

Kingbright®

45mm (1.8 INCH) SINGLE DIGIT NUMERIC DISPLAYS

SA18-11

SC18-11

SBA18-11

SBC18-11

Features

- 1.8 INCH DIGIT HEIGHT.
- LOW CURRENT OPERATION.
- EXCELLENT CHARACTER APPEARANCE.
- HIGH LIGHT OUTPUT.
- EASY MOUNTING ON P.C. BOARDS OR SOCKETS.
- I.C. COMPATIBLE.
- CATEGORIZED FOR LUMINOUS INTENSITY, YELLOW AND GREEN CATEGORIZED FOR COLOR.
- MULTICOLOR AVAILABLE.
- MECHANICALLY RUGGED.
- STANDARD : GRAY FACE, WHITE SEGMENT.

Description

The Bright Red source color devices are made with Gallium Phosphide Red Light Emitting Diode.

The Green source color devices are made with Gallium Phosphide Green Light Emitting Diode.

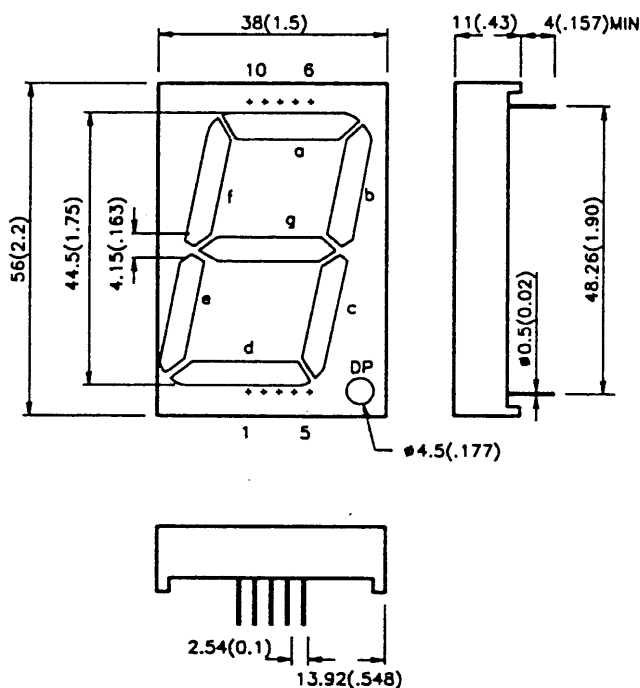
The High Efficiency Red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

The Yellow source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Yellow Light Emitting Diode.

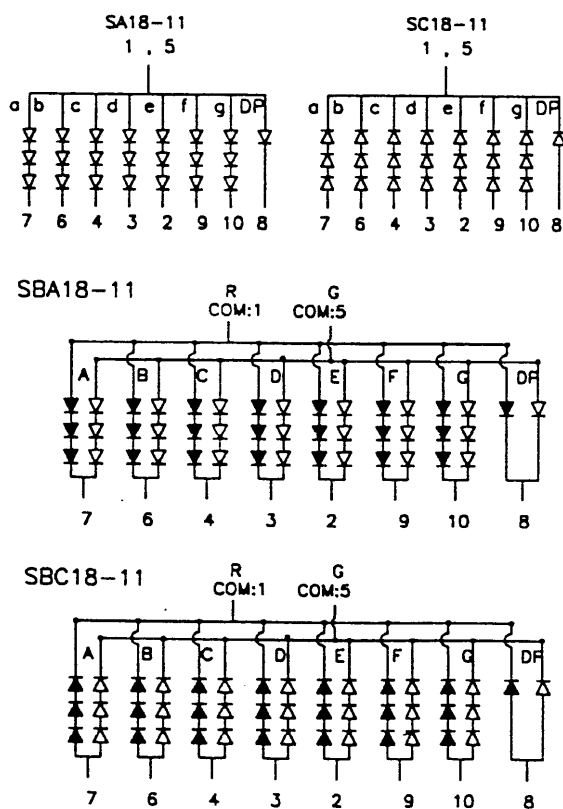
The Super Bright Red source color devices are made with Gallium Aluminum Arsenide Red Light Emitting Diode.

