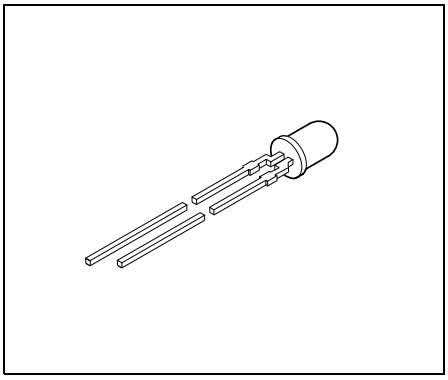
BLUE LINE™ Hyper-Bright LED
Hyper 3 mm (T1) LED, Non Diffused

The Leader in Silicon Carbide Solid State Technology

G·SiC® Technology
Super Blue LED
C430-CB290-E1200

Applications

- Full Color Displays & Moving Message Signs
- Solid State Incandescent Replacement Bulbs
- High Ambient Panel Indicators
- Color Printers & Scanners
- Medical & Analytical Instruments



Features

- colorless, clear package
- optical coupling into light pipes
- for use as optical indicator
- solder leads with stand-off
- available taped on reel
- ESD withstand voltage of 2 kV according to MIL STD 883D, Method 3015.7

Kesun's Super blue LEDs are a new generation of solid-state blue LED emitters which combine highly efficient GaN with Cree's proprietary SiC substrate to deliver the ultimate price/performance forhigh intensity blue LEDs.The C430-CB290-E1200 is designed for use in high ambient light conditions with a typical output of 1150 µW and a 430 nm peak wavelength (at 20 mA).

Type Topside View	Color of Emission	Color of the Light Emitting Area	Luminous Intensity I_F = 10 mA I_V (mcd)	Ordering Code
KS 3430-L	blue	colorless clear		K62703-Q4068
KS 3430-M			16 ... 32	
KS 3430-N			25 ... 50	
KS 3430-P			40 ... 80	
KS 3430-Q			63 ... 125	

Luminous intensity ratio in one packaging unit $I_{V\,max} / I_{V\,min} \leq 2.0$.

Luminous intensity is specified at a current pulse duration of 25 ms.

Maximum Ratings

Parameter	Symbol	Values	Unit
Operating temperature range	T_{op}	– 40 ... + 100	°C
Storage temperature range	T_{stg}	– 40 ... + 100	°C
Junction temperature	T_j	+ 100	°C
Forward current	I_F	20	mA
Reverse voltage[1)]	V_R	5	V
Power dissipation $T_A \leq 25$ ℃	P_{tot}	100	mW
Thermal resistance Junction / air mounted on PC board*) (pad size ≥ 16 mm^2)	$R_{th\ JA}$	500	K/W

Maximum Ratings at T_A = 25°C Notes 1&3

	C430-CB290-E1200
DC Forward Current	30 mA
Peak Forward Current (1/10 duty cycle @ 1kHz)	70 mA
LED Junction Temperature	125°C
Reverse Voltage	5 V
Operating Temperature Range	-20°C to +80°C
Storage Temperature Range	-30°C to +100°C
Electrostatic Discharge Threshold (HBM) Note 2	1200 V

