

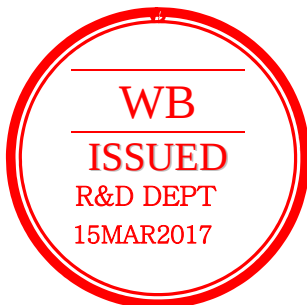
WELL BUYING INDUSTRIAL CO., LTD

APPROVAL SHEET

DESCRIPTION: Push switch with speaker

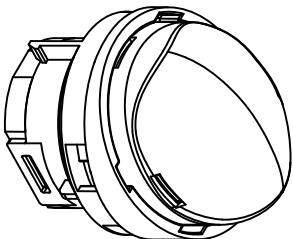
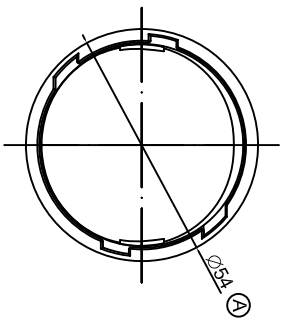
PART NO PS028-ABKF001

CUSTOMER: _____	CUSTOMER'S PART NO: _____
CUSTOMER SIGNATURE	COMMENTS

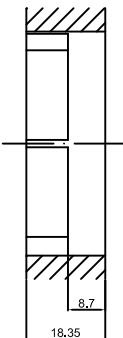
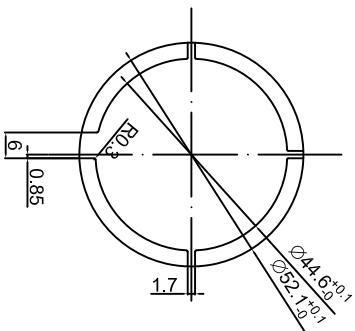


APPROVAL	REVIEW	PREPARE
<i>Kaven</i>	<i>TEREANCE</i>	<i>Gina</i>

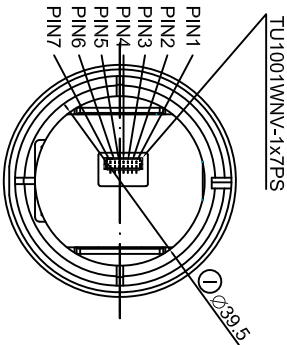
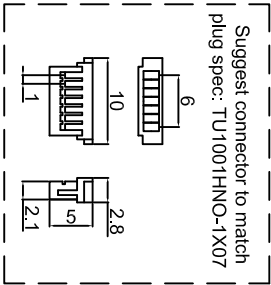
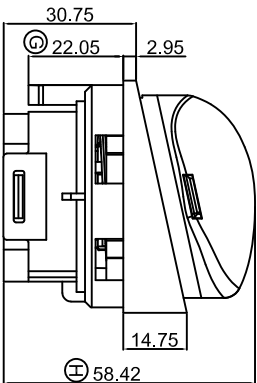
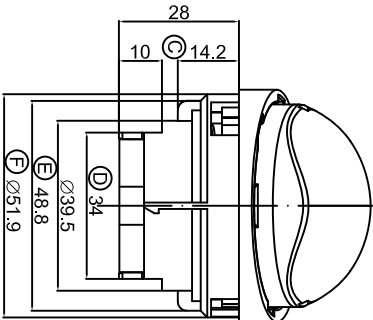
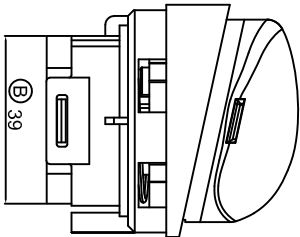
DIMENSION	TOLERANCE
BELOW 10 mm	± 0.3
10~100 mm	± 0.5
ABOVE 100 mm	± 0.8
ANGLE	± 3°



PANEL CUT OUT



PIN NO.	SYMBOL	NAME
1.	VSS	Ground
2.	OUTPUT	Output
3.	LEDR-	LED Red
4.	LEDG-	LED Green
5.	LEDB-	LED Blue
6.	LEDC+	LED Common
7.	VCC	Power



Sym.	Parameter	Min.	Typ.	Max.	Unit.	Cinditions.
VCC	Operating Voltage	3.0	5	6.0	V	
V _{IH}	"H"Input Voltage	2.5			V	
V _{IL}	"L"Input Voltage			0.6	V	
ISB	Standby Current			17	mA	
I _{IN}	Input Current	350			mA	
ΔFs/Fs	Frequency stability			5	%	Vcc=5V ±1.0V
ΔFc/Fc	Chip to Frequency Variation			5	%	Also apply to lot to lot variation

