

# High Brightness 12.0x12.0mm Flat LED Displays

# SBD 1212 SBD 1212L

## GENERAL DESCRIPTION

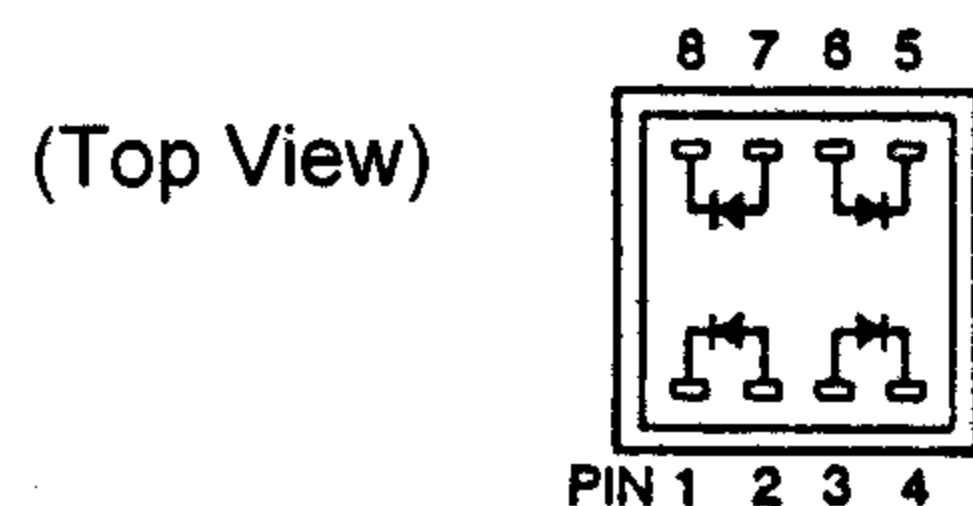
The SBD 1212 series are a reflecting high brightness flat LED displays.  
The active face size is 10.6x10.6mm and available in red, orange, and yellow-green emitting colors.

## FEATURES

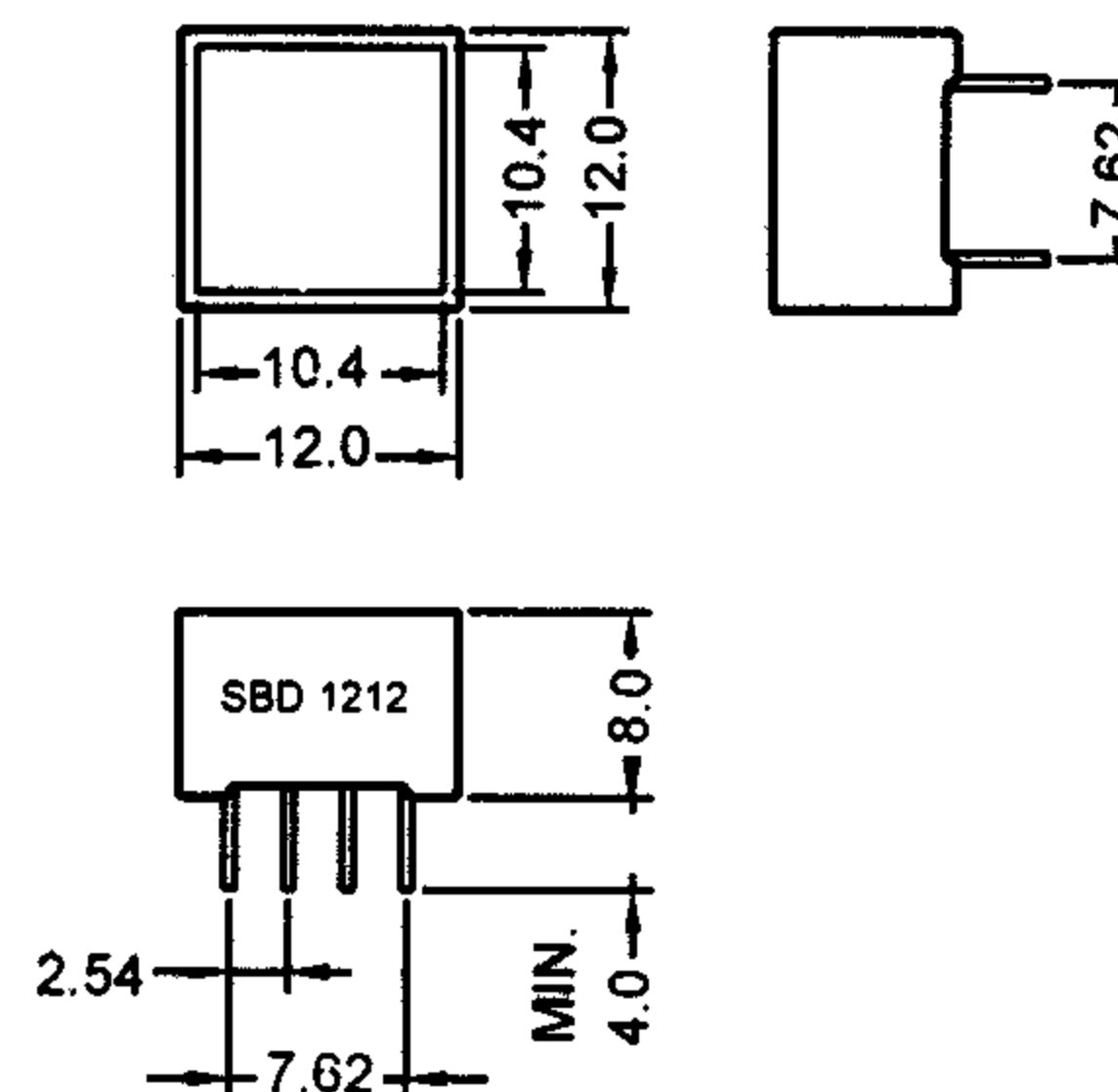
1. High brightness with high contrast
2. Low power consumption
3. Solid state reliability;  
Long operation life
4. Wide angle viewing