Electrical/Optical Characteristics at T_A = 25°C Note 3

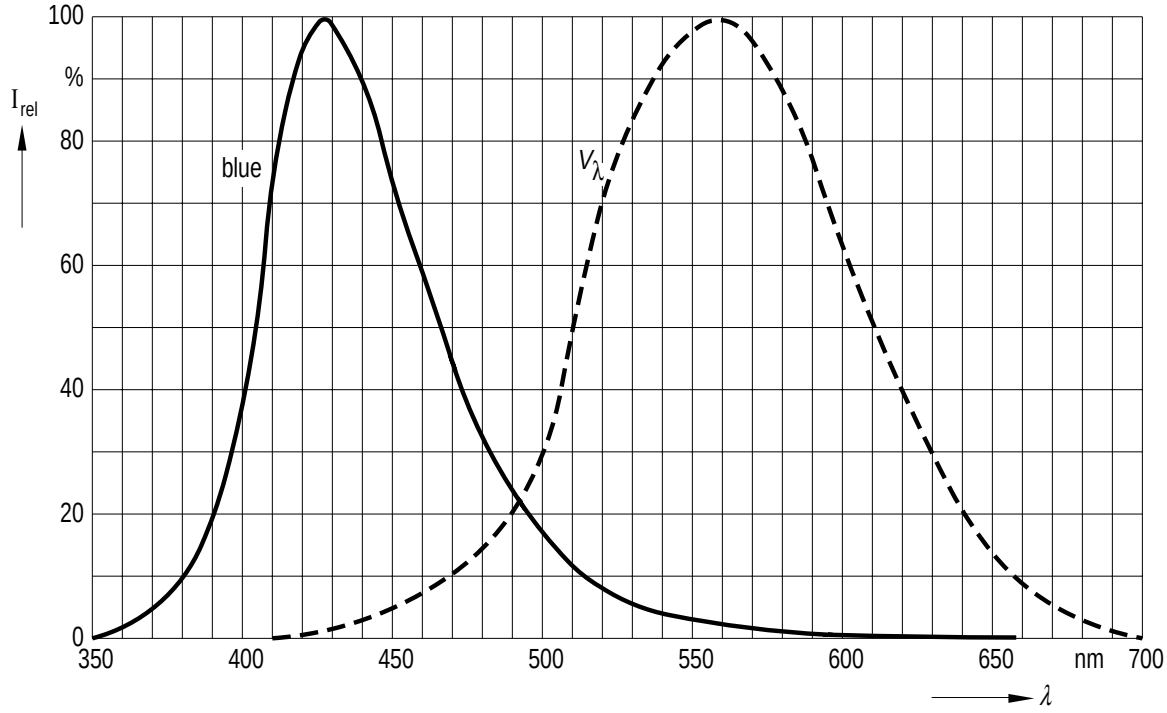
If = 20 mA		**C430-CB290-E1200**		
Symbol (units)	**Description**	**Min.**	**Typ.**	**Max.**
V_f (V)	Forward Voltage	—	3.8	4.5
P (μW)	Radiant Flux	850	1150	—
I (μA)	Reverse Current (Vr = 5V)	—	—	10
I_v (mcd)	Chip Luminous Intensity	—	6.0	—
λ_p (nm)	Peak Wavelength	426	428	430
λ_d (nm)	Dominant Wavelength	464	466	468
λΔ (nm)	Halfwidth	—	65	—
τ (ns)	Optical Rise Time	—	30	—

Characteristics (T_A = 25 °C)