△A				DATE	2016/07/06	UNIT	mm	MODE	
△2				APPROVAL	KAVEN	SCALE	1 : 1	PART	PS028-ABKF001
△1				CONFIRM	HUA.HUANG	VIEW	2D FILE NAME	PS028-ABKF001	
DATE	APPROVAL	DESIGN	ENGINEERING CHANGE DESCRIPTION						
			DESIGN	JASON	VER.	01	3D FILE NAME		

REVISION HISTORY

[illegible]



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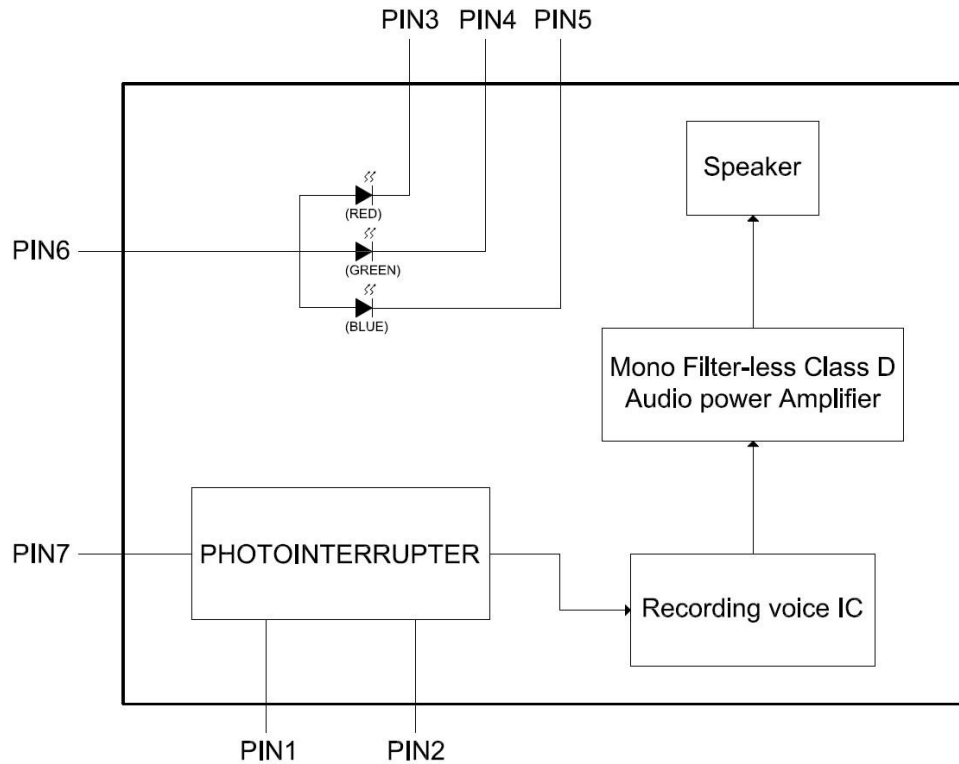
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1. CHARACTERISTICS

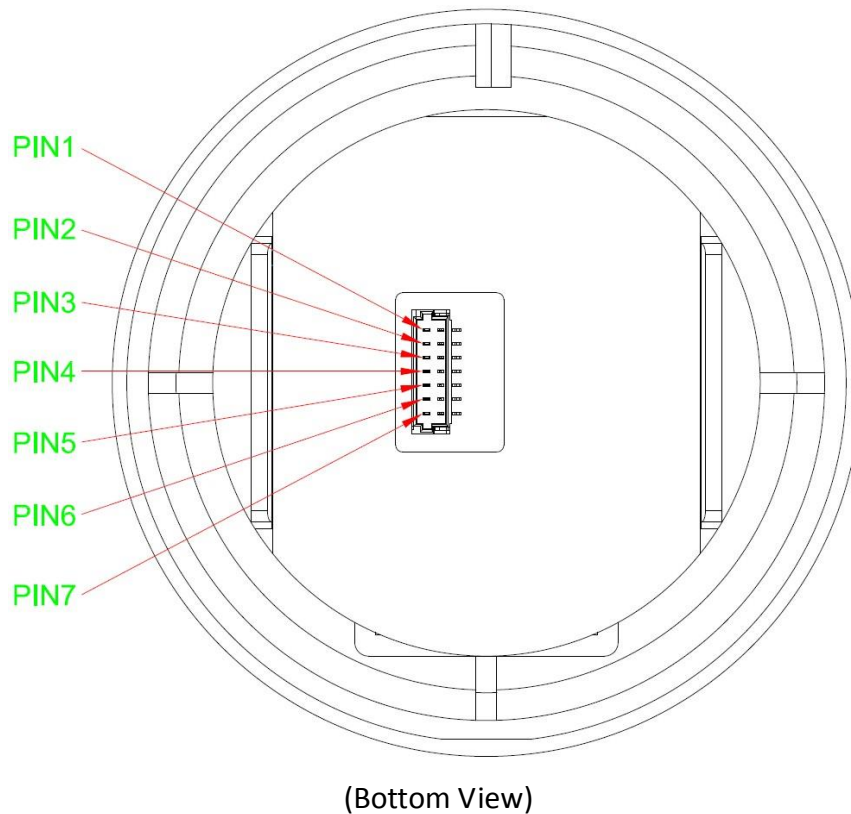
- Push switch with speaker (ODM/JDM)
- Recording function with 340 seconds max.
- RGB LED color
- Digital output
- Ergonomic structure design
- Any sound file can be burned