## PIN ARRANGEMENT

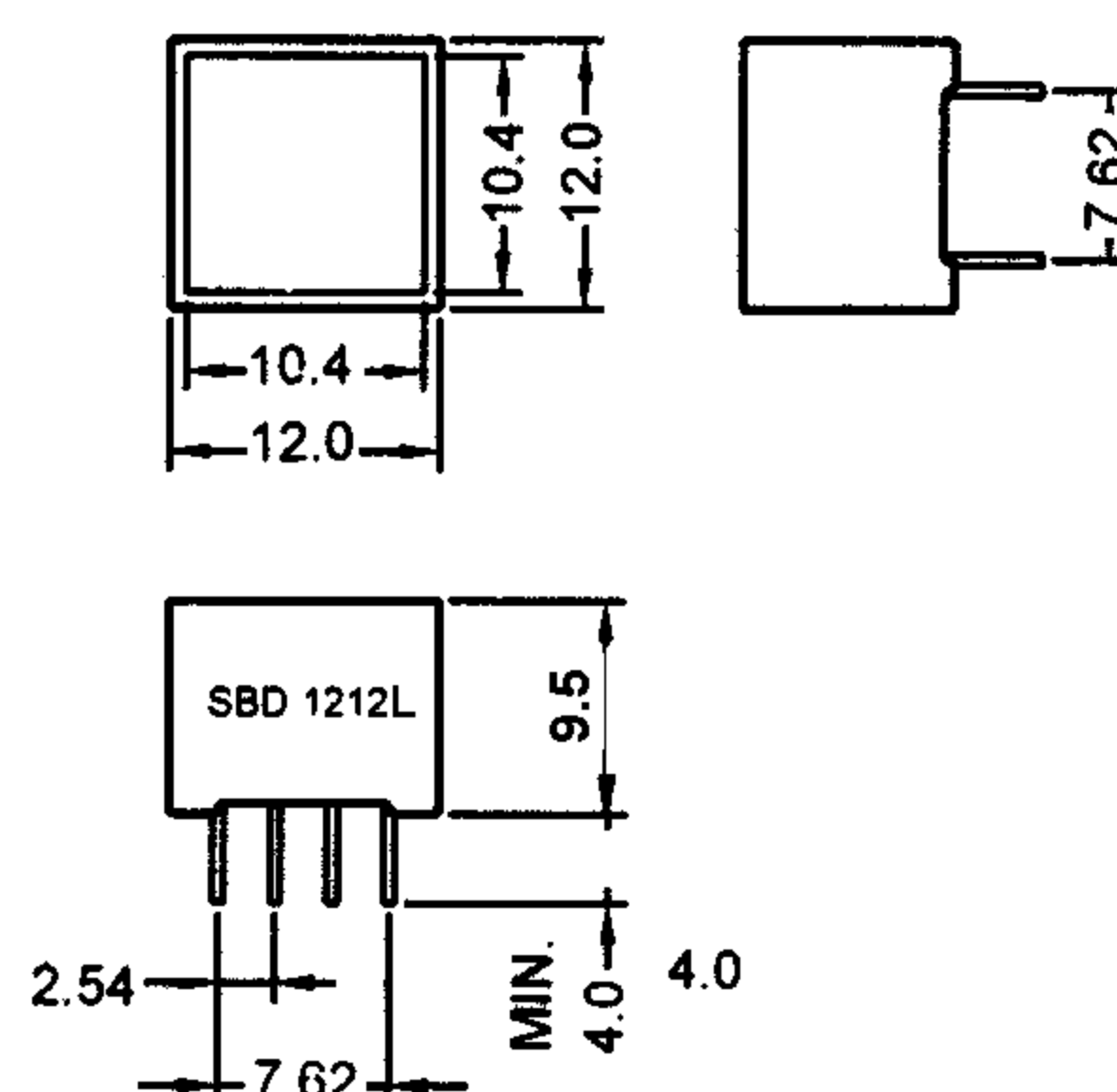
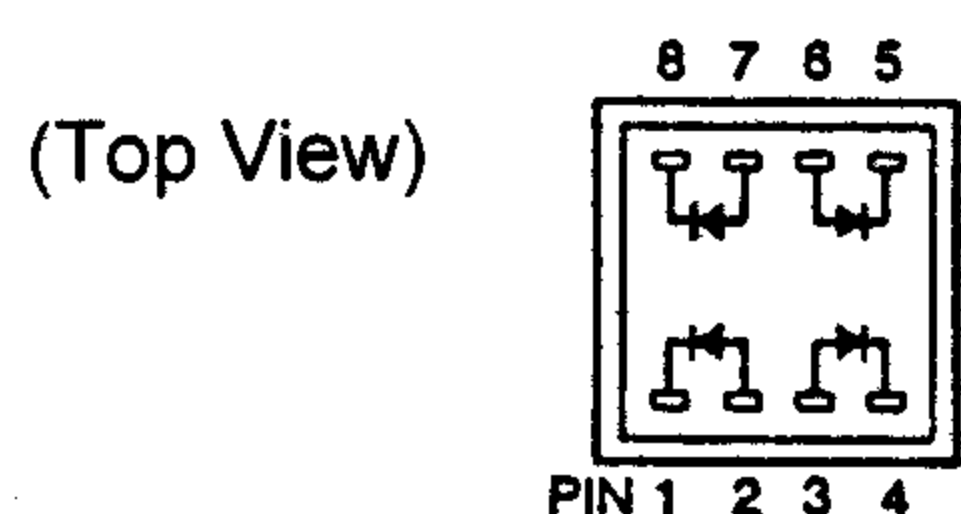
### SBD 1212



