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DATA SHEET

PART NO. : EP204K-150G1R1B1-CA

V : A / 0

CUSTOMER'S APPROVAL : _____ DCC : _____

DRAWING NO. : DS-51-04-0020

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Page : 1



EP204K-150G1R1B1-CA

V A/O

Enhanced Power LED Revolutionary Light Source Module

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FEATURES

- Full color in one single LED
- Low thermal resistance
- Changeable color temperature

TYPICAL APPLICATIONS

- Reading Light / Flashlight / Track Lighting
- Under Shelf / Task Lighting
- Emergency Lighting / Traffic Signals
- Bollards / Security / Garden Lighting
- Full Color Sign Boards

ABSOLUTE MAXIMUM RATINGS $T_a=25^{\circ}\text{C}$

Parameter	EP204K-150G1R1B1-CA	Units
DC Forward Current	150	mA
Pulsed Forward Current	200	mA
Power Dissipation	1.6	W
Electrostatic Discharge Threshold	400	V
Operating Temperature Range	-35 to 85	$^{\circ}\text{C}$
Storage Temperature Range	-35 to 85	$^{\circ}\text{C}$
Soldering Temperature	235	$^{\circ}\text{C}$
Thermal Resistance $R_{\theta\text{J-PCB-AIR}}(^{\circ}\text{C} / \text{W})$	55	$^{\circ}\text{C}/\text{W}$
LED Junction Temperature	110	$^{\circ}\text{C}$

Operating conditions

1. RGB operating condition under $f=0.5\sim 2\text{Hz}$ and 1/2 duty cycle.
2. 1.6W : 6pins of E-Power LED must be mounted on Al PCB.
(Al PCB : 50mm*50mm 2.0t / two layers / 2.0 oz)
3. LED Operating required Anti-electrostatic devices in all equipment , machinery, ,and manual assembly.
4. Convective IR Reflow Soldering.
5. Suggested operation current 150mA

ELECTRICAL CHARACTERISTICS

Ta=25°C IF=150mA

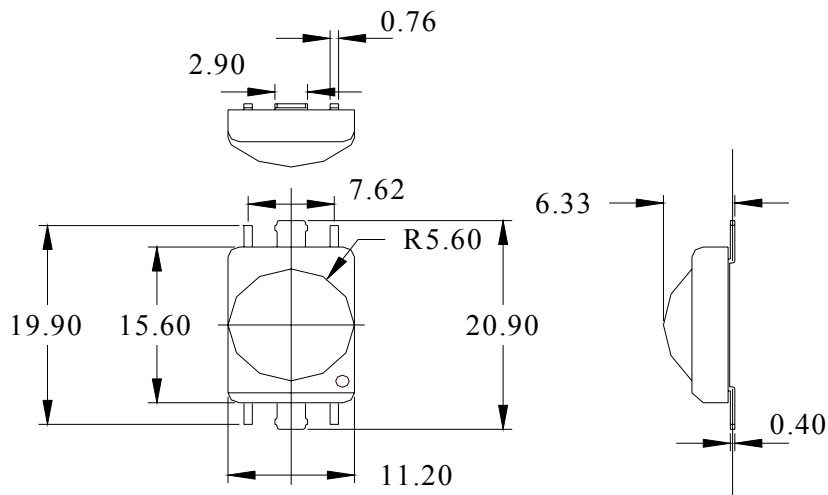
Device Type	Forward Voltage			Dark Current	Intensity	Total Flux	(D(nm) or CCT(°K))	Viewing Angle
	Min	Typ	Max	VR=5V IR=(uA)	IV (CD)	(lm)		2(1/2 (Degrees)
Unit	Min	Typ	Max	Max	150mA min	150mA Typ	150mA Typ	Typ
EP204K-150G1R1B1-CA-TR1	-	-	-	-	8.5	17.0	8.0	2500~8000 100°
Green	-	3.5	4.0	10	6.0	12	3.5	520~525 Green -
Blue	-	3.5	4.0	10	1.5	3.0	3.0	465~470 Blue -
Red	-	2.0	2.5	10	1.0	2.0	1.5	619~624 Red Orange -

The specification is subject to change without notice.