Package Dimensions

SA18-11 , SC18-11
SBA18-11 , SBC18-11



Internal Circuit Diagram



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25(0.01)$ unless otherwise noted.
3. Lead spacing is measured where the lead emerge package.
4. Specifications are subjected to change without notice.

Selection Guide

Part No.	Dice	Iv (ucd) @ 10 mA		Description
		Min.	Max.	
SA18-11HWA	BRIGHT RED (GaP)	900	2200	Common Anode, Rt. Hand Decimal
SC18-11HWA				Common Cathode, Rt Hand Decimal
SA18-11EWA	HIGH EFFICIENCY RED (GaAsP/GaP)	3600	21000	Common Anode, Rt. Hand Decimal
SC18-11EWA				Common Cathode, Rt Hand Decimal
SA18-11GWA	GREEN (GaP)	3600	9000	Common Anode, Rt. Hand Decimal
SC18-11GWA				Common Cathode, Rt Hand Decimal
SA18-11YWA	YELLOW (GaAsP/GaP)	3600	9000	Common Anode, Rt. Hand Decimal
SC18-11YWA				Common Cathode, Rt Hand Decimal
SA18-11SRWA	SUPER BRIGHT RED (GaAlAs)	14000	31000	Common Anode, Rt. Hand Decimal
SC18-11SRWA				Common Cathode, Rt Hand Decimal
SBA18-11EGWA	HIGH EFFICIENCY RED (GaAsP/GaP)	3600	21000	Common Anode, Rt. Hand Decimal
SBC18-11EGWA	GREEN (GaP)	3600	9000	Common Cathode, Rt Hand Decimal

Electrical / Optical Characteristics at T_A=25°C

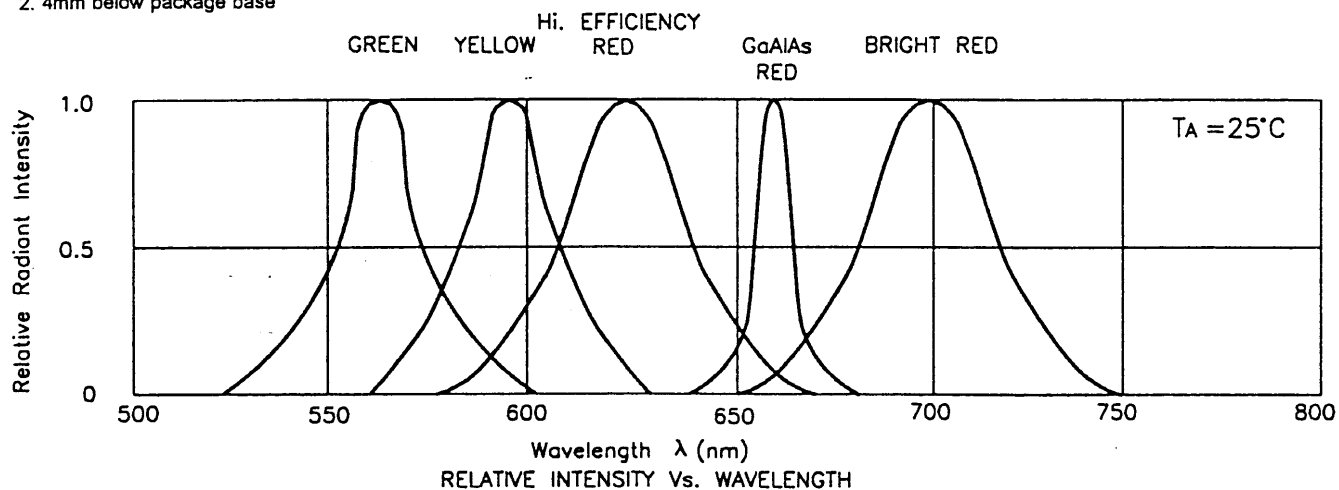
Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
λ_{peak}	Peak Wavelength	Bright Red High Efficiency Red Green Yellow Super Bright Red	700 625 565 590 660		nm	IF=20mA
$\Delta\lambda_{1/2}$	Spectral Line Halfwidth	Bright Red High Efficiency Red Green Yellow Super Bright Red	45 45 30 35 20		nm	IF=20mA
C	Capacitance	Bright Red High Efficiency Red Green Yellow Super Bright Red	40 12 45 10 95		pF	VF=0V; f=1MHz
V _F	Forward Voltage	Bright Red High Efficiency Red Green Yellow Super Bright Red	2.0 2.0 2.2 2.1 1.85	2.5 2.5 2.5 2.5 2.5	V	IF=20mA
I _R	Reverse Current	All	10		uA	VR = 5V

