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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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EP204K-150G1R1B1-CA

V A/0

Enhanced Power LED Revolutionary Light Source Module
e-mail:para@para.com.tw http://www.para.com.tw

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°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	°C
Storage Temperature Range	-35 to 85	°C
Soldering Temperature	235	°C
Thermal Resistance R _{θJ-PCB-AIR} (°C /W)	55	°C/W
LED Junction Temperature	110	°C

Operating conditions

1. RGB operating condition under f=0.5~2Hz 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

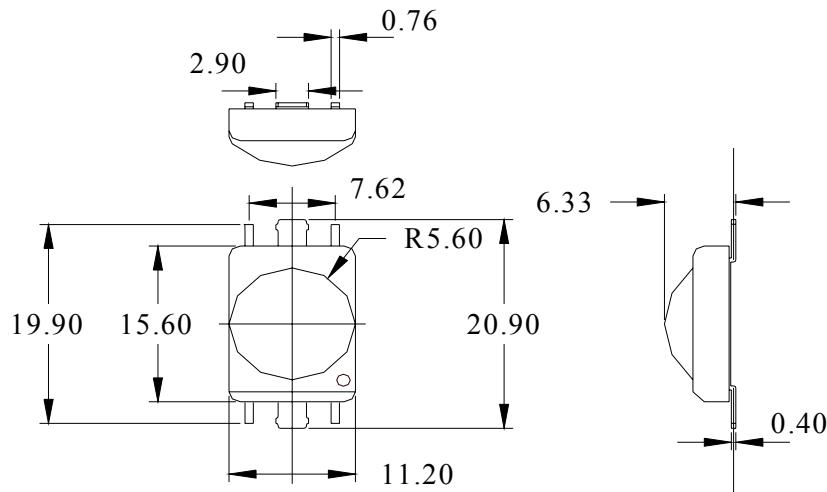
T_a=25°C IF=150mA

Device Type	Forward	Dark	Intensity		Total Flux (lm)	(D(nm) or CCT(°K))	Viewing Angle 2(1/2 (Degrees)	
	Voltage VR=5V	Current IR=(uA)	IV (CD)					
Unit	Min	Typ	Max	Max	150mA min	150mA	150mA	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

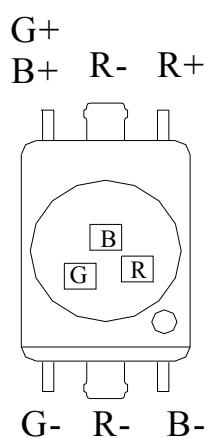


NOTE

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

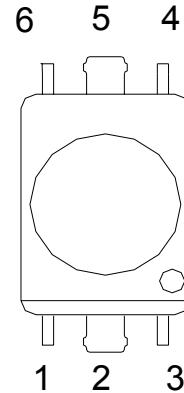
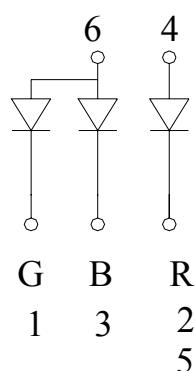
PIN CONNECTION

(COMMON ANODE)



EP204K-150G1R1B1-CA

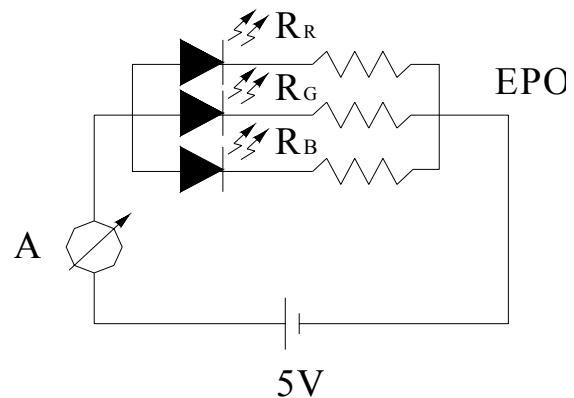
(COMMON ANODE)