2. SWITCH BLOCK DIAGRAM & PIN CONFIGURATIONS

2.1. SWITCH SPECIFICATIONS



2.2. PIN STRUCTURE



PIN No.	SYMBOL	NAME	FUNCTION
1.	VSS	Ground	Ground.
2.	OUTPUT	Output	Output.
3.	LED R-	LED Red	Full Color LED–Red Cathode.
4.	LED G-	LED Green	Full Color LED–Green Cathode.
5.	LED B-	LED Blue	Full Color LED–Blue Cathode.
6.	LED C+	LED Common	Full Color LED - Common Anode.
7.	VCC	Power	High voltage power supply for driving circuits.

3. SPECIFICATIONS

- Pole-Position : One-Chanel
- Circuit Feature : Photointerrupter
- Sound Pressure Level(Typ.) : 90±3 dB
- Operation Temperature : -20°C ~ 60°C
- Storage Temperature : -30°C ~ 70°C

3.1. SWITCH SPECIFICATIONS

● Mechanical Performance

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Operating Force	Along operational direction, to apply a static load on top of the stem until it stops movement.		80 ± 30		gf
Full Travel	Along operational direction, to apply a static load on top of the stem depress in stem gradually until it stops movement.		2.5 ± 0.3		mm
Robustness of stem	Along operation direction, to apply a static load 2 Kgf on top of the actuator to apply a static load 2 Kgf for 15 seconds.	In addition to moving contact, any damages on switch, construction are not allowable.			

● Durability

Operating Life Without Load : 1,000,000 MIN. (SPEED 15 ~ 20 CYCLES/MIN.) :

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Contact Resistance				1K	Ω
Operating Force		Within the range between ±30% of specification			
Insulation Resistance	DC100V	10M			Ω
Dielectric Strength	AC250V		1		minute

● Absolute Maximum Ratings

Sym.	Test Conditions	Min.	Typ.	Max.	Unit
V _{CC}		-0.3		6	V
V _{in}		V _{SS} -0.3 < V _{IN} < V _{CC} +0.3			V
V _{out}		V _{SS} < V _{OUT} < V _{CC}			V

● Electrical Characteristics

Sym.	Parameter	Min.	Typ.	Max.	Unit	Conditions
V _{CC}	Operating Voltage	3.0	5	6.0	V	
V _{IH}	"H" Input Voltage	2.5			V	
V _{IL}	"L" Input Voltage			0.6	V	
I _{SB}	Standby Current			17	mA	
I _{IN}	Input Current	350			mA	
$\Delta F_s/F_s$	Frequency stability			5	%	V _{CC} = 5V $\pm$ 1.0V
$\Delta F_c/F_c$	Chip to chip Frequency Variation			5	%	Also apply to lot to lot variation.