OUTLINE DRAWINGS



EP204K-150G1R1B1X



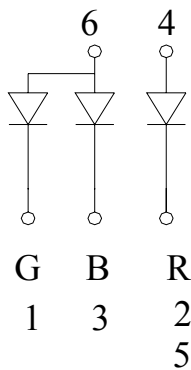
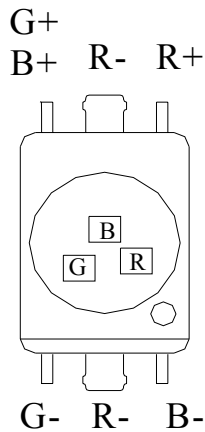
NOTE

1. All dimensions are in millimeters.
2. Tolerance is 0.25mm unless otherwise specified.
3. This specification is subject to change without notice.

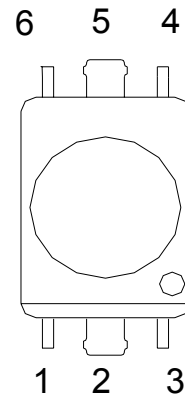
PIN CONNECTION

EP204K-150G1R1B1-CA

(COMMON ANODE)



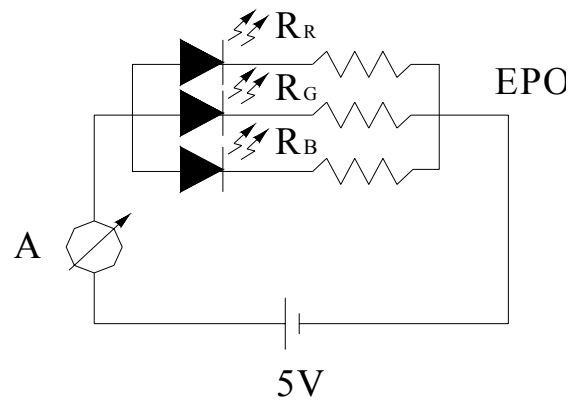
(COMMON ANODE)



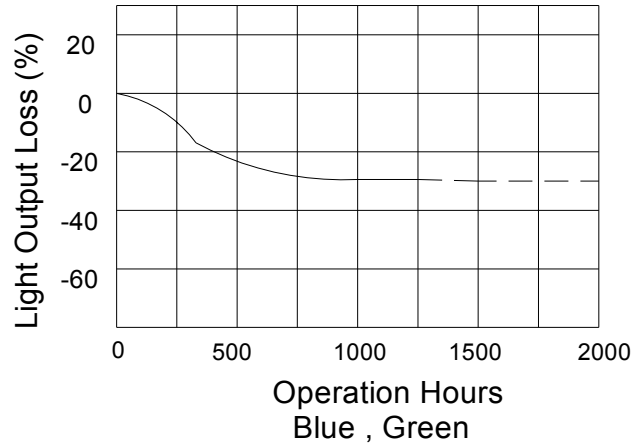
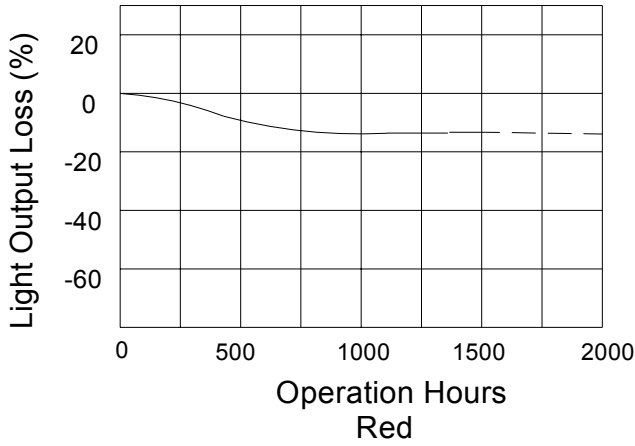
TEST CIRCUIT