Absolute Maximum Ratings at $T_A=25^\circ\text{C}$

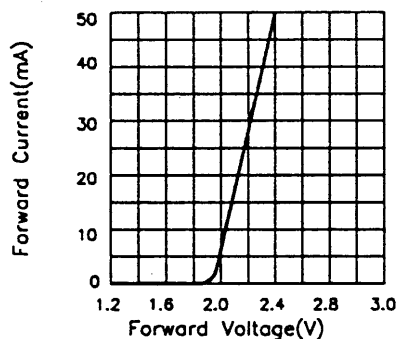
Parameter	Bright Red	High Efficiency Red	Green	Yellow	Super Bright Red	Units
Power dissipation	120	105	105	105	100	mW
DC Forward Current	25	30	25	30	30	mA
Peak Forward Current [1]	150	150	150	150	150	mA
Reverse Voltage	5	5	5	5	5	V
Operating/Storage Temperature	-40°C To $+85^\circ\text{C}$					
Lead Soldering Temperature [2]	260°C For 5 Seconds					

Notes:

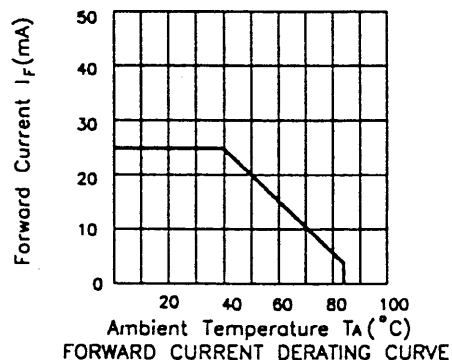
- $\tau \leq 10\mu\text{s}$.
- 4mm below package base



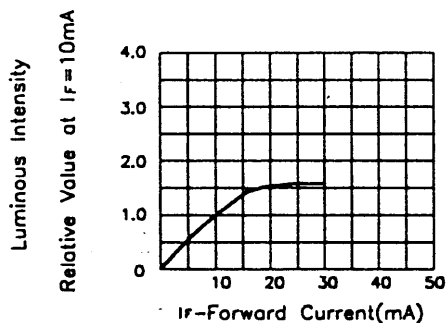
Bright Red



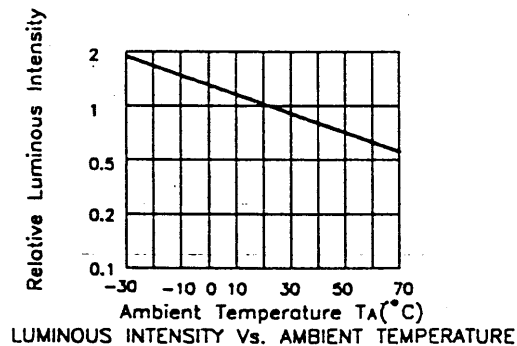
FORWARD CURRENT VS. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