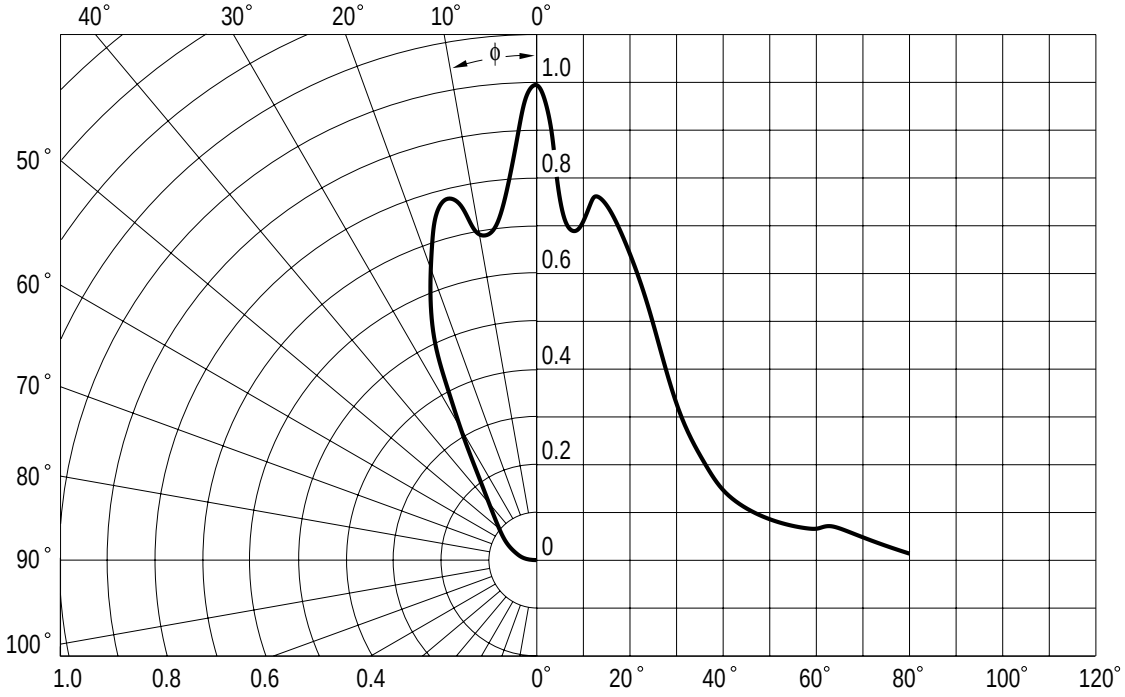
Parameter	Symbol	Values		Unit
		typ.	max.	
Wavelength at peak emission I_F = 10 mA	λ_{peak}	428	–	nm
Dominant wavelength I_F = 10 mA	λ_{dom}	466	–	nm
Spectral bandwidth at 50% $I_{rel\ max}$ I_F = 10 mA	$\Delta\lambda$	60	–	nm
Viewing angle at 50% I_v (Vollwinkel)	2φ	50	–	Grad deg.
Forward voltage I_F = 10 mA	V_F	3.5	4.2	V
Reverse current V_R = 5 V	I_R	0.01	10	µA
Temperature coefficient of λ_{dom} (I_F = 10 mA)	TC_λ	0.03	–	nm/K
Temperature coefficient of λ_{peak} (I_F = 10 mA)	TC_λ	0.004	–	nm/K
Temperature coefficient of V_F (I_F = 10 mA)	TC_V	– 3.1	–	mV/K

