

# INDEX

## SMD LED

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Part Number	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2θ 1/2

### 3.20mm×1.60mm×1.10mm (1206) Single Color Chip LED

	ZF-S3216DRA	AlGaAs/GaAs	Deep Red	660	640	2.00	2.40	20	10	20	120
	ZF-S3216RA	AlGaInP	Super Bright Red	632	624	2.00	2.40		80	115	
	ZF-S3216OA	AlGaInP	Super Bright Orange	610	605	2.00	2.40		80	150	
	ZF-S3216YA	AlGaInP	Super Bright Yellow	592	590	2.00	2.40		100	150	
	ZF-S3216YGA	AlGaInP	Yellow Green	575	573	2.00	2.40		20	40	
	ZF-S3216PGA	InGaN	Pure Green	520	525	3.20	3.60		300	600	
	ZF-S3216BA	InGaN	Blue	468	470	3.20	3.60		90	150	

### 2.00mm×1.25mm×1.10mm (0805) Single Color Chip LED

	ZF S2012RA	AlGaInP	Super Bright Red	632	624	2.00	2.40	20	70	115	120
	ZF S2012OA	AlGaInP	Super Bright Orange	610	605	2.00	2.40		100	150	
	ZF S2012YA	AlGaInP	Super Bright Yellow	592	590	2.00	2.40		80	120	
	ZF S2012YGA	AlGaInP	Yellow Green	575	573	2.00	2.40		20	40	
	ZF S2012PGA	InGaN	Pure Green	520	525	3.20	3.60		300	600	
	ZF S2012BA	InGaN	Blue	468	470	3.20	3.60		100	160	

### 1.60mm×0.80mm×0.60mm (0603) Single Color Chip LED

	ZF-S1608RA	AlGaInP	Super Bright Red	632	624	2.00	2.40	20	80	120	130
	ZF-S1608OA	AlGaInP	Super Bright Orange	610	605	2.00	2.40		80	120	
	ZF-S1608YA	AlGaInP	Super Bright Yellow	592	590	2.00	2.40		80	120	
	ZF-S1608YGA	AlGaInP	Yellow Green	575	573	2.00	2.40		20	40	
	ZF-S1608PGA	InGaN	Pure Green	520	525	3.20	3.60		500	850	
	ZF-S1608BA	InGaN	Blue	468	470	3.20	3.60		130	200	

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Part Number	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2 $\theta$ 1/2

1.00mmx0.50mmx0.45mm Single Color Chip LED

ZF-S1005RA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	50	100	120
ZF-S1005OA	AlGaInP	Super Bright Orange	610	605		2.00	2.40		40	80	
ZF-S1005YA	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		50	100	
ZF-S1005YGA	AlGaInP	Yellow Green	575	573		2.00	2.40		20	50	
ZF-S1005PGA	InGaN	Pure Green	520	525		3.20	3.60		150	250	
ZF-S1005BA	InGaN	Blue	468	470		3.20	3.60		40	80	

3.20mmx1.60mmx1.40mm With Inner Lens Single Color Chip LED(内凹球头)

ZF-S3216RAIL	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	200	400	60
ZF-S3216OAIL	AlGaInP	Super Bright Orange	610	605		2.00	2.40		250	500	
S3216YAILS	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		200	450	
ZF-S3216YGAIL	AlGaInP	Yellow Green	575	573		2.00	2.40		100	200	
ZF-S3216PGAIL	InGaN	Pure Green	520	525		3.20	3.60		750	1000	
ZF-S3216BAIL	InGaN	Blue	468	470		3.20	3.60		500	850	

3.2mmx2.40mmx2.50mm 1.80mm Round Subminiature Single Color Chip LED

ZF-S3224RSRA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	1000	1500	20
ZF-S3224RSOA	AlGaInP	Super Bright Orange	610	605		2.00	2.40		1000	1500	
ZF-S3224RSYA	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		1000	1500	
ZF-S3224RSYGA	AlGaInP	Yellow Green	575	573		2.00	2.40		500	1000	
ZF-S3224RSPGA	InGaN	Pure Green	520	525		3.20	3.60		2000	4000	
ZF-S3224RSBA	InGaN	Blue	468	470		3.20	3.60		1000	1500	

