

# Illumec™ 4F

Illuminated switches • slip-on cap retention system • integrated chip-LEDs



## DISTINCTIVE FEATURES

- 10 x 10 mm ; h=10.4 mm
- Illumination with integrated chip-LEDs
- Single or bi-color illumination
- Momentary NO
- Simple slip-on cap retention system



## ENVIRONMENTAL SPECIFICATIONS

- Switch sealing : IP67 according to IEC 60529
- Working and storage temperature : -30°C/+85°C
- Soldering :
  - through-hole : IEC 68-2-20 8
  - surface mount : JEDEC J-STD-020C



## ELECTRICAL SPECIFICATIONS

- Recommended load :
  - Gold contacts : 0.5µ-50mA 24VDC
  - Silver contacts : 0.5-50mA 24VDC
- Contact resistance : <30mΩ - typically 10mΩ
- Insulation resistance : >10MΩ
- Contact bounce : <2mS - typically 0.5mS



## MECHANICAL SPECIFICATIONS

- Standard actuation force : 3.5N
- Max. actuation force : 100N for 10 sec
- Travel : 1 mm
- Lifetime : >10,000,000 cycles

The company reserves the right to change specifications without notice.



## MATERIALS

- Housing : PPS UL94V0
- Actuator : PPS UL94V0
- Sealing : Silicone rubber
- Contacts spring : Stainless steel
- Silver : +3µAg
- Gold : +1µAu
- Fixed contacts :
  - Silver : SnCu + 2µNI + 3µAg
  - Gold : SnCu + 2µNI + 1µAu
- Terminals : SnCu + 2µNI + 3µSn100

All tolerance if not otherwise specified ±0.2mm.

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## 4FSH9XX

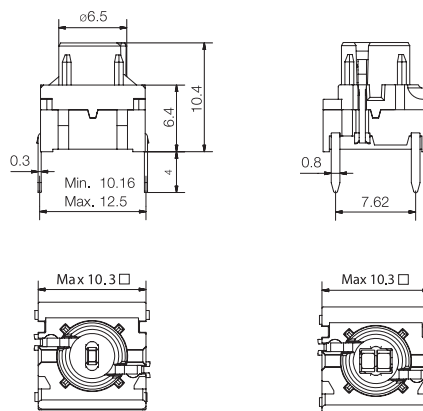
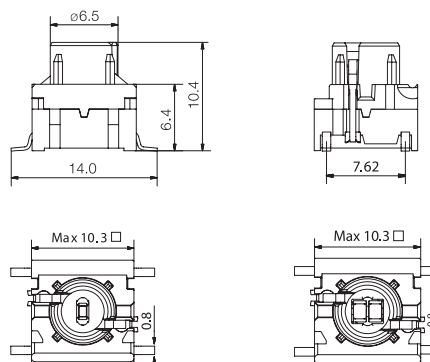


- SMD
- NO
- Single or bi-color LEDs

## 4FTH9XX



- TH
- NO
- Single or bi-color LEDs

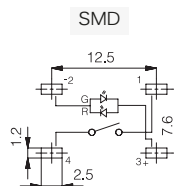
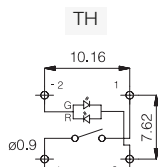
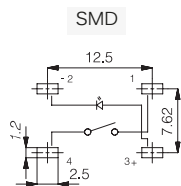
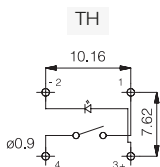


