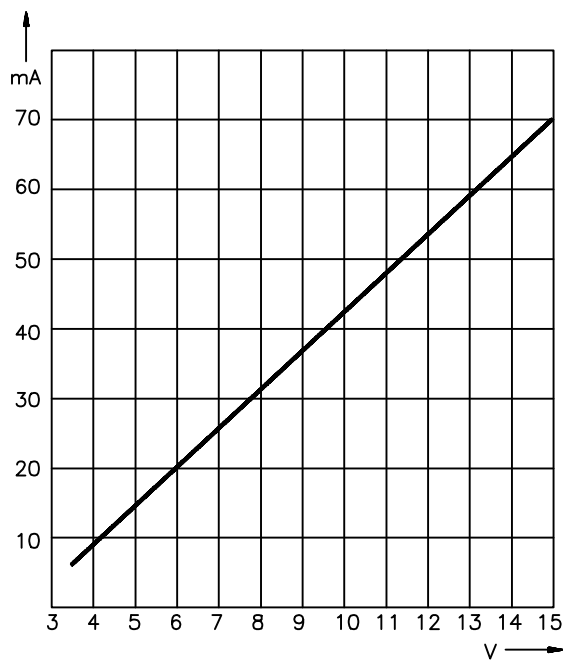
TECHNICAL DATA

Kingbright®

Absolute maximum ratings (TA=25°C)		SUR Hyper Red (InGaAlP)	SUR-E Hyper Red (InGaAlP)	SE Super Bright Orange (InGaAlP)	SE-E Hyper Orange (InGaAlP)	SY Super Bright Yellow (InGaAlP)	MB Blue (GaN)	Unit
Reverse voltage	V _R	5	5	5	5	5	5	V
Forward current	I _F	50	40	30	40	30	30	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i _{FS}	150	120	150	120	150	200	mA
Power dissipation	P _T	170	150	75	150	125	105	mW
LED LAMPS:								
Operating temperature	T _A	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	-40 ~ +85	- 40 ~ +85	°C
Storage temperature	T _{STG}	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	-40 ~ +85	-40 ~ +85	°C
LED DISPLAYS:								
Operating temperature	T _A	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	°C
Storage temperature	T _{STG}	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	°C

Operating characteristics (TA=25°C)		SUR Hyper Red (InGaAlP)	SUR-E Hyper Red (InGaAlP)	SE Super Bright Orange (InGaAlP)	SE-E Hyper Orange (InGaAlP)	SY Super Bright Yellow (InGaAlP)	MB Blue (GaN)	Unit
Forward voltage (typ.) I _F =20mA	V _F	2.0	2.45	1.95	2.45	2.0	4.5	V
Forward voltage (max.) I _F =20mA	V _F	2.2	2.6	2.5	2.6	2.4	5.5	V
Reverse current V _R =5V	I _R	10	10	10	10	10	10	uA
Wavelength at peak emission I _F =20mA	λ _P	640	640	620	630	595	430	nm
Spectral line half-width I _F =20mA	Δλ	25	25	15	20	20	65	nm
Capacitance V _F =0V, f=1MHz	C	35	30	40	25	33	100	pF