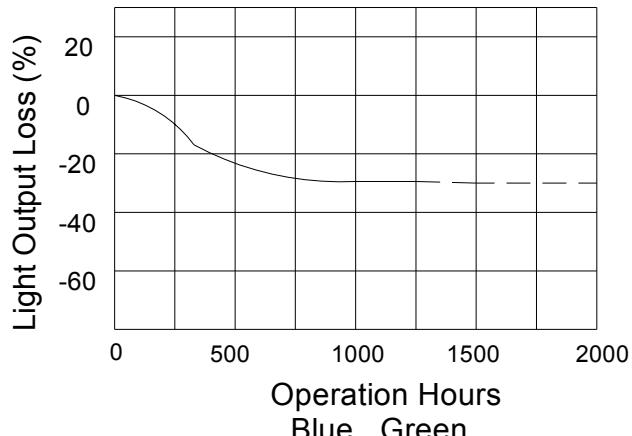
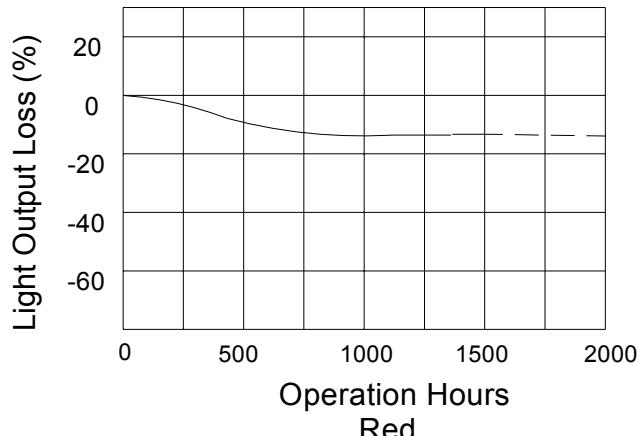
TEST CIRCUIT