EK204K-150G1R1B1-CA

COLOR	V _f	R=150mA
R _R	2.4V	17.33ohm
R _G	3.5V	10.0ohm
R _B	3.5V	10.0ohm



Operation Life



E-POWER VF BIN SELECTION

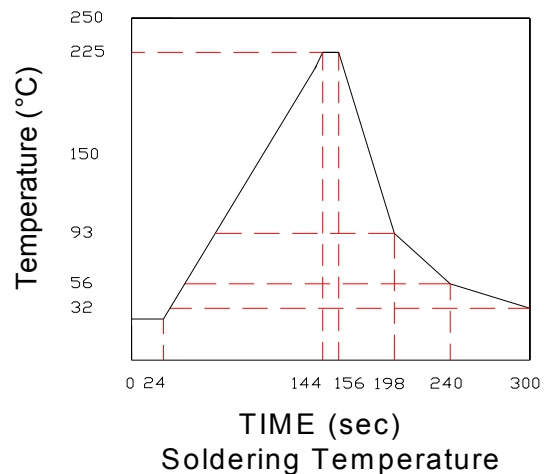
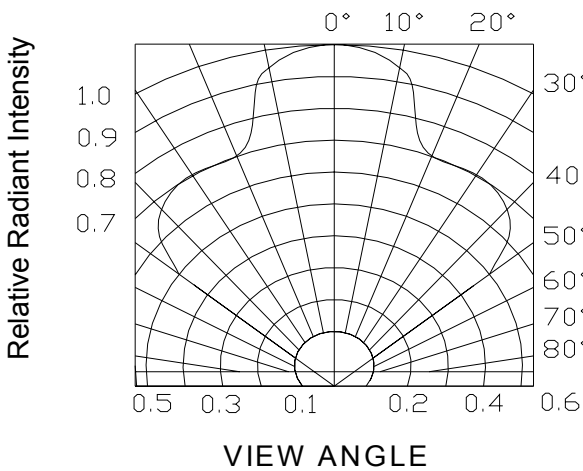
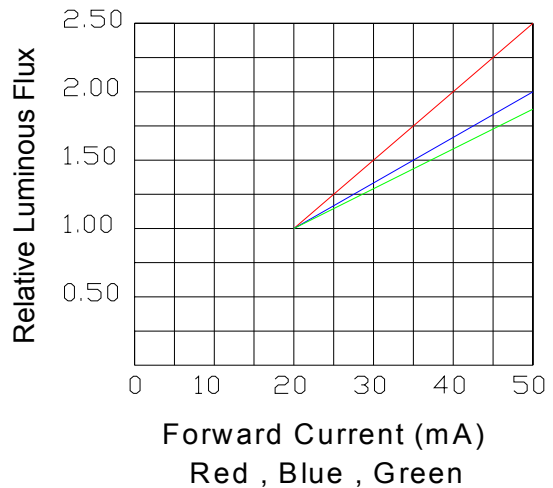
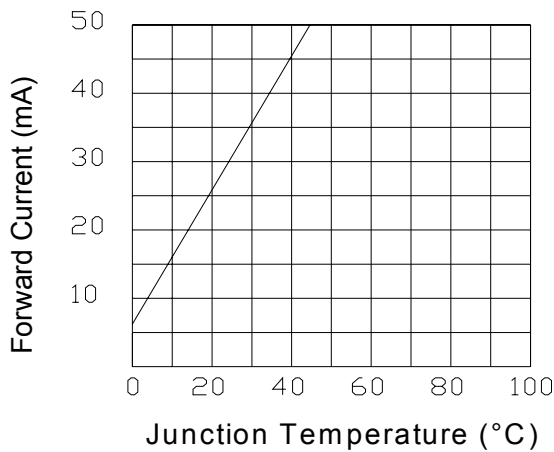
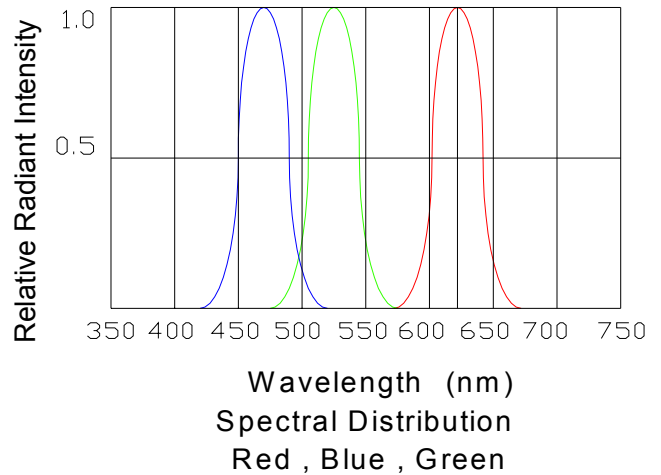
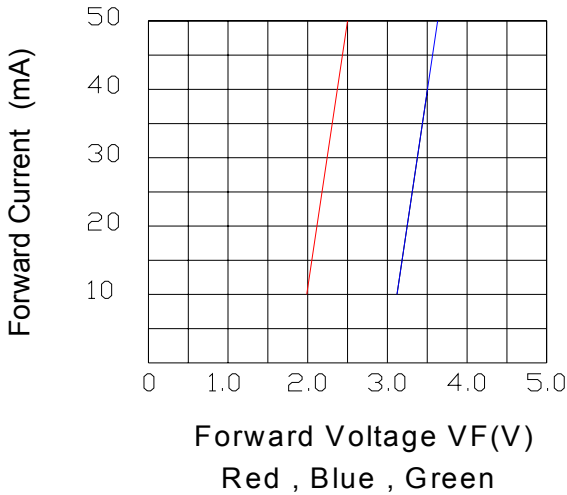
Red , Amber			Blue , Cyan , Green		
BIN	MIN(V)	MAX(V)	BIN	MIN(V)	MAX(V)
A	1.8	2.0	H	3.2	3.4
B	2.0	2.2	J	3.4	3.6
C	2.2	2.4	K	3.6	3.8
D	2.4	2.6	L	3.8	4.0