Relative spectral emission $I_{rel} = f(\lambda)$, T_A = 25 °C, I_F = 10 mA

V(λ) = Standard eye response curve

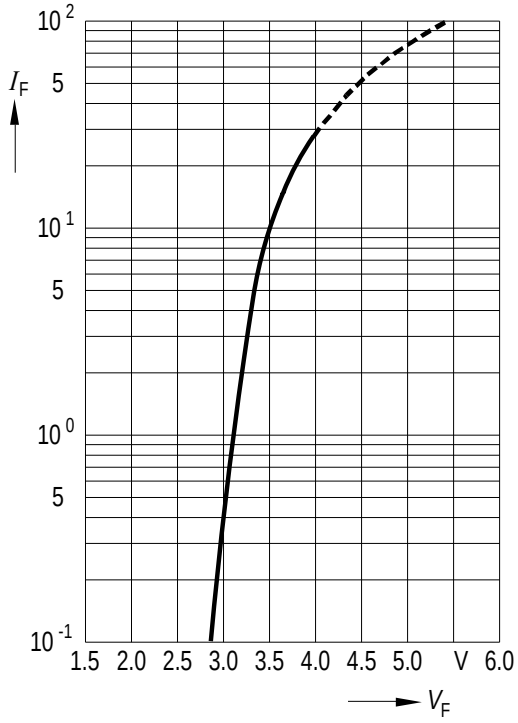


Radiation characteristic $I_{rel} = f(\varphi)$



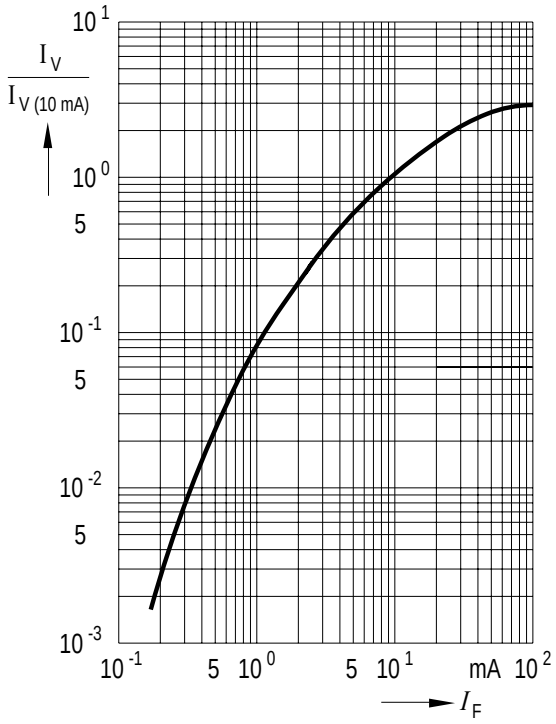
Forward current $I_F = f(V_F)$

T_A = 25 °C

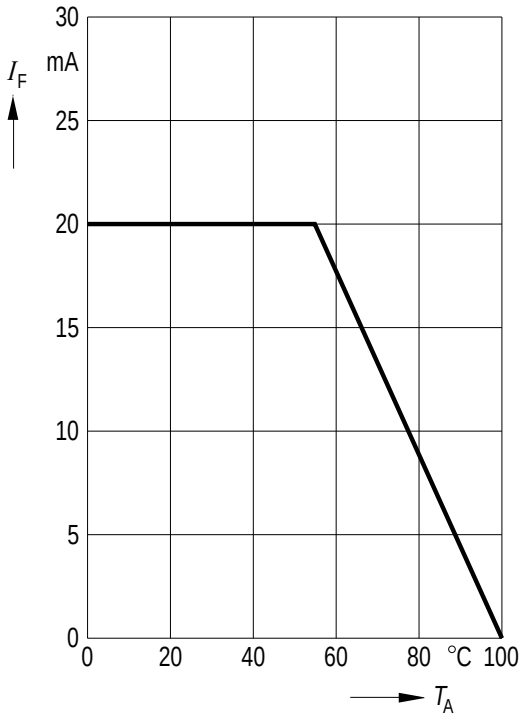


Relative luminous intensity $I_V/I_{V(10\ mA)} = f(I_F)$

T_A = 25 °C



Max. permissible forward current
$I_F = f(T_A)$



Relative luminous intensity $I_V/I_{V(25\ °C)} = f(T_A)$

I_F = 10 mA

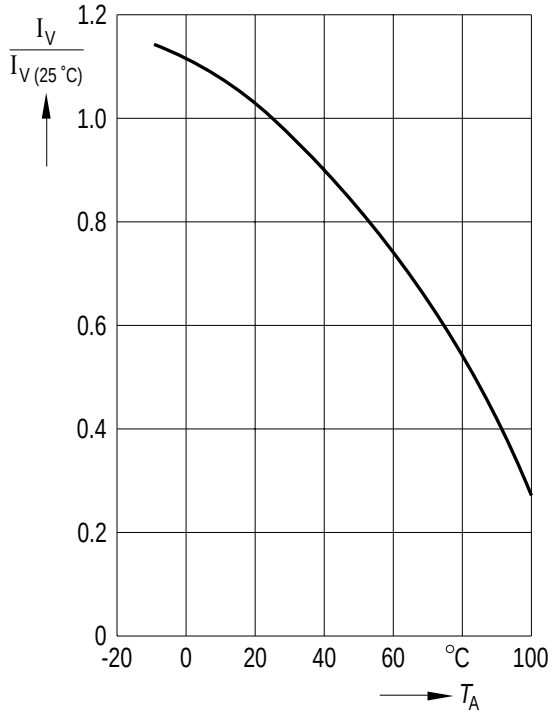


Fig. 1 Forward Voltage vs. Forward Current