4. RELIABILITYTEST

Parameter	Test Conditions		CRITERIA
Cold	1. -20 ± 2 °C For 96 Hours. 2. Water should be remove before testing. 3. Standard conditions after test : 1 hour.		1. It should meet the requirements of <u>Switch Electrical Performance Stated</u> . 2. <u>Mechanical performance</u> should remain to normal.
Dry Heat	1. 60 ± 2 °C For 96 Hours. 2. Standard conditions after test : 1 hour.		1. Switch should meet <u>Electrical Performance</u> . 2. <u>Mechanical Performance</u> should remain to normal.
Damp Heat	1. 40 ± 2 °C · RH 90% ~ 95% For 96 Hours 2. Water should be remove before testing. 3. Standard conditions after test : 1 hour.		1. Dielectric strength should meet <u>Switch Electrical Performance (Dielectric Strength) stated</u> . 2. <u>Mechanical performance</u> should remain to normal.
VIBRATION	IEC 60068-2-6 : 1. Frequency : 10Hz to 55Hz 2. Displacement : 1.5mm 3. Test Axis : X 、 Y 、 Z 4. Test Time : 10 hours(for Z AXIS) , 2 hours(for Y AXIS) , 2 hours(for X AXIS) 5. Accelerate : 20 G		1.It should meet the requirements of item 4 stated 2.Mechanical performance should remain to normal
SHOCK	IEC 60068-2-6 : 3 shocks in 6 directions , pulse 11 ms , <15G		1.It should meet the requirements of item 4 stated 2.Mechanical performance should remain to normal
SALT MIST & HUMIDITY	IEC 60068-2-11	IEC60068-2-3	1.It should meet the requirements of item 4 stated 2.Mechanical performance should remain to normal
	Salt Solution	Temperature : 40°C	
	Concentraation : 5%	Relative Humidity : 93%	
	Test Time : 2H	Test Time : 20H	

3.5x2.8mm SURFACE MOUNT LED LAMP



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Part Number:

Hyper Red
Blue
Green

Features

- Suitable for all SMT assembly and solder process.
- Available on tape and reel.
- Package: 2000pcs / reel.
- Moisture sensitivity level : level 3.
- RoHS compliant.

Description

The Hyper Red source color devices are made with AlGaInP on GaAs substrate Light Emitting Diode.

The Blue source color devices are made with InGaN Light Emitting Diode.

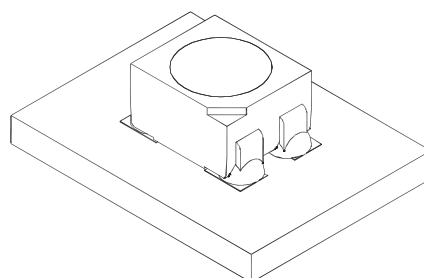
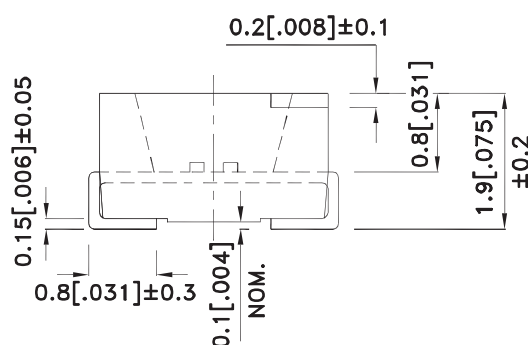
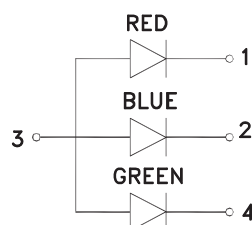
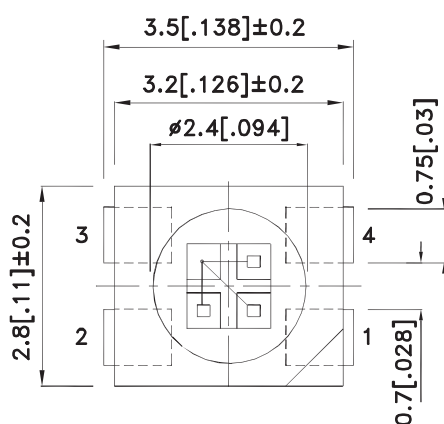
The Green source color devices are made with InGaN on Sapphire Light Emitting Diode.

Static electricity and surge damage the LEDs.

It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.

All devices, equipment and machinery must be electrically grounded.

Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25(0.01)$ unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.

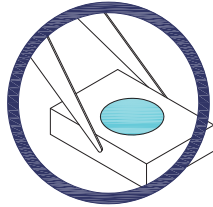


Handling Precautions

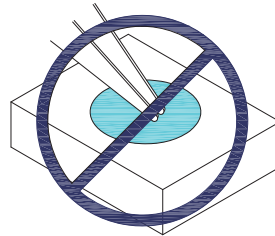
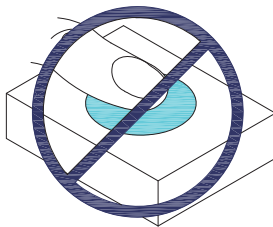
Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.