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Part Number	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd) / $\Phi V$ (lm)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2 $\theta$ 1/2

### 3.00mmx2.00mmx1.30mm PLCC-2 Top View Single Color LED

ZF-S3020RA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	150	250	130
ZF-S3020OA	AlGaInP	Super Bright Orange	610	605		2.00	2.40		150	300	
ZF-S3020YA	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		150	250	
ZF-S3020YGA	AlGaInP	Yellow Green	575	573		2.00	2.40		20	50	
ZF-S3020PGA	InGaN	Pure Green	520	525		3.20	3.60		750	1000	
ZF-S3020BA	InGaN	Blue	468	470		3.20	3.60		200	400	

### 3.50mmx2.80mmx1.90mm PLCC-2 Top View Single Color LED

ZF-S3528RA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	150	250	120
ZF-S3528RA-H	AlGaInP	Super Bright Red	632	624		2.00	2.40		400	600	
ZF-S3528OA	AlGaInP	Super Bright Orange	610	605		2.00	2.40		100	200	
ZF-S3528YA	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		150	250	
ZF-S3528YA-H	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		400	600	
ZF-S3528YGA	AlGaInP	Yellow Green	575	573		2.00	2.40		30	70	
ZF-S3528PGA	InGaN	Pure Green	520	525		3.20	3.60		800	1200	
ZF-S3528BA	InGaN	Blue	468	470		3.20	3.60		200	400	

### 3.50mmx2.80mmx3.25mm Top View Single Color LED With Lens

ZF-S3528LRA	AlGaInP	Super Bright Red	632	624	White Diffused	2.20	2.60	60	2000	3000	60
ZF-S3528LYA	AlGaInP	Super Bright Yellow	594	592		2.20	2.60		2000	3000	

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Part Number	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd) / $\Phi_V$ (lm) / E <sub>e</sub> (mW/Sr)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2θ 1/2

### 5.00mmx5.50mmx1.50mm PLCC-6 Top View Single Color LED

	ZF-S5050RB	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20x3	400	600
ZF-S5050RB-H	AlGaInP	Super Bright Red	632	624	2.00		2.40	1200		1600	
ZF-S5050OB	AlGaInP	Super Bright Orange	610	605	2.00		2.40	400		600	
ZF-S5050YB	AlGaInP	Super Bright Yellow	592	590	2.00		2.40	500		700	
ZF-S5050YB-H	AlGaInP	Super Bright Yellow	592	590	2.00		2.40	1200		1600	
ZF-S5050YGB	AlGaInP	Yellow Green	575	573	2.00		2.40	200		350	
ZF-S5050PGB	InGaN	Pure Green	520	525	3.20		3.60	3500		4500	
ZF-S5050BB	InGaN	Blue	468	470	3.20		3.60	800		1200	

### 5.00mmx5.50mmx1.00mm PLCC-2 Top View Single Color LED

	ZF-S5050UVCA-A	InGaN	Deep UV	265	/	Water Clear	7.00	8.50	20	0.20	0.60
ZF-S5050UVCA-B	InGaN	Deep UV	280	/	6.00		7.50	0.50		1.30	
ZF-S5050UVBA-C	InGaN	Deep UV	310	/	6.00		7.50	0.50		1.50	

### 1.60mmx1.50mmx0.75mm Bi-color Chip LED

	ZF-S1615DRYGA	AlGaAs/GaAs	Deep Red	660	640	Water Clear	2.00	2.40	20	20	35
	GaP/GaP	Yellow Green	565	570	2.00		2.40	10		20	
ZF-S1615RYGA	AlGaInP	Super Bright Red	632	624	2.00		2.40	70		110	
	AlGaInP	Yellow Green	575	573	2.00		2.40	25		40	

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	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2θ 1/2

1.90mmx1.60mmx0.80mm Bi-color Chip LED

	ZF-S1916RYGA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	35	70
	AlGaInP	Yellow Green	575	573	2.00		2.40	25		60	