EK204K-150G1R1B1-CA

COLOR	Vf	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

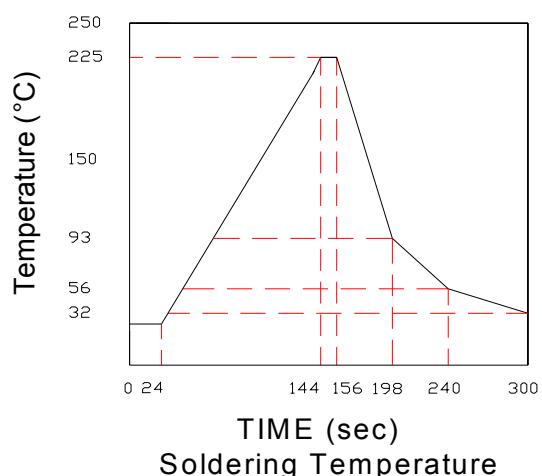
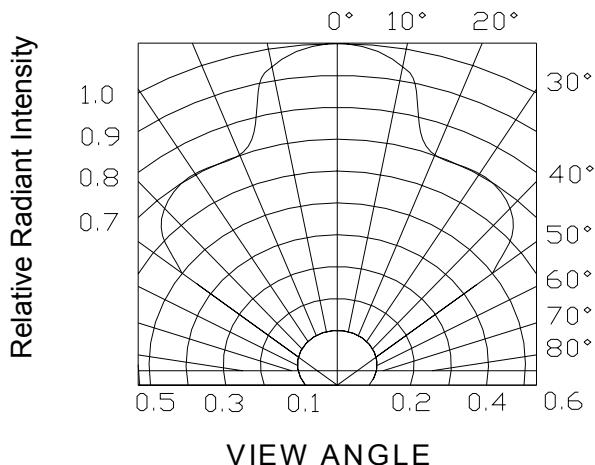
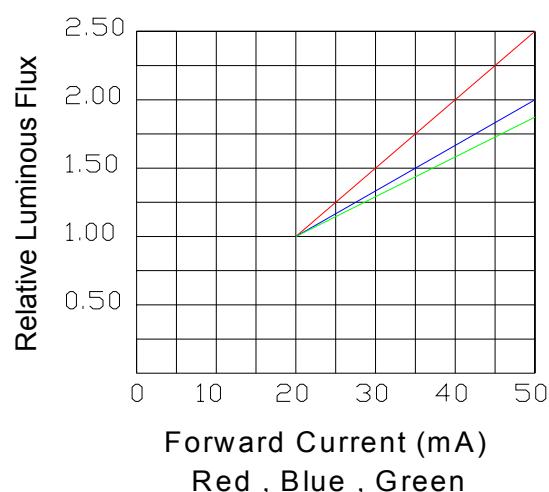
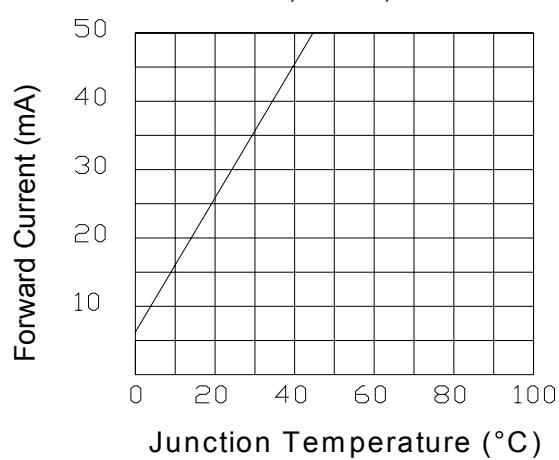
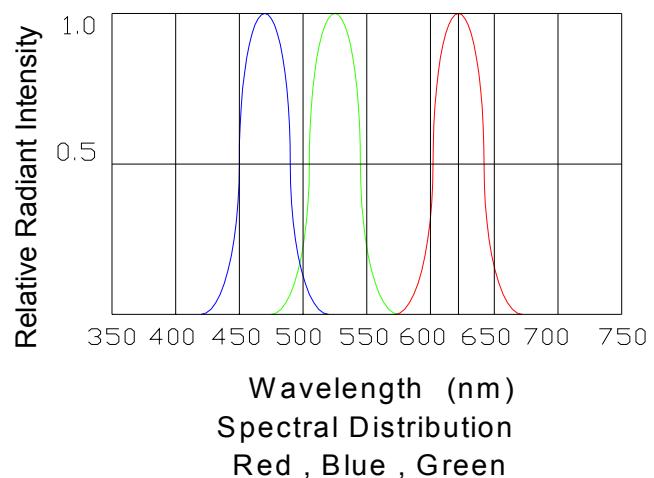
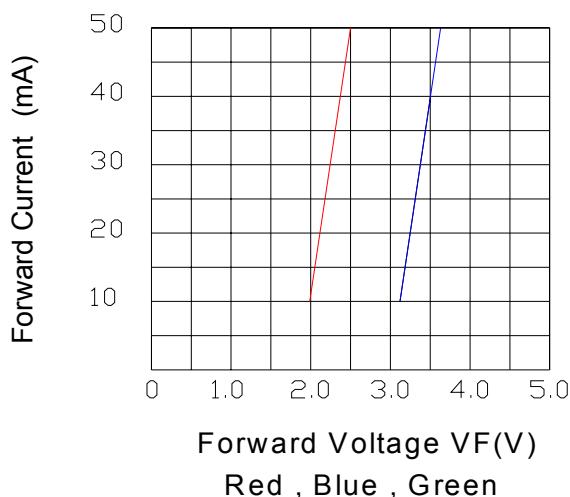
Red , Amber			Blue , Cyan , Green		
BIN	MIN(V)	MAX(V)	BIN	MIN(V)	MAX(V)
A	1.8	2.0	H	3.2	3.4
B	2.0	2.2	J	3.4	3.6
C	2.2	2.4	K	3.6	3.8
D	2.4	2.6	L	3.8	4.0