## PACKAGE DIMENSIONS



### SBD 1212L



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## Orange SBD 1212SR (GaAsP/GaP)

Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Power dissipation/Total	160	mW
Power dissipation/Chip	40	mW
Forward current	20	mA
Peak forward current	60*	mA
Reverse voltage	4	V
Operating temperature	-25 ~ +85	$^\circ\text{C}$
Storage temperature	-55 ~ +100	$^\circ\text{C}$

Electrical/Optical Characteristics ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Conditions	Min	Typ	Max.	Unit
Forward voltage/Chip	$V_F$	$I_F = 10\text{mA}$	—	2.0	2.2	V
Reverse current/Chip	$I_R$	$V_R = 4\text{V}$	—	—	10	$\mu\text{A}$
Luminous Intensity/Chip	$I_v$	$I_F = 10\text{mA}$	500	1000	—	$\mu\text{cd}$
Peak wavelength	$\lambda_P$	$I_F = 10\text{mA}$	—	635	—	nm
Spectral line halfwidth	$\Delta\lambda$	$I_F = 10\text{mA}$	—	35	—	nm

## Yellow-green SBD 1212UG (GaP)

Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Power dissipation/Total	160	mW
Power dissipation/Chip	40	mW
Forward current	20	mA
Peak forward current	60*	mA
Reverse voltage	4	V
Operating temperature	-25 ~ +85	$^\circ\text{C}$
Storage temperature	-55 ~ +100	$^\circ\text{C}$

Electrical/Optical Characteristics ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Conditions	Min	Typ	Max.	Unit
Forward voltage/Chip	$V_F$	$I_F = 10\text{mA}$	—	2.1	2.3	V
Reverse current/Chip	$I_R$	$V_R = 4\text{V}$	—	—	10	$\mu\text{A}$
Luminous Intensity/Chip	$I_v$	$I_F = 10\text{mA}$	600	1200	—	$\mu\text{cd}$
Peak wavelength	$\lambda_P$	$I_F = 10\text{mA}$	—	565	—	nm
Spectral line halfwidth	$\Delta\lambda$	$I_F = 10\text{mA}$	—	30	—	nm

## Red SBD 1212UR (GaAlAs)

Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Power dissipation/Total	160	mW
Power dissipation/Chip	40	mW
Forward current	20	mA
Peak forward current	60*	mA
Reverse voltage	4	V
Operating temperature	-25 ~ +85	$^\circ\text{C}$
Storage temperature	-55 ~ +100	$^\circ\text{C}$

Electrical/Optical Characteristics ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Conditions	Min	Typ	Max.	Unit
Forward voltage/Chip	$V_F$	$I_F = 10\text{mA}$	—	1.9	2.1	V
Reverse current/Chip	$I_R$	$V_R = 4\text{V}$	—	—	10	$\mu\text{A}$
Luminous Intensity/Chip	$I_v$	$I_F = 10\text{mA}$	1300	2500	—	$\mu\text{cd}$
Peak wavelength	$\lambda_P$	$I_F = 10\text{mA}$	—	660	—	nm
Spectral line halfwidth	$\Delta\lambda$	$I_F = 10\text{mA}$	—	20	—	nm

\* Pulse Width . . . . . 1 ms  
Duty Cycle . . . . . 1/5