3.20mmx2.70mmx1.10mm Bi-color Chip LED

	ZF-S3227RYGA	AlGaAs/GaAs	Deep Red	660	640	Water Clear	2.00	2.40	20	10	20
	GaP/GaP	Yellow Green	565	570	2.00		2.40	10		20	
ZF-S3227RYGA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	80	120	120
	AlGaInP	Yellow Green	575	573		2.00	2.40		35	70	

3.20mmx1.25mmx1.10mm Reverse Package Bi-color Chip LED

	ZF-S3212RYGA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	40	75
	AlGaInP	Yellow Green	575	573	2.00		2.40	20		55	

3.00mmx2.50mmx1.50mm With Inner Lens Bi-color Chip LED

	ZF-S3025RYGAIL	@AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	100	200
	AlGaInP	Yellow Green	575	573	2.00		2.40	50		100	

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	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2 $\theta$ 1/2

3.00mmx1.00mmx2.00mm With Right Angle Lens Bi-color Chip LED

	ZF-S3010RYGA	<table border="1"> <tr> <td>AlGaInP</td> <td>Super Bright Red</td> <td>632</td> <td>624</td> <td rowspan="2">Water Clear</td> <td>2.00</td> <td>2.40</td> <td rowspan="2">20</td> <td>40</td> <td>80</td> <td rowspan="2">120</td> </tr> <tr> <td>AlGaInP</td> <td>Yellow Green</td> <td>575</td> <td>573</td> <td>2.00</td> <td>2.40</td> <td>30</td> <td>50</td> </tr> </table>	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	40	80	120	AlGaInP	Yellow Green	575	573	2.00	2.40	30
AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40		20	40		80	120								
AlGaInP	Yellow Green	575	573		2.00	2.40	30		50											

3.20mmx2.40mmx2.50mm 1.80mm Round Subminiature Bi-color Chip LED

	ZF-S3224RYGA-R	<table border="1"> <tr> <td>AlGaAs/GaAs</td> <td>Deep Red</td> <td>660</td> <td>640</td> <td rowspan="4">Water Clear</td> <td>2.00</td> <td>2.40</td> <td rowspan="4">20</td> <td>50</td> <td>80</td> <td rowspan="4">30</td> </tr> <tr> <td>GaP/GaP</td> <td>Yellow Green</td> <td>565</td> <td>570</td> <td>2.00</td> <td>2.40</td> <td>25</td> <td>50</td> </tr> <tr> <td>AlGaInP</td> <td>Super Bright Red</td> <td>632</td> <td>624</td> <td>2.00</td> <td>2.40</td> <td>80</td> <td>150</td> </tr> <tr> <td>AlGaInP</td> <td>Yellow Green</td> <td>575</td> <td>573</td> <td>2.00</td> <td>2.40</td> <td>20</td> <td>40</td> </tr> </table>	AlGaAs/GaAs	Deep Red	660	640	Water Clear	2.00	2.40	20	50	80	30	GaP/GaP	Yellow Green	565	570	2.00	2.40	25	50	AlGaInP	Super Bright Red	632	624	2.00	2.40	80	150	AlGaInP	Yellow Green	575	573	2.00	2.40	20
AlGaAs/GaAs	Deep Red	660	640	Water Clear	2.00	2.40		20	50		80	30																								
GaP/GaP	Yellow Green	565	570		2.00	2.40			25		50																									
AlGaInP	Super Bright Red	632	624		2.00	2.40			80		150																									
AlGaInP	Yellow Green	575	573		2.00	2.40	20		40																											

1.60mmx1.60mmx0.35mm (0606) Multi-Color Chip LED

	ZF-S1616RGBGA	<table border="1"> <tr> <td>AlGaInP</td> <td>Super Bright Red</td> <td>632</td> <td>624</td> <td rowspan="3">Water Clear</td> <td>2.00</td> <td>2.40</td> <td rowspan="3">20</td> <td>60</td> <td>100</td> <td rowspan="3">120</td> </tr> <tr> <td>InGaIn</td> <td>Pure Green</td> <td>520</td> <td>525</td> <td>3.20</td> <td>3.60</td> <td>150</td> <td>200</td> </tr> <tr> <td>InGaIn</td> <td>Blue</td> <td>468</td> <td>470</td> <td>3.20</td> <td>3.60</td> <td>35</td> <td>70</td> </tr> </table>	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	60	100	120	InGaIn	Pure Green	520	525	3.20	3.60	150	200	InGaIn	Blue	468	470	3.20	3.60	35
AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40		20	60		100	120																
InGaIn	Pure Green	520	525		3.20	3.60			150		200																	
InGaIn	Blue	468	470		3.20	3.60	35		70																			