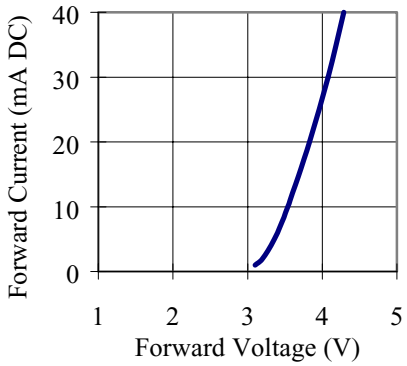


Fig. 2 Relative Intensity vs. Wavelength

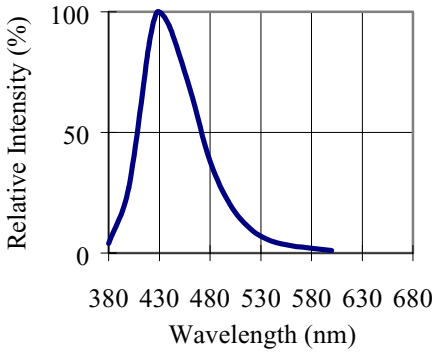


Fig. 3 Relative Intensity vs. Forward Current

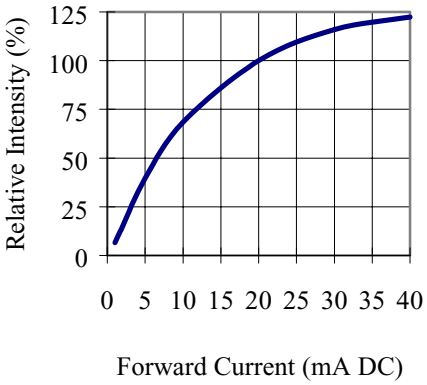


Fig. 4 Relative Intensity vs. Lead Temperature (Pulsed 20 mA; 300µs pulse, 10ms period)

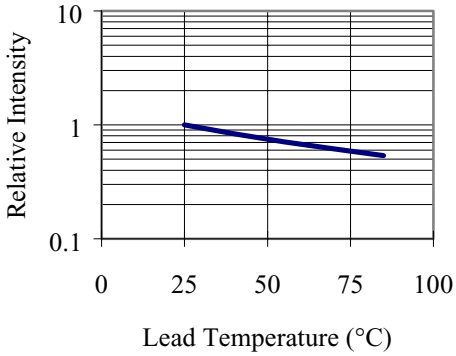


Fig. 5 Forward Current vs. Ambient Temperature

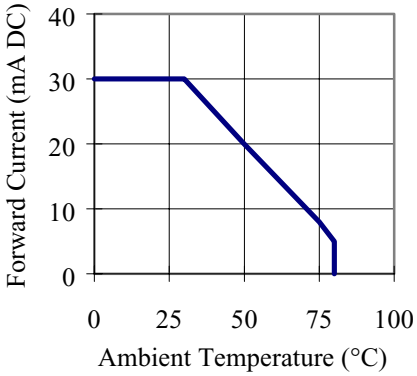


Fig. 6 Peak Forward Voltage vs. Forward Current (100µs test pulse, 1% duty cycle)

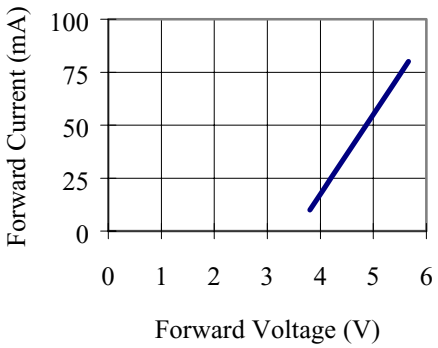


Fig. 7 Relative Intensity vs. Peak Forward Current (300 µs pulse width; 10ms period)