Absolute maximum ratings (TA=25°C)		H Bright Red (GaP)	I Hi. Eff. Red (GaAsP/GaP)	G+SG Green Super Bright Green (GaP)	Y Yellow (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	Unit
Reverse voltage	V _R	0.5	0.5	0.5	0.5	0.5	V
Forward current	I _F	38 - 56	38 - 56	38 - 56	38 - 56	38 - 56	mA
Total power dissipation	P _T	200	200	200	200	200	mW
Operating temperature	T _A	- 40 ~ +70	- 40 ~ +70	- 40 ~ +70	- 40 ~ +70	- 40 ~ +70	°C
Storage temperature	T _{STG}	- 50 ~ +100	- 50 ~ +100	- 50 ~ +100	- 50 ~ +100	- 50 ~ +100	°C
Operating characteristics (TA=25°C)		H Bright Red (GaP)	I Hi. Eff. Red (GaAsP/GaP)	G+SG Green Super Bright Green (GaP)	Y Yellow (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	Unit
Forward voltage (min.) I _F =6mA	V _F	3.5	3.5	3.5	3.5	3.5	V
Forward voltage (typ.) I _F =38-56mA	V _F	9 - 12	9 - 12	9 - 12	9 - 12	9 - 12	V
Supply current	I _{SON}	6 - 70	6 - 70	6 - 70	6 - 70	6 - 70	mA
Blink frequency	f	2.5 - 1.5	2.5 - 1.5	2.5 - 1.5	2.5 - 1.5	2.5 - 1.5	Hz
Wavelength at peak emission I _F =20mA	λ _P	700	625	565	590	660	nm
Spectral line half-width I _F =20mA	Δλ	45	45	30	35	20	nm



Kingbright®

Absolute maximum ratings (TA=25°C)		I+E Hi. Eff. Red Orange (GaAsP/GaP)	G+SG Green Super Bright Green (GaP)	Y Yellow (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	Unit
Reverse voltage	V _R	5	5	5	5	V
Forward current (peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i _{FS}	150	150	150	200	mA
Derating linear from		0.7	0.7	0.7	0.35	mA
Power dissipation 50°C	P _T	310	310	310	300	mW
Operating temperature	T _A	-40 ~ +85	-40 ~ +85	-40 ~ +85	-40 ~ +85	°C
Storage temperature	T _{STG}	-40 ~ +85	-40 ~ +85	-40 ~ +85	-40 ~ +85	°C

Operating characteristics		I+E Hi. Eff. Red Orange (GaAsP/GaP)	G+SG Green Super Bright Green (GaP)	Y Yellow (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	Unit
Forward current (typ.) V=5V	I _F	12	12	12	13	mA
V=12V	I _F	11	11	12	10	mA
Reverse current V _R =5V	I _R	10	10	10	10	uA
Wavelength at peak emission I _F =20mA	λ _P	625	565	590	660	nm
Spectral line half-width I _F =20mA	Δλ	45	30	35	20	nm
Lead Solder Temperature (1.6mm From Body) 260 °C For 5 Seconds						

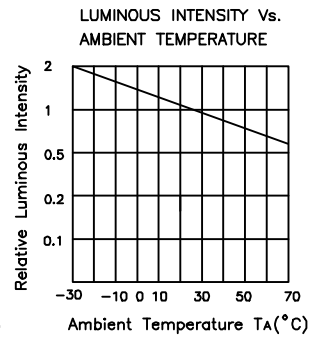
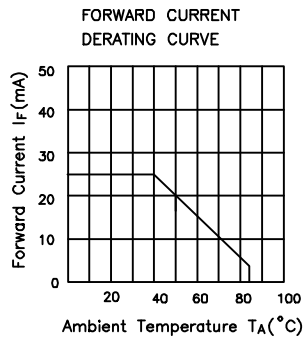
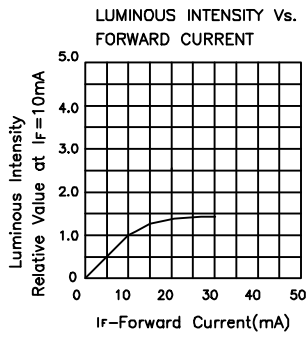
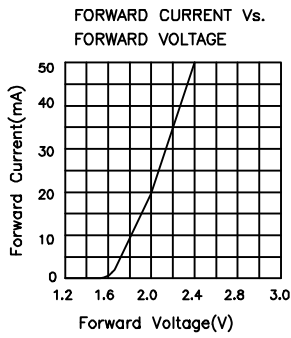
TECHNICAL DATA FOR LOW CURRENT