E-POWER IV BIN SELECTION

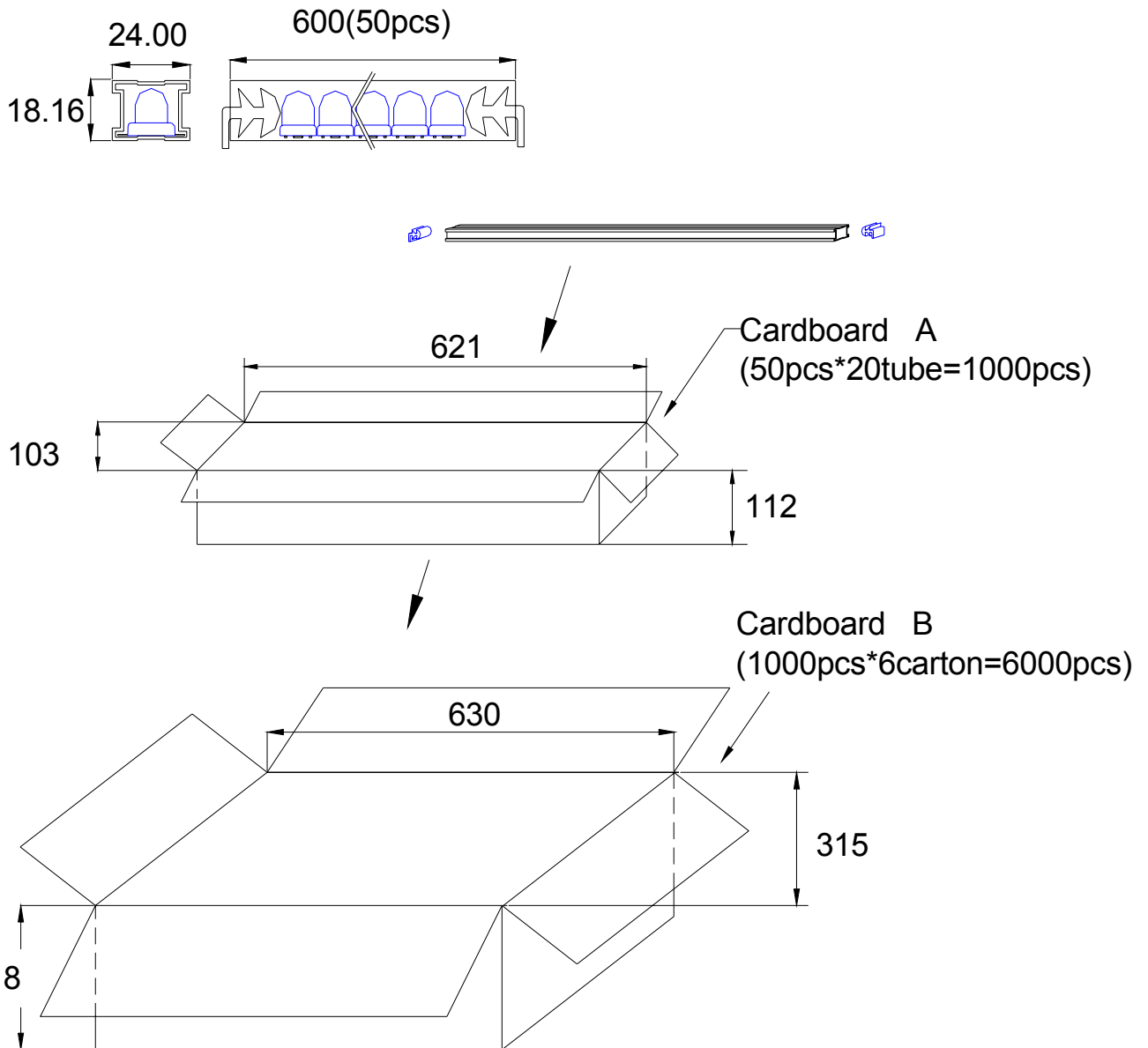
BIN	MIN(CD)	MAX(CD)	BIN	MIN(CD)	MAX(CD)
E0	0.29	0.53	G	12	21
D0	0.39	0.72	H	16	28
C0	0.53	0.98	J	21	38
B0	0.73	1.27	K	28	52
A0	0.94	1.73	L	38	70
A	1.3	3.5	M	52	94
B	2.6	4.7	N	70	127
C	3.5	6.3	P	94	171
D	4.7	8.5	Q	-	-
E	6.3	11.5	R	-	-
F	8.5	15.5	S	-	-