E-POWER IV BIN SELECTION

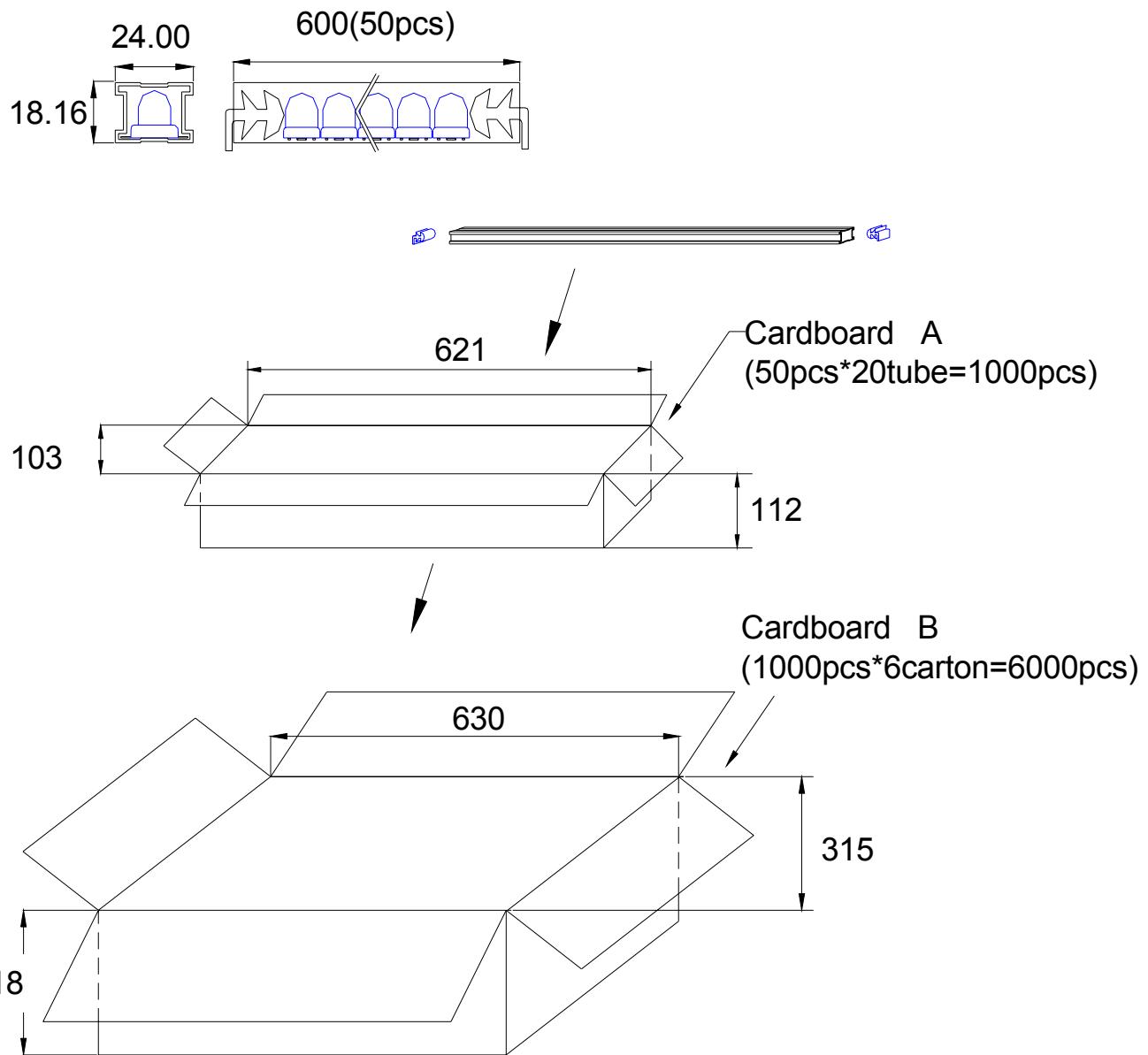
BIN	MIN(CD)	MAX(CD)	BIN	MIN(CD)	MAX(CD)
E0	0.29	0.53	G	12	21
D0	0.39	0.72	H	16	28
C0	0.53	0.98	J	21	38
B0	0.73	1.27	K	28	52
A0	0.94	1.73	L	38	70
A	1.3	3.5	M	52	94
B	2.6	4.7	N	70	127
C	3.5	6.3	P	94	171
D	4.7	8.5	Q	-	-
E	6.3	11.5	R	-	-
F	8.5	15.5	S	-	-