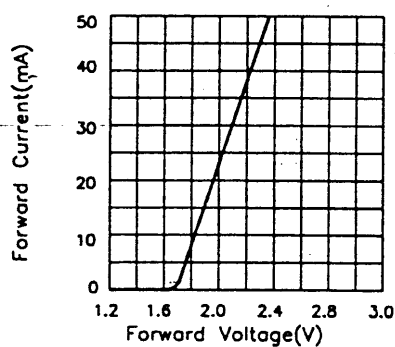


LUMINOUS INTENSITY VS. FORWARD CURRENT

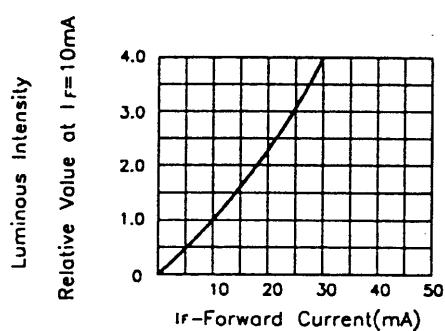


LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

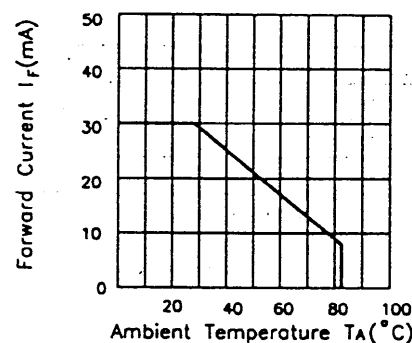
High Efficiency Red



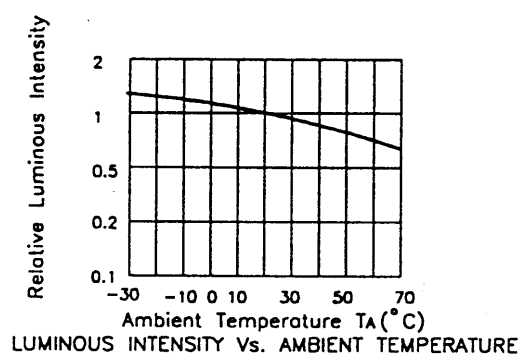
FORWARD CURRENT Vs. FORWARD VOLTAGE



LUMINOUS INTENSITY Vs. FORWARD CURRENT

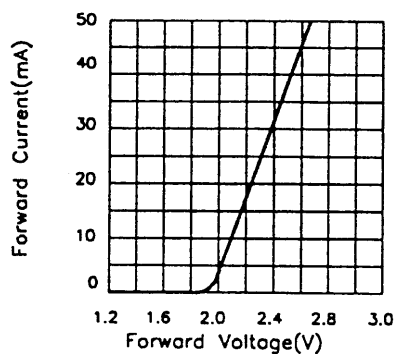


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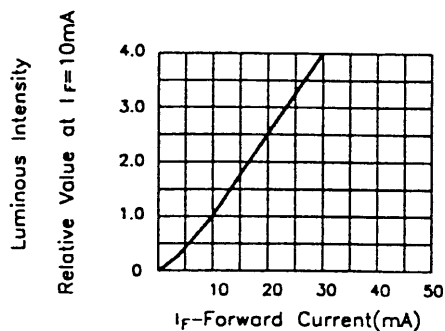