1.60mmx1.50mmx0.60mm (0606) Multi-Color Chip LED

	ZF-S1615RGBAGA	<table border="1"> <tr> <td>AlGaInP</td> <td>Super Bright Red</td> <td>632</td> <td>624</td> <td rowspan="3">Water Clear</td> <td>2.00</td> <td>2.40</td> <td rowspan="3">20</td> <td>80</td> <td>120</td> <td rowspan="3">120</td> </tr> <tr> <td>InGaIn</td> <td>Pure Green</td> <td>520</td> <td>525</td> <td>3.20</td> <td>3.60</td> <td>250</td> <td>400</td> </tr> <tr> <td>InGaIn</td> <td>Blue</td> <td>468</td> <td>470</td> <td>3.20</td> <td>3.60</td> <td>80</td> <td>120</td> </tr> </table>	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	80	120	120	InGaIn	Pure Green	520	525	3.20	3.60	250	400	InGaIn	Blue	468	470	3.20	3.60	80
AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40		20	80		120	120																
InGaIn	Pure Green	520	525		3.20	3.60			250		400																	
InGaIn	Blue	468	470		3.20	3.60	80		120																			

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	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2 $\theta$ 1/2

### 1.60mm×1.60mm×0.35mm (0606) Multi-Color Chip LED

	ZF-S1616RGBAGA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	60	100	120
		InGaN	Pure Green	520	525		3.20	3.60		150	400	
	InGaN	Blue	468	470	3.20		3.60	35		70		

### 3.00mm×1.00mm×1.50mm (1204) With Right Lens Multi-Color Chip LED

	ZF-S3010RGBAGA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	80	120	100
		InGaN	Pure Green	520	525		3.20	3.60		200	350	
	InGaN	Blue	468	470	3.20		3.60	50		100		

### 3.00mm×1.00mm×2.00mm (1204) With Right Lens Multi-Color Chip LED

	ZF-S3010RGBAGA-A	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	80	120	120
		InGaN	Pure Green	520	525		3.20	3.60		200	350	
	InGaN	Blue	468	470	3.20		3.60	40		80		

### 3.20mm×2.60mm×1.10mm (1210) Multi-Color Chip LED

	ZF-S3226RGBAGA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	80	120	120
		InGaN	Pure Green	520	525		3.20	3.60		200	300	
	InGaN	Blue	468	470	3.20		3.60	80		120		

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2. Tolerance is  $\pm 0.10\text{mm}$  (.004") unless otherwise noted.

3. Specifications are subject to change without notice.



	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2 $\theta$ 1/2

### 3.20mmx2.40mmx2.50mm (1210) 1.80mm Round Subminiature Multi-color Chip LED

ZF-SB224RGBAGA-R											
	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	30	60	60
	InGaN	Pure Green	520	525		3.20	3.60		150	300	
InGaN	Blue	468	470	3.20		3.60	25		50		

### 2.00mmx1.80mmx0.85mm (0807) Multi-Color Blinking Chip LED

ZF-S2018RGBICGA											
	AlGaInP	Super Bright Red	632	624	Water Clear	3.00	3.50	20	80	150	120
	InGaN	Pure Green	520	525					250	500	
InGaN	Blue	468	470	150					200		

### 3.50mmx2.80mmx1.90mm PLCC-4 Top View Bi-Color LED

ZF-S3528RYGA-4										
	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	100	200
AlGaInP	Yellow Green	575	573	2.00		2.40	30		70	

### 1.5mmx1.50mmx1.00mm PLCC-4 Top View Multi-Color LED

ZF-S1515RGBAGA-4											
	AlGaInP	Super Bright Red	632	624	White Diffused	2.00	2.40	8	28	44	120
	InGaN	Pure Green	520	525		3.00	3.40	5	95	160	
InGaN	Blue	468	470	3.00		3.40	3	10	20		