Absolute maximum ratings (TA=25°C)		I+E Hi. Eff. Red (GaAsP/GaP)	G+SG Green Super Bright Green (GaP)	Y Yellow (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	Unit
Reverse voltage	V _R	5	5	5	5	V
Forward current	I _F	30	25	30	30	mA
Forward current (peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i _{FS}	150	150	150	150	mA
Power dissipation	P _T	105	105	105	100	mW
LED LAMPS:						
Operating temperature	T _A	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	°C
Storage temperature	T _{STG}	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	
LED DISPLAYS:						
Operating temperature	T _A	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	°C
Storage temperature	T _{STG}	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	- 40 ~ +85	

Operating characteristics		I+E Hi. Eff. Red (GaAsP/GaP)	G+SG Green Super Bright Green (GaP)	Y Yellow (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	Unit
Forward voltage (typ.) I _F =2mA	V _F	1.7	1.9	1.8	1.65	V
Forward voltage (max.) I _F =2mA	V _F	2.0	2.2	2.1	1.95	V
Reverse current V _R =5V	I _R	10	10	10	10	uA
Wavelength at peak emission I _F =20mA	λ _P	625	565	590	660	nm
Spectral line half-width I _F =20mA	Δλ	45	30	35	20	nm
Capacitance V _F =0V, f=1MHz	C	12	45	10	95	pF

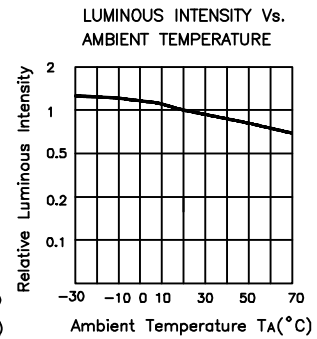
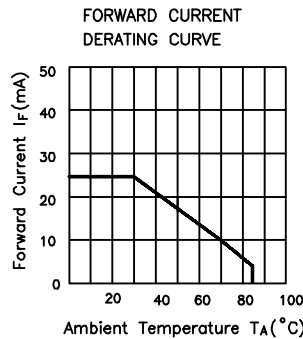
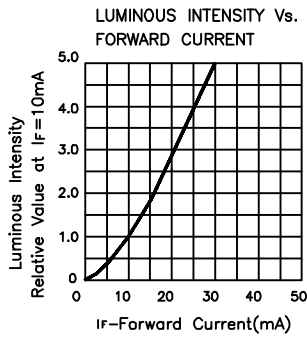
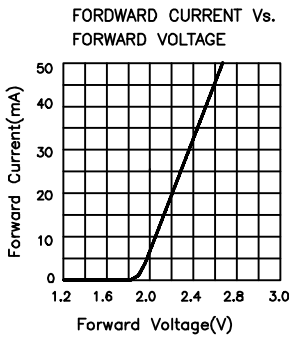
Bright Red

H : GaP



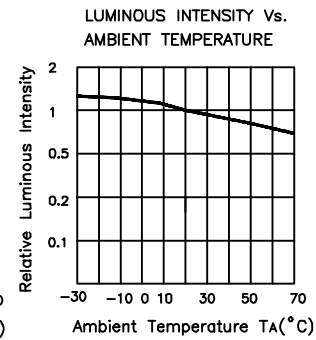
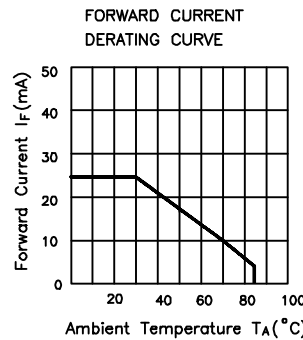
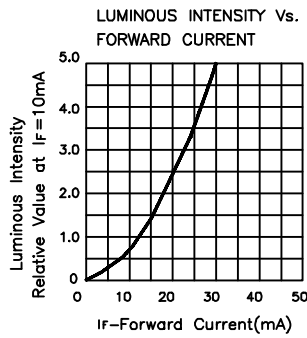
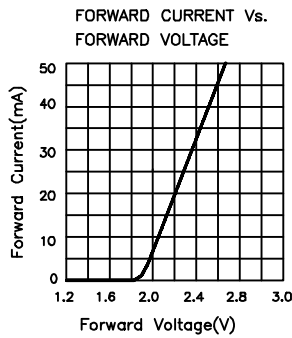
Green + Super Bright Green