As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might lead to damage and premature failure of the LED.

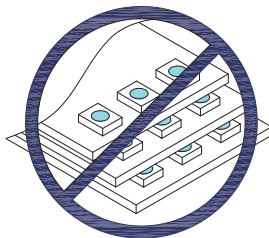
1. Handle the component along the side surfaces by using forceps or appropriate tools.



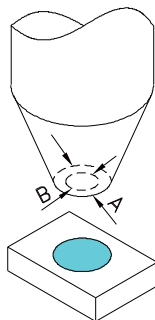
2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.



3. Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.



- 4.1. The inner diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks.
- 4.2. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup.
- 4.3. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.



5. As silicone encapsulation is permeable to gases, some corrosive substances such as H_2S might corrode silver plating of leadframe. Special care should be taken if an LED with silicone encapsulation is to be used near such substances.

Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) [2] @ 20mA			Iv (mcd) [2] @R:B:G=16.9mA: 12.7mA:20mA			Dice Chroma- ticity Coordinates		Viewing Angle [1]
			Min.	Typ.	Max.	Code.	Min.	Max.	X(Typ.)	Y(Typ.)	2θ1/2
	Hyper Red (AlGaInP)	Water Clear	700	1000	1600	Y	2300	2700	0.3	0.3	120°
	Blue (InGaN)		200	330	500	Z	2700	3100			
	Green (InGaN)		1000	1600	2300	ZA	3100	3600			
	-		-	-	-	ZB	3600	4200			

Notes:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
2. Luminous intensity/ luminous Flux: +/-15%. Luminous intensity value is traceable to the CIE127-2007 compliant national standards.

Electrical / Optical Characteristics at T_A=25°C

Parameter	Condition	Symbol	Value									Unit
			R			B			G			
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Wavelength at Peak emission	I _F =20mA	λ peak		631			465			520		nm
Dominant Wavelength [1]	I _F =20mA	λ dom	615	624	635	457	470	477	510	525	540	nm
Spectral bandwidth at 50%Φ _{REL} MAX	I _F =20mA	Δλ		20			22			35		nm
Forward Voltage [2]	I _F =20mA	V _F [typ.] V _F [max.]		2.1 2.5			3.3 4			3.2 4		V
Reverse Current	V _R =5V	I _R [max.]		10			50			50		uA

Notes:

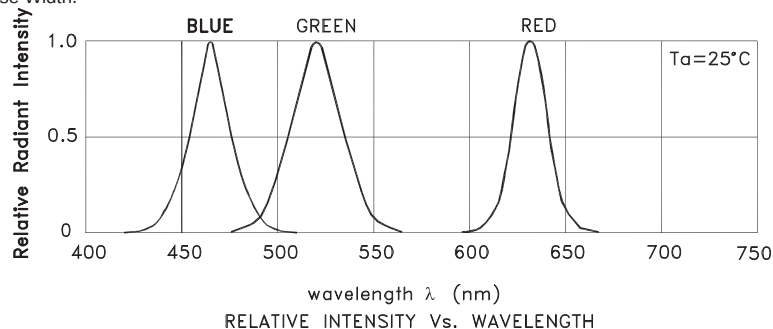
1. Wavelength: +/-1nm.
2. Forward Voltage: +/-0.1V.
3. Wavelength value is traceable to the CIE127-2007 compliant national standards.