The specification is subject to change without notice.

CHARACTERISTICS CURVE



PACKING SPECIFICATIONS



Notes:

- 1.All dimensions are in millimeters.
- 2.Normal packing Quantity:1000pcs.
- 3.The carton B contains 6 carton A at maximum.

RELIABILITY TEST FOR E-POWER LAMPS

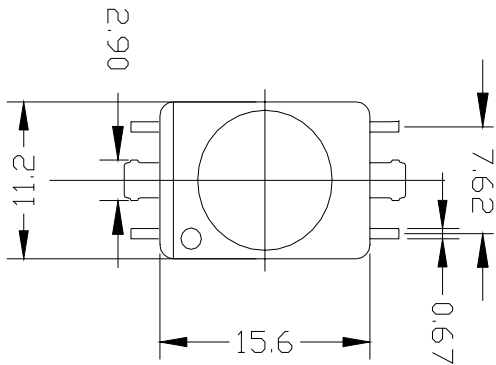
Classification	Test Item	Description and Test Condition	Reference Standard
Endurance Test	Operation Life	Evaluates resistance of the device when operated at electrical stress Ta=under room temperature IF=20mA Test Time=1000hrs(-24hrs,+72hrs)	
	High Temperature Storage	Evaluates device durability for long term storage in high temperature Ta=100±5°C Test Time=1000hrs(-24hrs,+72hrs)	
	Low Temperature Storage	Evaluates device durability for long term storage in low temperature Ta=-40±5°C Test Time=1000hrs(-24hrs,+72hrs)	
Environmental Test	Temperature Cycling	Evaluates resistance of device at thermal stresses or expansion and contraction 100°C~25°C~-40°C~25°C 30min 5min 30min 5min 10Cycles	
	Thermal Shock	Evaluates device's structure and mechanical resistance when suddenly exposed at severe changes 85±5°C~-35±5°C 30min 30min 10 Cycles	
	Solder Resistance	Evaluates resistance to thermal stress caused by soldering T.Sol=230±5°C Dwell Time=5±1sec	
	Solderability	Evaluates solderability on leads of device T.Sol=230±5°C Dwell Time=3±1sec.	