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CHARACTERISTICS CURVE



EP204K-150XXX

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

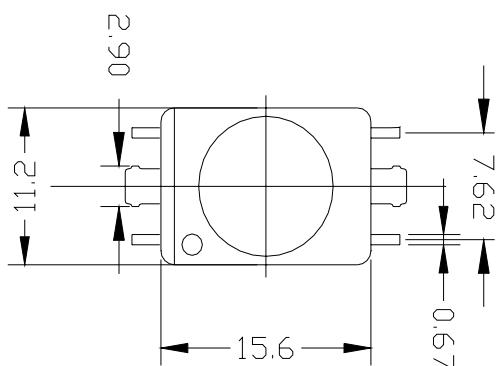
Classification	Test Item	Description and Test Condition	Reference Standard
Endurance Test	Operation Life	Evaluates resistance of the device when operated at electrical stress Ta=under room temperature IF=20mA Test Time=1000hrs(-24hrs,+72hrs)	
	High Temperature Storage	Evaluates device durability for long term storage in hight 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)	
Environmemtal 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

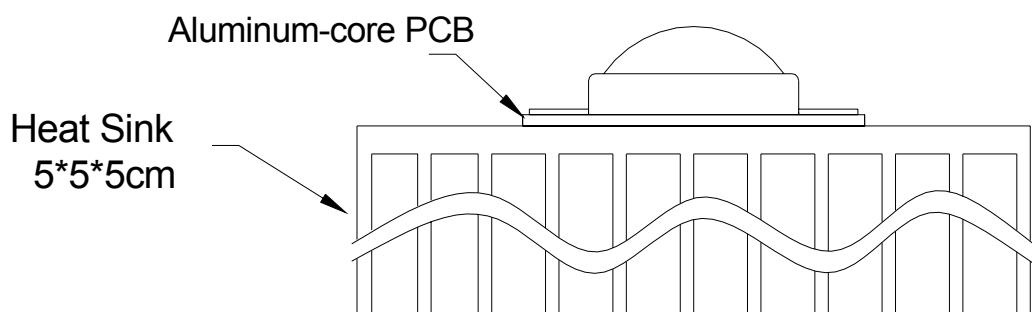
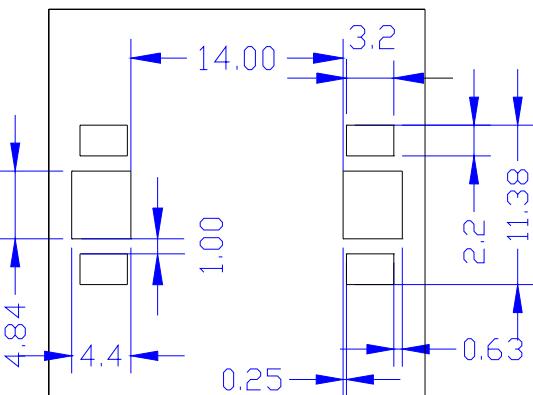
1. E-power 150 series should be operated at 150 mA for ideal performance, but not more than 150 mA.
2. E-power has been designed to be compatible with automated SMD production line. It can be soldered with solder paste using reflow process. The suggested heating curve for reflow is shown in the data 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. λ D : 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 .