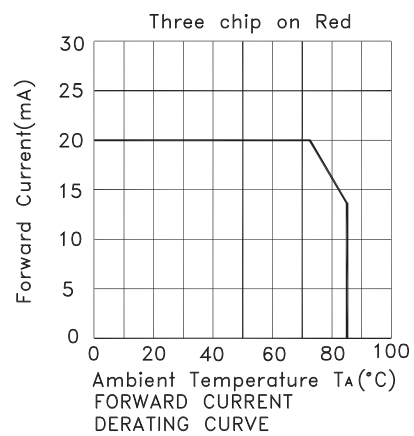
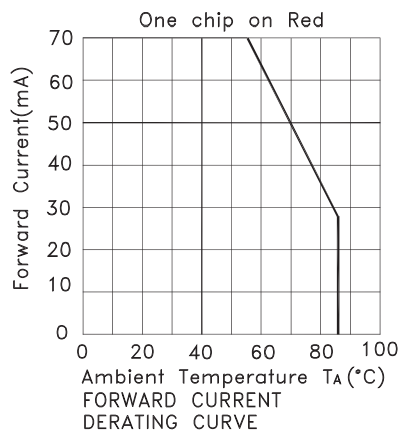
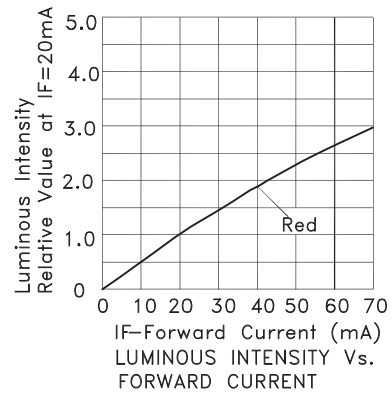
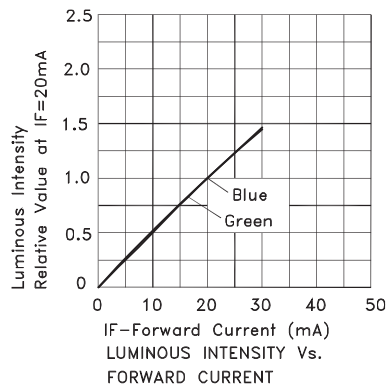
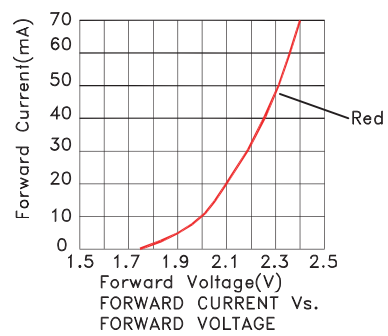
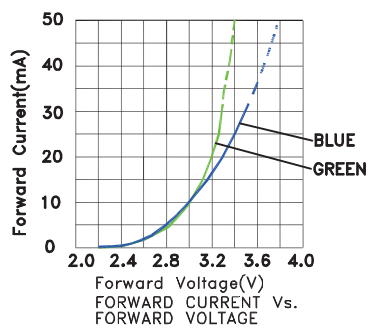
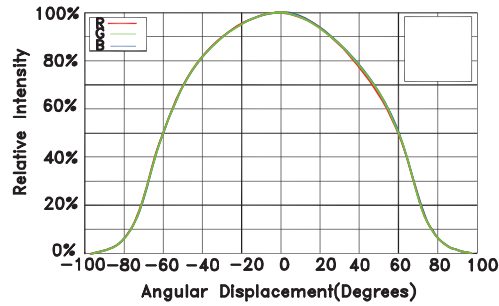
Absolute Maximum Ratings at T_A=25°C