G + SG : GaP



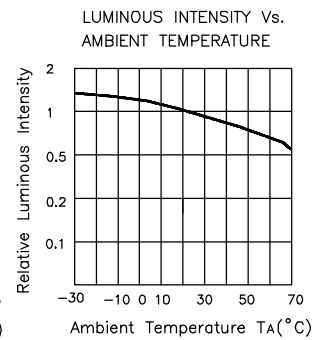
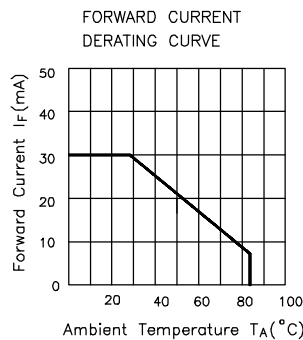
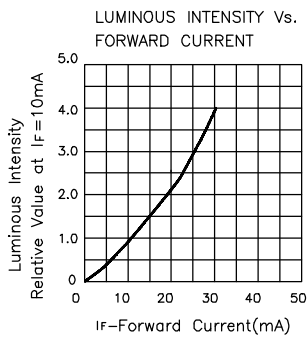
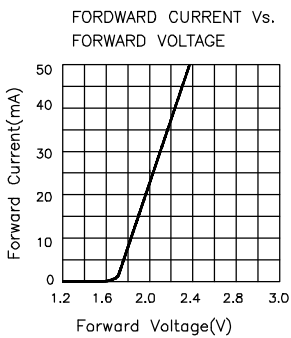
Pure Green

PG : GaP



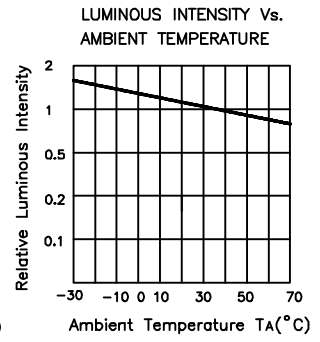
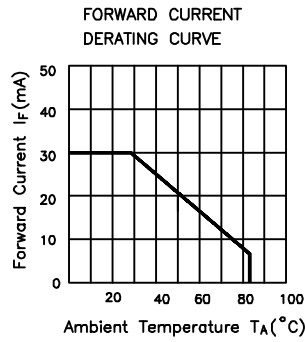
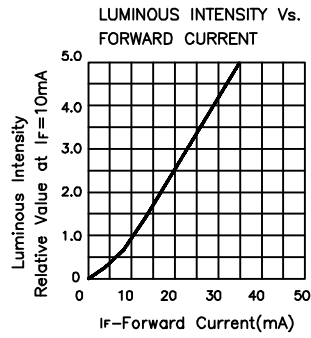
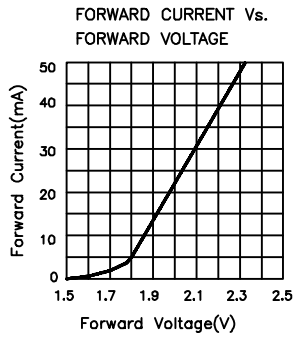
High Efficiency Red + Orange