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Part	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2θ 1/2

3.50mmx2.80mmx1.90mm PLCC-4 Top View Multi-Color LED

	ZF-S3528RGBAGA-4	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	200	400	120
		InGaN	Pure Green	520	525		3.20	3.60		800	1200	
InGaN		Blue	468	470	3.20		3.60	150		300		

3.5mmx2.80mmx1.80mm PLCC-6 Top View Multi-Color LED

	ZF-S3528RGBGA-6	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	400	600	120
		InGaN	Pure Green	520	525		3.20	3.60		1200	1500	
InGaN		Blue	468	470	3.20		3.60	400		550		

5.0mmx5.50mmx1.50mm PLCC-6 Top View Multi-Color LED

	ZF-S5050RGBGA-6	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	450	600	120
		InGaN	Pure Green	520	525		3.20	3.60		800	1250	
InGaN		Blue	468	470	3.20		3.60	200		350		

5.50mmx5.00mmx1.50mm PLCC-4 Top View Multi-Color Intelligent Control LED

	ZF-S5050RGBGA-4	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	250	500	120
		InGaN	Pure Green	520	525		3.20	3.40		500	1000	
InGaN		Blue	468	470	3.20		3.40	150		250		

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3. Specifications are subject to change without notice.

Part Number	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd) / $\Phi_V$ (lm)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2 $\theta$ 1/2

5.00mmx5.50mmx1.50mm PLCC-8 Top View Multi-Color LED

	ZF-S5050RGBW-8	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	300	500
	InGaN	Pure Green	520	525	3.20		3.40	1500		2200	
	InGaN	Blue	468	470	3.20		3.40	250		450	
	InGaN	Cool White	x=0.31	y=0.32	Yellow Diffused		3.20	3.40		9 lm	10 lm

3.20mmx1.60mmx1.10mm (1206) Single Color Chip LED

	ZF-S3216WA-D	InGaN	Cool White	x=0.27	y=0.28	Yellow Diffused	3.20	3.60	20	700	1100
ZF-S3216WA-A	InGaN	Warm White	x=0.43	y=0.40	3.20		3.60	500		900	

2.00mmx1.25mmx1.10mm (0805) Single Color Chip LED

	ZF-S2012WA-D	InGaN	Cool White	x=0.30	y=0.30	Yellow Diffused	3.20	3.60	20	400	600

1.60mmx0.80mmx0.60mm (0603) Single Color Chip LED

	ZF-S1608WA-D	InGaN	Cool White	x=0.27	y=0.27	Yellow Diffused	3.20	3.60	20	400	650

1. All dimensions are in millimeters (inches).

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3. Specifications are subject to change without notice.

Part Number	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2 $\theta$ 1/2

1.00mmx0.50mmx0.45mm Single Color Chip LED

	ZF-S1005WA-D	InGaN				Cool White	x=0.31	y=0.32	Yellow Diffused	3.20	3.60

3.20mmx1.60mmx1.10mm With Inner Lens Single Color Chip LED

	ZF-S3216ILWAIL-D	InGaN				Cool White	x=0.31	y=0.32	Yellow Diffused	3.20	3.60

3.20mmx2.40mmx2.50mm 1.80mm Round Subminiature Single Color Chip LED

	ZF-S3224RWA-D	InGaN				Cool White	x=0.31	y=0.32	Yellow Diffused	3.20	3.60

3.20mmx1.00mmx1.50mm With Right Lens Single Color Chip LED

	ZF-S3210WA-D	InGaN				Cool White	x=0.30	y=0.30	Yellow Diffused	3.20	3.60

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Part Number	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2 $\theta$ 1/2

3.00mmx1.00mmx2.00mm With Right Lens Single Color Chip LED

	ZF-S3010WA-D -	InGaN	Cool White	x=0.31	y=0.32	Yellow Diffused	3.20	3.60	20	80	150