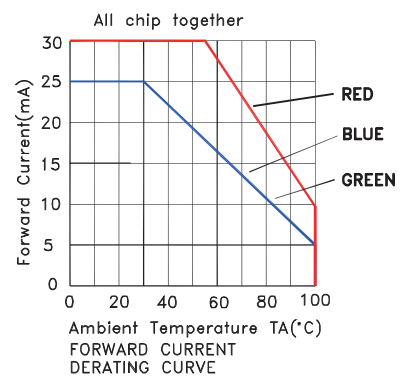
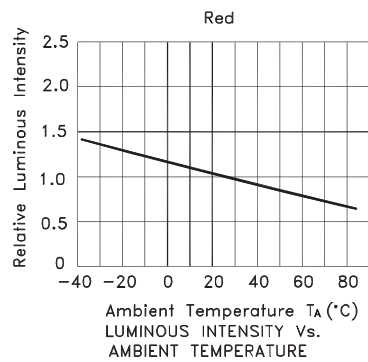
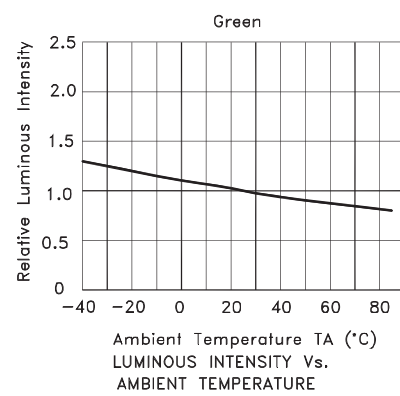
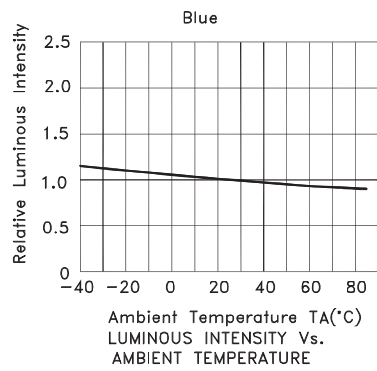
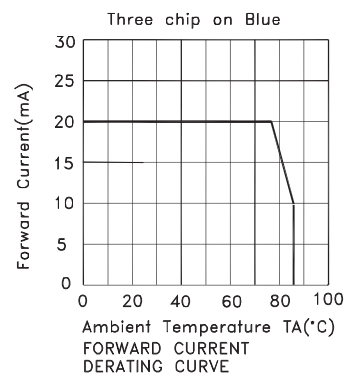
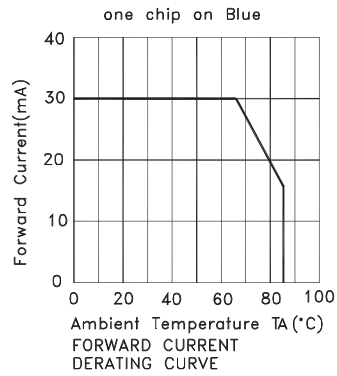
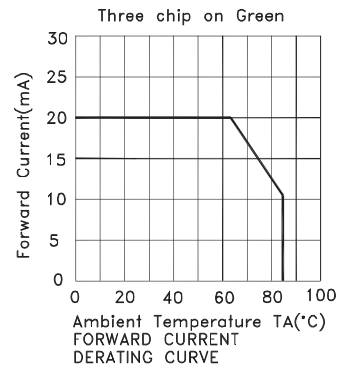
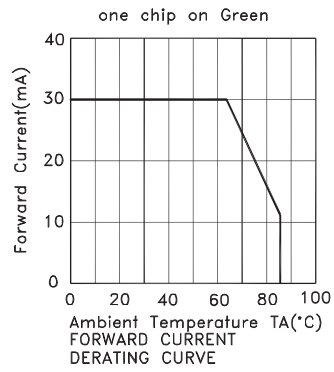
Parameter	Symbol	Value			Unit
		R	B	G	
Operating Temperature	Top	-40 To +85			°C
Storage Temperature	Tstg	-40 To +85			°C
Junction Temperature	T _J	120	110	110	°C
Power dissipation	P _D	175	120	120	mW
DC Forward Current [1]	I _F	70	30	30	mA
Peak Forward Current [2]	I _{FM}	200	100	100	mA
Reverse Voltage	V _R	5	5	5	V
Junction/ambient 1 chip on	Rthj-a	290	400	450	°C/W
Junction/ambient 3 chip on	Rthj-a	630	610	590	°C/W

Notes:

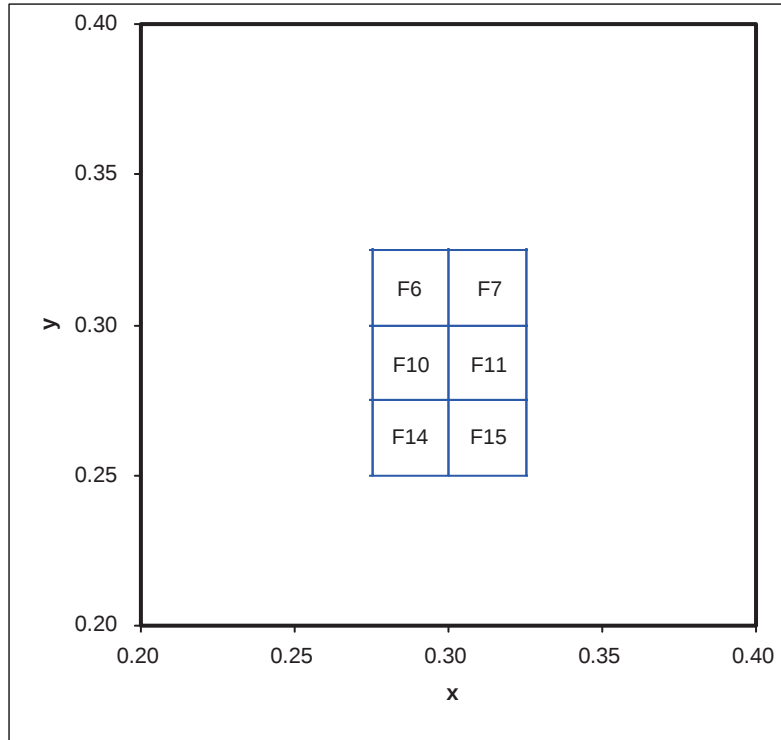
1. Single-color light
2. 1/10 Duty Cycle, 0.1ms Pulse Width.