I + E : GaAsP/GaP



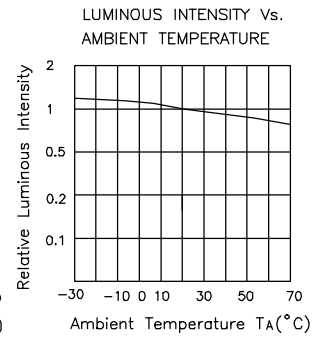
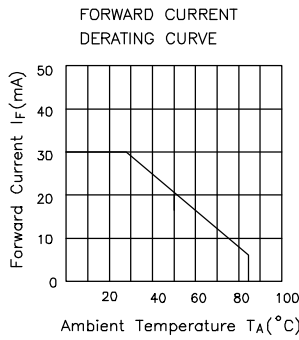
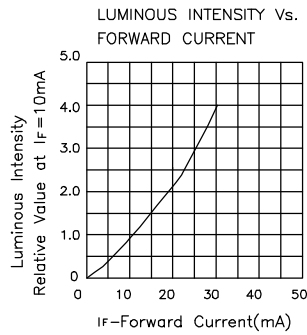
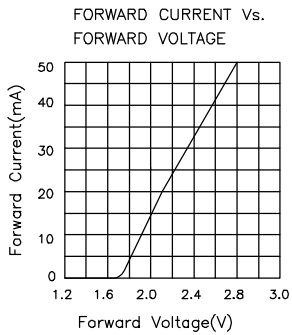
Pure Orange

N : GaAsP/GaP



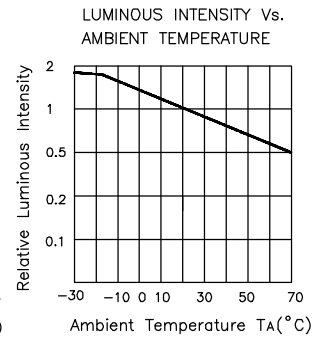
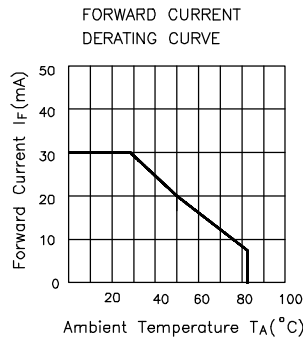
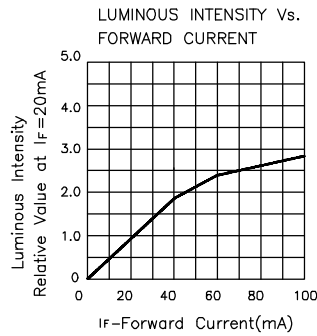
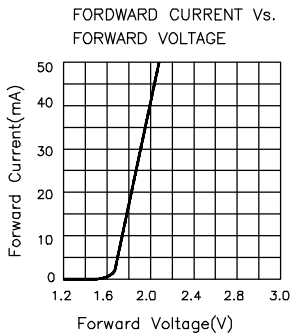
Yellow

Y : GaAsP/GaP



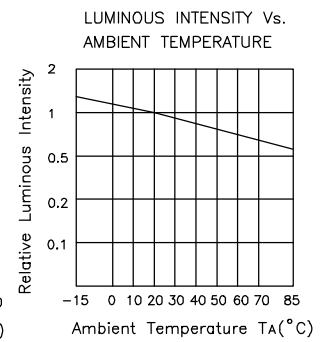
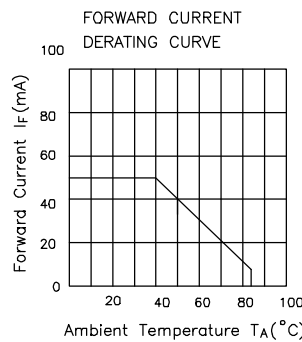
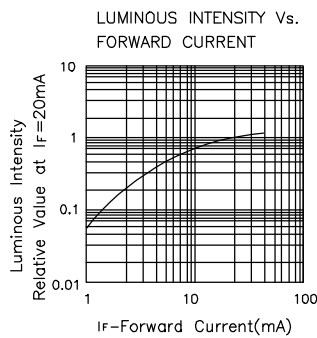
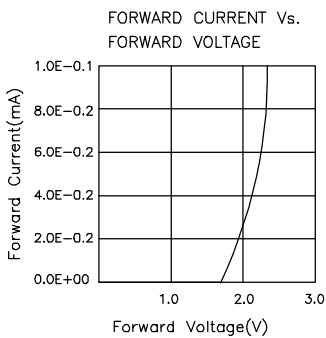
Super Bright Red