2.10mmx0.60mmx1.00mm With Right Lens Single Color Chip LED

	ZF-S2106WA-D	InGaN	Cool White	x=0.31	y=0.32	Yellow Diffused	3.20	3.60	20	80	150

2.80mmx1.20mmx0.80mm PLCC-2 Side View Single Color LED

	ZF-S2812WA-D	InGaN	Cool White	x=0.30	y=0.30	Yellow Diffused	3.20	3.60	20	1200	1600

3.5mmx1.20mmx0.60mm PLCC-2 Side View Single Color LED

	ZF-S3512WA-D	InGaN	Cool White	x=0.27	y=0.27	Yellow Diffused	3.20	3.60	20	2300	3200

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Part Number	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2θ 1/2

#### 4.00mmx1.40mmx0.80mm PLCC-2 Side View Single Color LED

	ZF-S4014WA-D	InGaN	Cool White	x=0.31	y=0.32	Yellow Diffused	3.20	3.60	20	1000	1800

#### 3.00mmx2.00mmx1.30mm PLCC-2 Top View Single Color LED

	ZF-S3020WA-D	InGaN	Cool White	x=0.31	y=0.32	Yellow Diffused	3.20	3.60	20	1800	2300
ZF-S3020WA-A	InGaN	Warm White	x=0.43	y=0.40	3.20		3.60	1800		2100	

#### 3.50mmx2.80mmx1.90mm PLCC-2 Top View Single Color LED

	ZF-S3528WA-D	InGaN	Cool White	x=0.31	y=0.32	Yellow Diffused	3.20	3.60	20	2000	2500
ZF-S3528WA-A	InGaN	Warm White	x=0.43	y=0.40	3.20		3.60	2000		2300	

#### 5.00mmx5.50mmx1.50mm PLCC-6 Top View Single Color LED

	ZF-S5050WA-D-6	InGaN	Cool White	x=0.31	y=0.32	Yellow Diffused	3.20	3.60	20x3	5800	6500
ZF-S5050WA-A-6	InGaN	Warm White	x=0.43	y=0.40	3.20		3.60	5800		6300	

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3. Specifications are subject to change without notice.



Part Number	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2 $\theta$ 1/2

3.20mmx1.60mmx1.10mm Reverse Package Single Color Chip LED

	ZF-S3216RA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	25	60	130
	ZF-S3216YA	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		25	60	
	ZF-S3216YGA	AlGaInP	Yellow Green	575	573		2.00	2.40		15	30	
	ZF-S3216PGA	InGaN	Pure Green	520	525		3.20	3.60		100	250	
	ZF-S3216BA	InGaN	Blue	468	470		3.20	3.60		25	50	

3.20mmx1.60mmx1.10mm Reverse Package Single Color Chip LED

	ZF-S3216RAC	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	25	60	130
	ZF-S3216YAC	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		25	60	
	ZF-S3216YGAC	AlGaInP	Yellow Green	575	573		2.00	2.40		15	30	
	ZF-S3216PGAC	InGaN	Pure Green	520	525		3.20	3.60		100	250	
	ZF-S3216BAC	InGaN	Blue	468	470		3.20	3.60		25	50	

3.20mmx1.25mmx1.10mm Reverse Package Single Color Chip LED

	ZF-S3212RA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	25	60	130
	ZF-S3212YA	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		25	60	
	ZF-S3212TGA	AlGaInP	Yellow Green	575	573		2.00	2.40		15	30	
	ZF-S3212PGA	InGaN	Pure Green	520	525		3.20	3.60		100	250	
	ZF-S3212BA	InGaN	Blue	468	470		3.20	3.60		25	50	

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Part Number	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2θ 1/2

3.20mmx1.60mmx1.10mm With Inner Lens Single Color Chip LED

	ZF-S3216RAIL	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	100	200	60
	ZF-S3216YAIL	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		100	200	
	ZF-S3216YGAIL	AlGaInP	Yellow Green	575	573		2.00	2.40		40	80	
	ZF-S3216PGAIL	InGaN	Pure Green	520	525		3.20	3.60		300	600	
	ZF-S3216BAIL	InGaN	Blue	468	470		3.20	3.60		80	120	

3.20mmx1.60mmx1.90mm 1.60mm Round Subminiature Reverse Package Single Color Chip LED