E-POWER OPERATING PROCEDURE

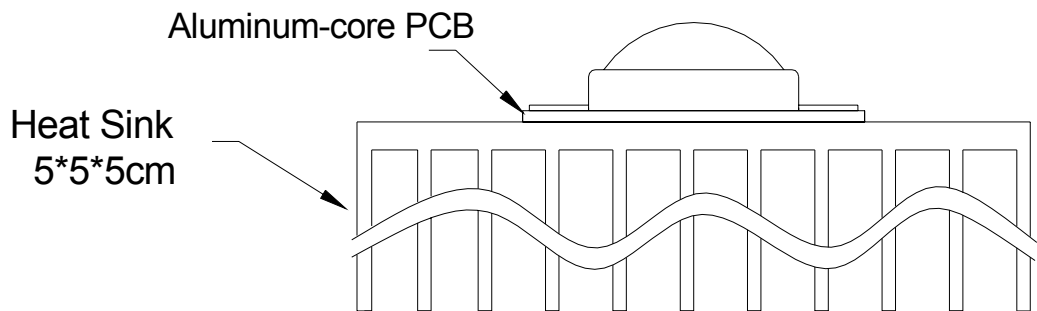
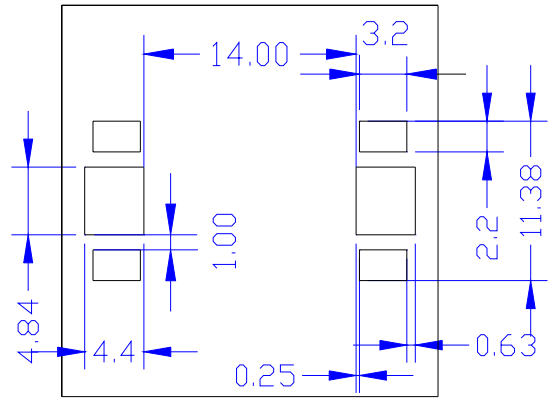
1. E-power 150 series should be operated at 150 mA for ideal performance, but not more than 150 mA.
2. E-power has been designed to be compatible with automated SMD production line. It can be soldered with solder paste using reflow process. The suggested heating curve for reflow is shown in the data sheet.
3. Blue, Cyan, Green and White colors must be used in conjunction with heat-sinking devices. Soldering on PCB with mid-connection point while keeping the layout pattern (50 mm X 50 mm) is another way to help heat dissipation.
4. Please be aware that the mid-connection point for Red and Amber is negative-polarity while it is non-polarity in Blue, Cyan, Green and White.
5. E-power products are sensitive to static, especially in Blue, Cyan, Green . Operators must wear static wristband (wireless static wristband is prohibited) and be well grounded while working in the environment with an ionizing air blower. Anti-static requirement should be under ESD 10V.
6. E-power products are fully tested and shipped in anti-static packaging.
7. A non-conductive heat-dissipating paste should be applied between E-power and heat-sinking device.
8. It is recommended to design circuit in series with protected IC to limit current flow. In a parallel connection, each IC should be protected individually.

HOW TO USE E-POWER LED

(1)E-Power LED dimensions



(2)Recommended layout pattern



All dimensions are in millimeters.

PART NO. SYSTEM OF E-Power LED

EP 2 04 K-150 XXX-XX-XXX

1---2-3-4-5-----6----7---8

1.E -Power LED

2.YEAR 2002

3.PACKAGE TYPE:01=10mm LENS;03=5mm LENS;04=11 mm LENS

4.VIEWING ANGLE: 2*K=100 °

5.CURRENT:20mA

6.λD : R1=620nm (Red) , B8=465~470nm (Blue) , G3=520~525nm (Green)

7.CA (COMMON ANODE) , CC (COMMON CATHODE) , SE (SERIES ELECTRICS)

8.TR1 :TAPING Resistant Packaging :TR1 1,250PCS ,TR2 2,500PCS .