SR+UR : GaAlAs



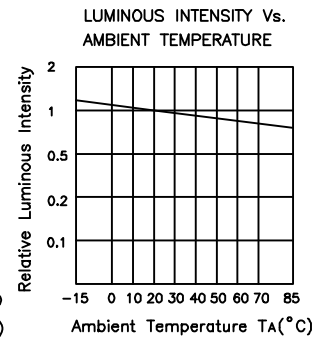
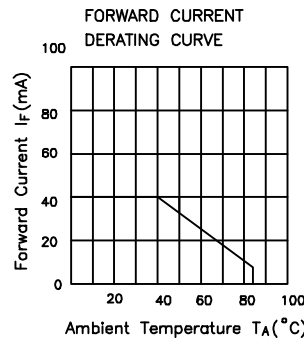
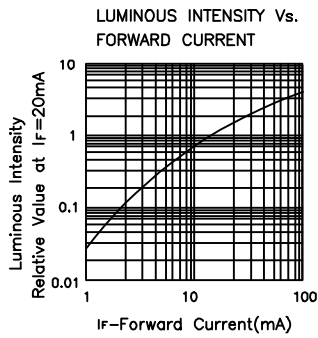
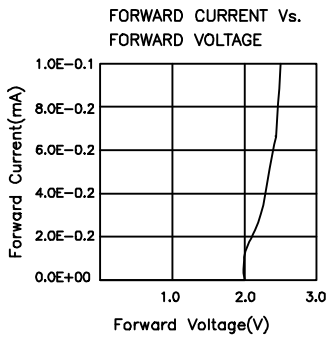
Hyper Red

SUR : InGaAlP



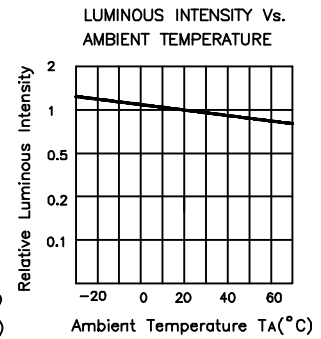
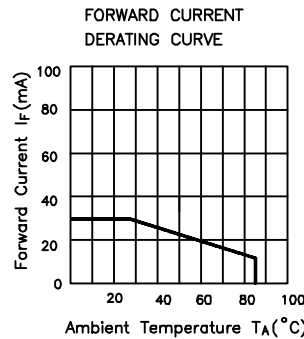
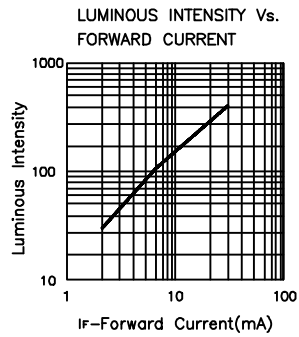
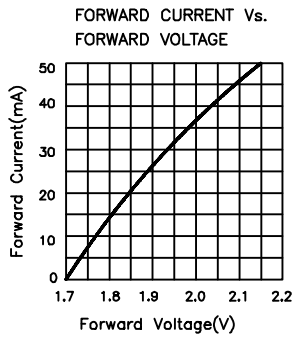
Hyper Red