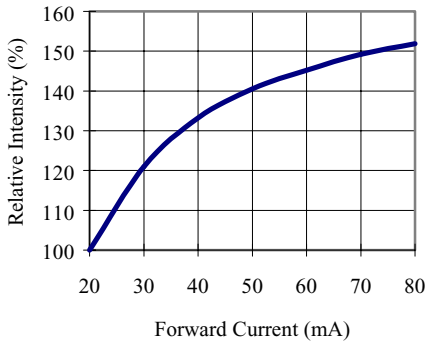
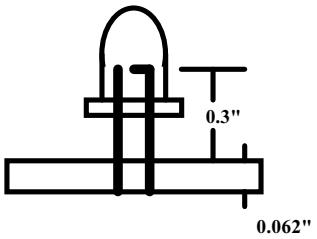
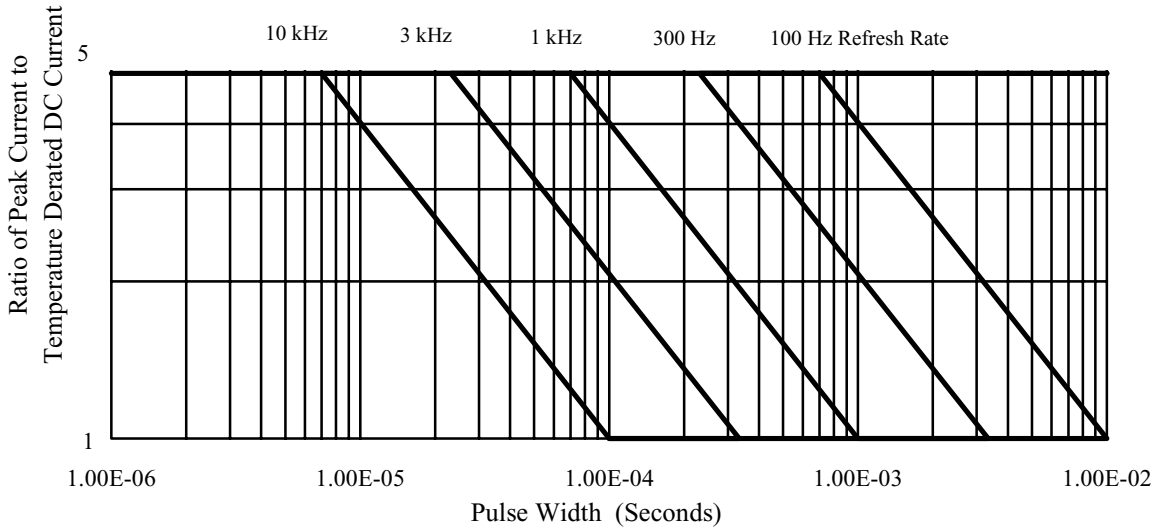


Fig. 8 LED Mounting Conditions Used To Generate The Pulse Derating Curve

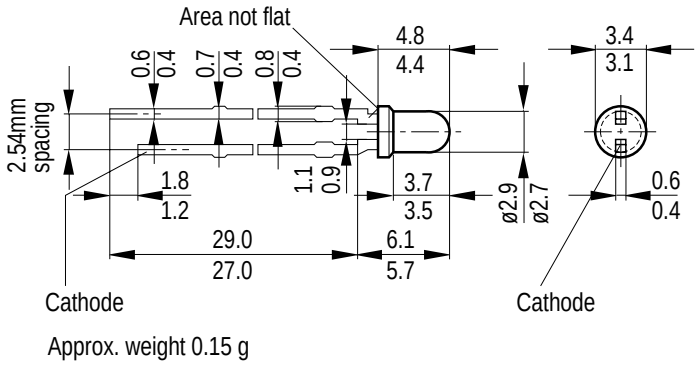


The LED was mounted on a 1/16" phenolic printed circuit board having 1 oz. Copper ribbon .080" wide. The distance from the bottom of the reflector cup to the top of the PCB was 0.3". The LED leads were nickel-iron Alloy 42.

Fig. 9 Pulse Derating Curve



Package Outlines (Dimensions in mm, unless otherwise specified)



Approx. weight 0.15 g

Cathode mark: Short solder lead