Full color (White Rank)

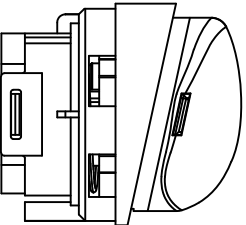
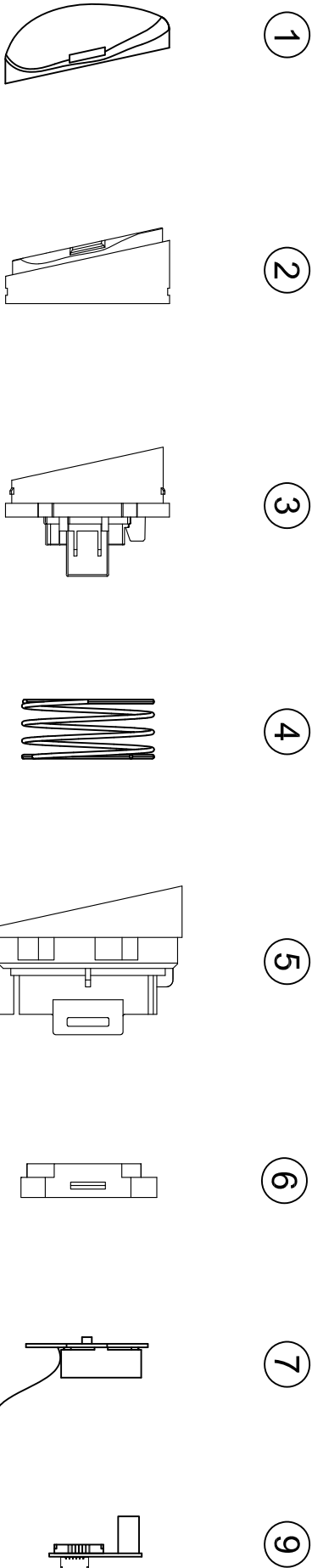


F6		F7		F10		F11	
x	y	x	y	x	y	x	y
0.275	0.300	0.300	0.300	0.275	0.275	0.300	0.275
0.300	0.300	0.325	0.300	0.300	0.275	0.325	0.275
0.300	0.325	0.325	0.325	0.300	0.300	0.325	0.300
0.275	0.325	0.300	0.325	0.275	0.300	0.300	0.300
F14		F15					
x	y	x	y				
0.275	0.250	0.300	0.250				
0.300	0.250	0.325	0.250				
0.300	0.275	0.325	0.275				
0.275	0.275	0.300	0.275				

Notes:

Shipment may contain more than one chromaticity regions.
 Orders for single chromaticity region are generally not accepted.
 Measurement tolerance of the chromaticity coordinates is ± 0.01 .

DIMENSION	TOLERANCE
BELOW 10 mm	± 0.3
10~100 mm	± 0.5
ABOVE 100 mm	± 0.8
ANGLE	± 3°



NO.	PART NAME	QTY	MATERIAL	SPECIAL DEAL	RoHS REPORT No.
1	KNOB	1	PC	TRANSPARENT	REFERENCE APPENDIX (SABIC REPORT)
2	FLUORESCENT PLATE	1	PC	WHITE	REFERENCE APPENDIX (SABIC REPORT)
3	ACTUATOR	1	PC	WHITE	REFERENCE APPENDIX (SABIC REPORT)
4	SPRING	1	STAINLESS STEEL		F690101/LF-CTSAVGU16-00028
5	COVER	1	PA66 101L	BLACK	CE/2015/C1714:CANEC150297/4504
6	BASE FRAME	1	PA66 101L	WHITE	CE/2015/C1714:ANEC1504968813:CANEC1504968815
7	PCB	1	FR4	GREEN 1.0mm	CE/2016/92918:CE/2015/C3131:CE/2016/63788
8	FPC	1	FPC	YELLOW,0.15mm	
9	PCB	1	FR4	GREEN,1.0mm	CE/2016/92918:CE/2015/C3131:CE/2016/63788
		UNIT	mm	MODE	
		SCALE	1 : 1	PART	ROTARY SWITCH
		VIEW	2D FILE NAME	PS028-ABKF001	
		VER.	01	3D FILE NAME	
		DATE	2016/07/06	DATE	
		APPROVAL	KAVEN	APPROVAL	
		CONFIRM	HUA.HUANG	DESIGN	
		DATE		DESIGN	

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