SUR-E : InGaAlP



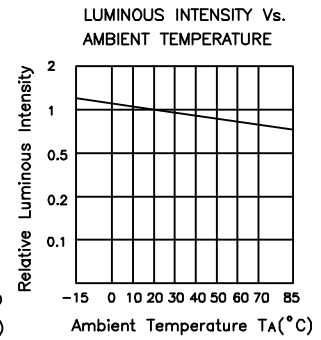
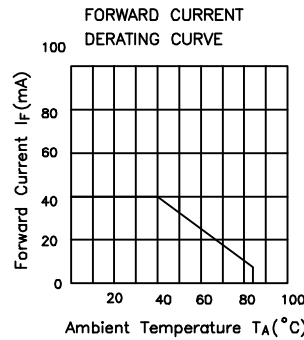
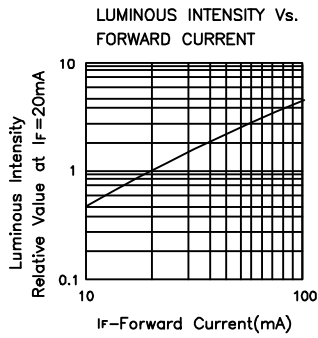
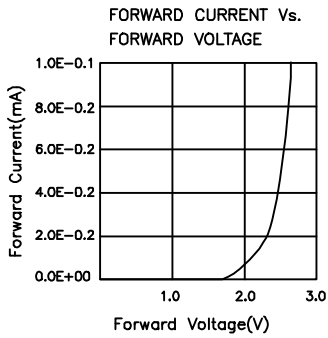
Super Bright Orange

SE : InGaAlP



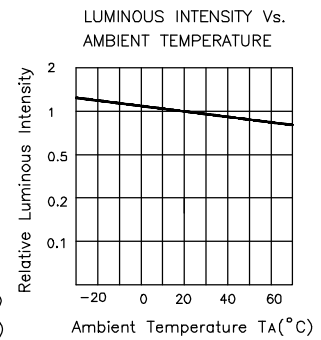
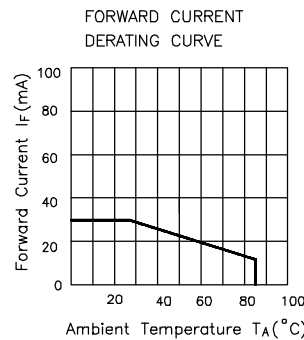
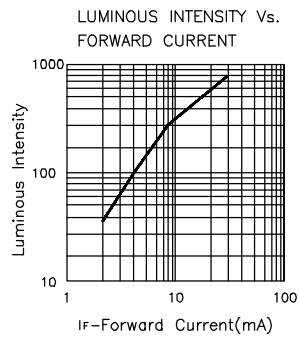
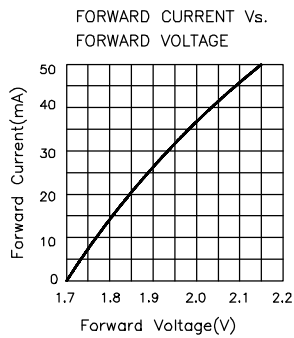
Hyper Orange

SE-E : InGaAlP



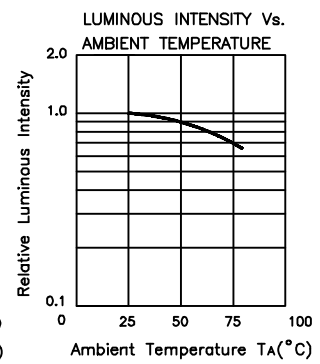
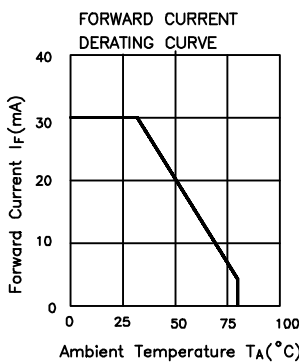
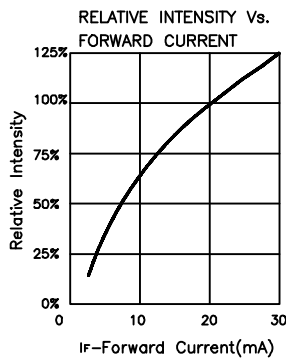
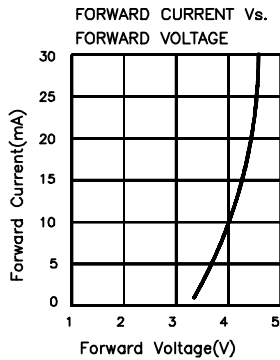
Super Bright Yellow