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

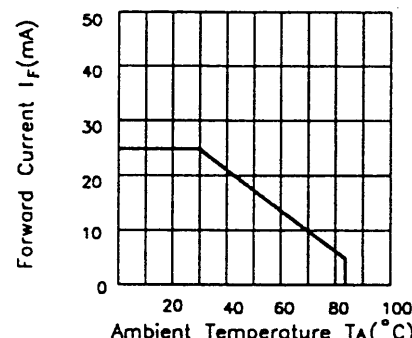
Green



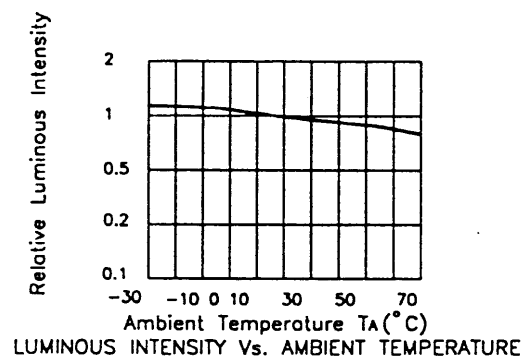
FORWARD CURRENT Vs. FORWARD VOLTAGE



LUMINOUS INTENSITY Vs. FORWARD CURRENT

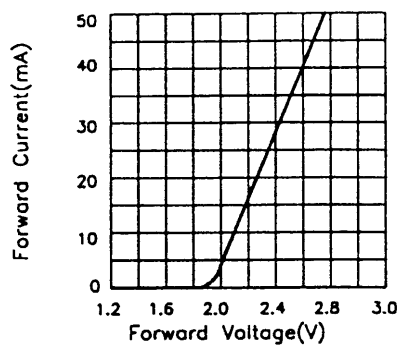


FORWARD CURRENT DERATING CURVE

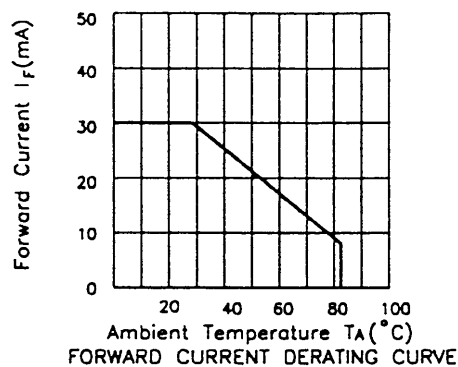


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

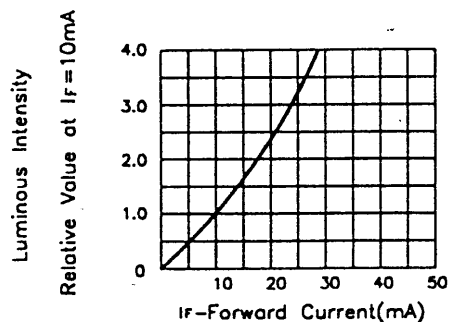
Yellow



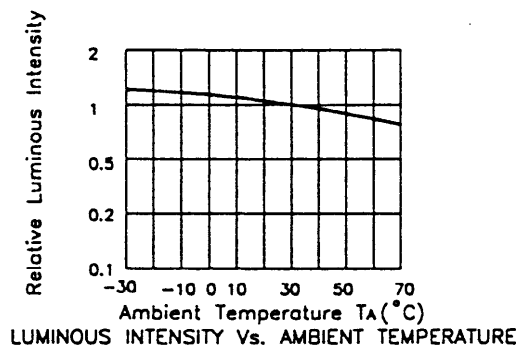
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

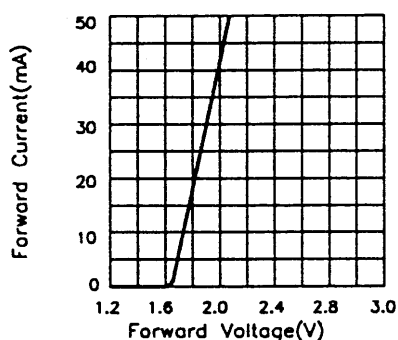


LUMINOUS INTENSITY Vs. FORWARD CURRENT

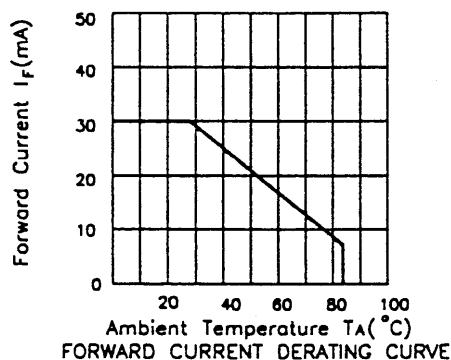


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

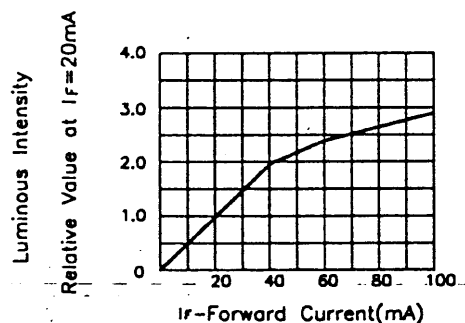
Super Bright Red



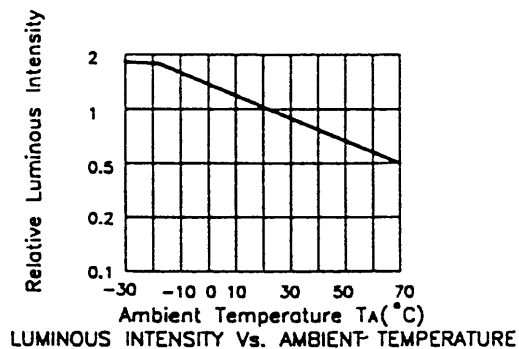
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE



LUMINOUS INTENSITY Vs. FORWARD CURRENT



LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

SINGLE DIGIT NUMERIC DISPLAYS

Kingbright®

Sx52	Sx56	Sx08-11	Sx10-11	Sx15	Sx18		
Part No.		Package Description	Emitting Color+ Material	Wavelength (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Max.	
SA52-11HWA	SC52-11HWA	0.52 inch (13.2mm) Gray Face White Segment	GaP	700	900	2200	7
SA52-11EWA	SC52-11EWA		GaAsP/GaP	625	2200	5600	
SA52-11GWA	SC52-11GWA		GaP	565	5600	17000	
SA52-11YWA	SC52-11YWA		GaAsP/GaP	590	2200	5600	
SA52-11SRWA	SC52-11SRWA		GaAlAs	660	5600	21000	
SA56-11HWA SA56-21HWA	SC56-11HWA SC56-21HWA	0.56 inch (14.2mm) Gray Face White Segment	GaP	700	560	1400	8
SA56-11EWA SA56-21EWA	SC56-11EWA SC56-21EWA		GaAsP/GaP	625	2200	5600	
SA56-11GWA SA56-21GWA	SC56-11GWA SC56-21GWA		GaP	565	5600	14000	
SA56-11YWA SA56-21YWA	SC56-11YWA SC56-21YWA		GaAsP/GaP	590	2200	5600	
SA56-11SRWA SA56-21SRWA	SC56-11SRWA SC56-21SRWA		GaAlAs	660	5600	21000	
SA08-11HWA SA08-12HWA SA08-13HWA SA08-21HWA	SC08-11HWA SC08-12HWA SC08-13HWA SC08-21HWA	0.8 inch (20.32mm) Gray Face White Segment	GaP	700	360	1400	9
SA08-11EWA SA08-12EWA SA08-13EWA SA08-21EWA	SC08-11EWA SC08-12EWA SC08-13EWA SC08-21EWA		GaAsP/GaP	625	2200	9000	
SA08-11GWA SA08-12GWA SA08-13GWA SA08-21GWA	SC08-11GWA SC08-12GWA SC08-13GWA SC08-21GWA		GaP	565	3600	14000	
SA08-11YWA SA08-12YWA SA08-13YWA SA08-21YWA	SC08-11YWA SC08-12YWA SC08-13YWA SC08-21YWA		GaAsP/GaP	590	1400	3600	
SA08-11SRWA SA08-12SRWA SA08-13SRWA SA08-21SRWA	SC08-11SRWA SC08-12SRWA SC08-13SRWA SC08-21SRWA		GaAlAs	660	9000	21000	
SA10-11HWA SA10-21HWA	SC10-11HWA SC10-21HWA	1.0 inch (25.4mm) Gray Face White Segment	GaP	700	900	2200	10
SA10-11EWA SA10-21EWA	SC10-11EWA SC10-21EWA		GaAsP/GaP	625	5600	14000	
SA10-11GWA SA10-21GWA	SC10-11GWA SC10-21GWA		GaP	565	9000	22000	
SA10-11YWA SA10-21YWA	SC10-11YWA SC10-21YWA		GaAsP/GaP	590	3600	9000	
SA10-11SRWA SA10-21SRWA	SC10-11SRWA SC10-21SRWA		GaAlAs	660	14000	31000	
SA15-11HWA	SC15-11HWA	1.5 inch (38mm) Gray Face White Segment	GaP	700	900	2200	11
SA15-11EWA	SC15-11EWA		GaAsP/GaP	625	3600	21000	
SA15-11GWA	SC15-11GWA		GaP	565	3600	9000	
SA15-11YWA	SC15-11YWA		GaAsP/GaP	590	3600	9000	
SA15-11SRWA	SC15-11SRWA		GaAlAs	660	14000	31000	
SBA15-11EGWA	SBC15-11EGWA		GaAsP/GaP	625	3600	21000	
			GaP	565	3600	9000	
SA18-11HWA	SC18-11HWA	1.8 inch (45mm) Gray Face White Segment	GaP	700	900	2200	12
SA18-11EWA	SC18-11EWA		GaAsP/GaP	625	3600	21000	
SA18-11GWA	SC18-11GWA		GaP	565	3600	9000	
SA18-11YWA	SC18-11YWA		GaAsP/GaP	590	3600	9000	
SA18-11SRWA	SC18-11SRWA		GaAlAs	660	14000	31000	
SBA18-11EGWA	SBC18-11EGWA		GaAsP/GaP	625	3600	21000	
			GaP	565	3600	9000	