	ZF-3216RAR	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	400	650	30
	ZF-3216OAR	AlGaInP	Super Bright Orange	610	605		2.00	2.40		750	1000	
	ZF-3216YAR	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		350	700	
	ZF-3216YGAR	AlGaInP	Yellow Green	575	573		2.00	2.40		250	350	
	ZF-3216PGAR	InGaN	Pure Green	520	525		3.20	3.60		1000	1500	
ZF-3216BAR	InGaInP	Blue	468	470	3.20	3.60	500	750				

3.20mmx1.00mmx1.50mm With Right Lens Single Color Chip LED

	ZF-S3210RA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	100	150	120
	ZF-S3210YA	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		100	150	
	ZF-S3210YGA	AlGaInP	Yellow Green	575	573		2.00	2.40		20	45	
	ZF-S3210PGA	InGaN	Pure Green	520	525		3.20	3.60		300	600	
	ZF-S3210BA	InGaN	Blue	468	470		3.20	3.60		80	120	

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Part Number	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2θ 1/2

3.00mmx1.00mmx2.00mm With Right Lens Single Color Chip LED

ZF-S3010RA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	50	100	120
ZF-S3010OA	AlGaInP	Super Bright Orange	610	605		2.00	2.40		90	150	
ZF-S3010YA	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		60	120	
ZF-S3010YGA	AlGaInP	Yellow Green	575	573		2.00	2.40		25	40	
ZF-S3010PGA	InGaN	Pure Green	520	525		3.20	3.60		100	250	
ZF-S3010BA	InGaN	Blue	468	470		3.20	3.60		40	80	

2.10mmx0.60mmx1.00mm With Right Lens Single Color Chip LED

ZF-S2106RA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	35	60	130
ZFS2106YA	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		35	60	
ZF-S2106YGA	AlGaInP	Yellow Green	575	573		2.00	2.40		15	30	
ZF-S2106PGA	InGaN	Pure Green	520	525		3.20	3.60		100	150	
ZF-S2106BA	InGaN	Blue	468	470		3.20	3.60		25	40	


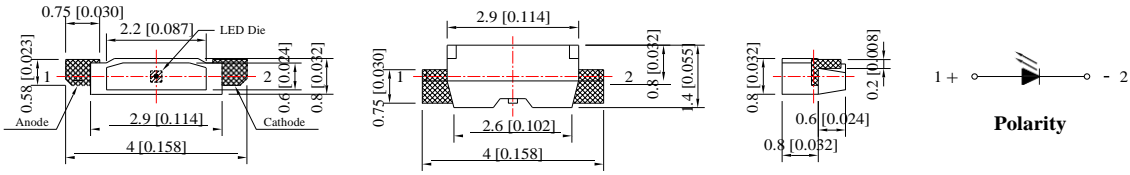
3.80mmx1.20mmx0.60mm PLCC-2 Side View Single Color LED

ZF-3812RA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	300	500	120
ZF-3812YA	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		400	550	
ZF-3812PGA	InGaN	Pure Green	520	525		3.20	3.60		700	1000	
ZF-3812BA	InGaN	Blue	468	470		3.20	3.60		200	450	

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Part Number	Chip Material	Emitting Color	$\lambda_p$ (nm) / x	$\lambda_d$ (nm) / y	Lens Color	VF (V)		IV (mcd)			Viewing Angle
						Typ.	Max.	IF=mA	Min.	Typ.	2θ 1/2

**4.00mmx1.40mmx0.80mm PLCC-2 Side View Single Color LED**

												
	ZF-S4014RA	AlGaInP	Super Bright Red	632	624	Water Clear	2.00	2.40	20	300	500	120
	ZF-S4014OA	AlGaInP	Super Bright Orange	610	605		2.00	2.40		150	250	
	ZF-S4014YA	AlGaInP	Super Bright Yellow	592	590		2.00	2.40		400	550	
	ZF-S4014YGA	AlGaInP	Yellow Green	573	571		2.00	2.40		40	70	
	ZF-S4014PGA	InGaN	Pure Green	520	525		3.20	3.60		900	1300	
	ZF-S4014BA	InGaN	Blue	468	470		3.20	3.60		150	300	



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