SY : InGaAlP



Blue

MB : GaN



SELECTION CODE FOR STANDARD LEDS

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	min.	max.		min.	max.
F	0.1	0.2	P	5.0	8.0
G	0.2	0.32	Q	8.0	12.5
H	0.32	0.5	R	12.5	20.0
I	0.5	0.8	S	20.0	32.0
K	0.8	1.25	T	32.0	50.0
L	1.25	2.0	U	50.0	80.0
M	2.0	3.2	V	80.0	125.0
N	3.2	5	W	125.0	200.0

SELECTION CODE FOR SUPER BRIGHT LEDS

GROUP	Light intensity in mcd(20mA)		GROUP	Light intensity in mcd(20mA)	
	min.	max.		min.	max.
A	2.0	3.0	N	100.0	200.0
B	3.2	5.0	P	200.0	300.0
C	5.0	8.0	Q	300.0	400.0
D	8.0	12.5	R	400.0	500.0
E	12.5	20.0	S	500.0	700.0
F	20.0	40.0	T	700.0	1000.0
G	40.0	50.0	U	1000.0	1300.0
H	50.0	60.0	V	1300.0	1600.0
J	60.0	70.0	W	1600.0	2000.0
K	70.0	80.0	X	2000.0	2500.0
L	80.0	90.0	Y	2500.0	3000.0
M	90.0	100.0	Z	3000.0	3500.0

SELECTION CODE FOR DISPLAYS

GROUP	Light intensity in ucd(10mA)		GROUP	Light intensity in ucd(10mA)	
	min.	max.		min.	max.
C	70	140	PA	14000	17500
D	140	240	PB	17500	21000
E	240	360	QA	21000	23000
F	360	560	QB	23000	25000
G	560	900	QC	25000	27000
H	900	1400	QD	27000	29000
I	1400	2200	QE	29000	31000
K	2200	3600	RA	31000	36000
LA	3600	4600	RB	36000	41000
LB	4600	5600	RC	41000	52000
MA	5600	7300	SA	52000	64000
MB	7300	9000	SB	64000	76000
NA	9000	10250	SC	76000	88000
NB	10250	11500	TA	88000	108000
NC	11500	12750	TB	108000	130000
ND	12750	14000	TC	130000	150000

COLOR CODE FOR LEDS + DISPLAYS

GROUP	DOM. WAVELENGTH(nm)			
	GREEN		YELLOW	
	min.	max.	min.	max.
0	556	559		
1	559	561	581	584
2	561	563	584	586
3	563	565	586	588
4	565	567	588	590
5	567	569	590	592
6	569	571	592	594
7	571	573	594	597
8	573	575	597	600

SOLDERING INSTRUCTIONS

TYPES	DIP AND WAVE SOLDERING			IRON SOLDERING (WITH 1.5mm IRON TIP)		
	TEMPERATURE OF THE SOLDERING BATH	MAXIMUM SOLDERING TIME	DISTANCE FROM SOLDER JOINT TO CASE	TEMPERATURE OF SOLDERING IRON	MAXIMUM SOLDERING TIME	DISTANCE FROM SOLDER JOINT TO CASE
LEDS	≤260°C	3s	>2mm	≤260°C	3s	>2mm
	≤260°C	5s	>4mm	≤260°C	5s	>4mm
DISPLAYS	≤260°C	3s	>2mm	≤260°C	3s	>2mm