All tolerances unless otherwise noted : ±0.2 mm

## PCB LAYOUT & CIRCUIT DIAGRAM

### SINGLE LED

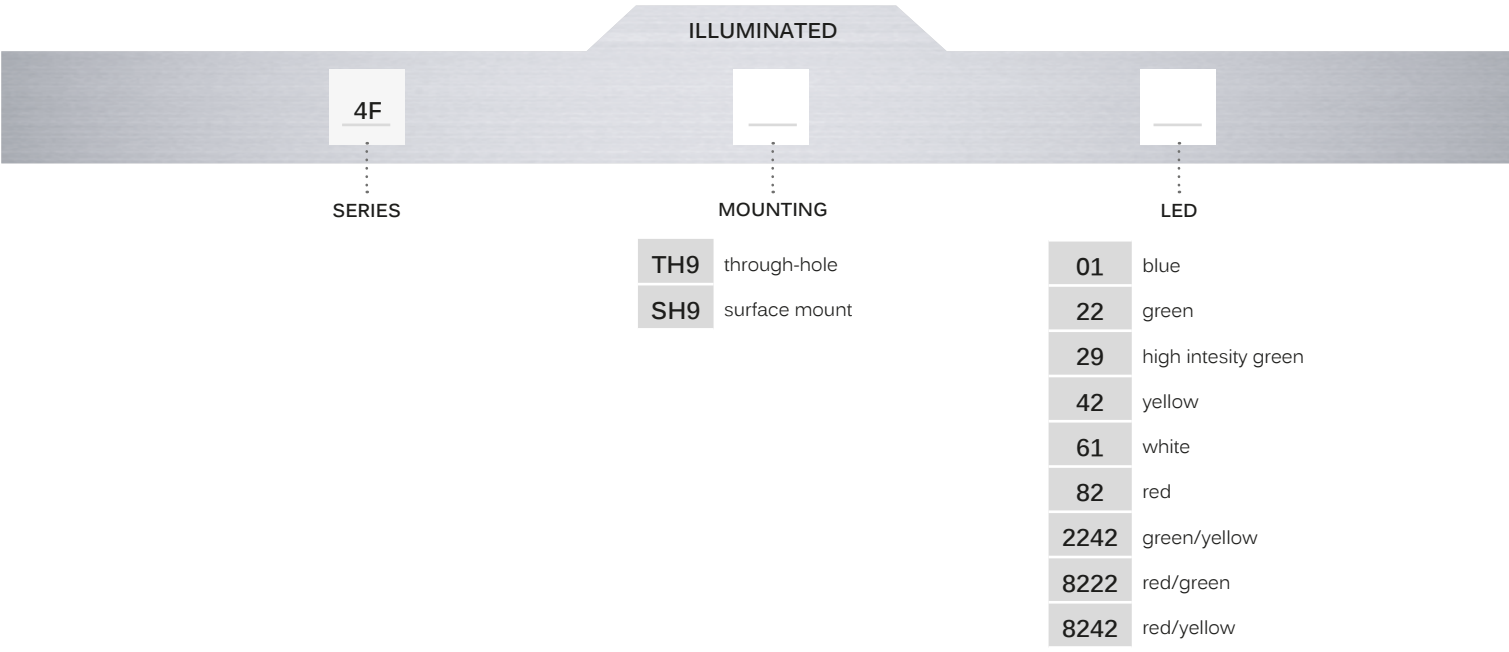
### BI-COLOR - 2 LEDs



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## BUILD YOUR PART NUMBER



## ABOUT THIS SERIES

**Notice :** Refer to [www.apem.com](http://www.apem.com) for further information.

**Accessories :** See the website for 4F cap and bezel options

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## TAPE & REEL

Tape and reel is available for the parts listed and has the following specifications

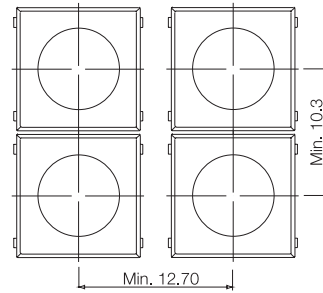
- Reel diameter: Ø330 mm
- Tape width: 24 mm
- Pitch: see list
- Tape and reel material : antistatic or better
- Quantity per reel : see list

PART NO.	ORDERING CODE	PITCH	QUANTITY PER REEL
4FSH901	4FSH901R	20	250
4FSH922	4FSH922R	20	250
4FSH942	4FSH942R	20	250
4FSH961	4FSH961R	20	250
4FSH982	4FSH982R	20	250
4FSH92242	4FSH92242R	20	250
4FSH98222	4FSH98222R	20	250
4FSH98242	4FSH98242R	20	250

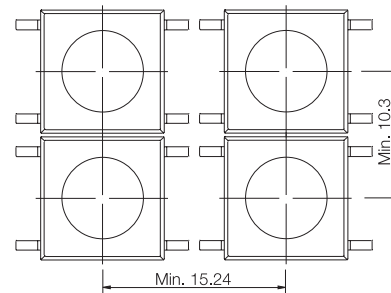


## MOUNTING

SPACE REQUIREMENT - MATRIX MOUNTING



through-hole (TH)



surface mount (SMD)

## LED COMPONENT SPECIFICATIONS

Color		Blue	Green	Yellow	White	Red	High Intensity Green	
Color Codes		01	22	42	61	82	29	
ABSOLUTE MAXIMUM RATINGS (Ta=25°C)								
Power	mW	110	75	60	48	65	102.5	
Current forward	mA	25	30	25	15	25	25	
Forward peak current	mA	100	80	60	100	100	150	
Voltage reverse	V	5	5	5	NA	12	5	
Operating temperature	°C	-40/+85	-55/+85	-40/+85	-40/+85	-30/+85	-40/+85	
Storage temperature	°C	-40/+85	-55/+85	-40/+90	-40/+85	-40/+85	-40/+85	
Soldering temperature	°C	5	245 for max. 10 sec					
ELECTRICAL-OPTICAL CHARACTERISTICS (Ta=25°C)								
Voltage forward	Typ. V	3.3	2	1.75**	2.85	2	3.3	
	Max. V	3.7	2.4	2.35	3.1	2.5	4.1	
Current reverse (VR=5V)	Max. µA	50	100	10	NA	100	50	
Wave length	nm	468	571	591	NA	633	525	
Spread	△nm	25	NA	15	NA	16	30	
Spread angle	degree	120	130	120	150	160	60	
Luminous Intensity	Min. mcd	28.5	18	28.5	71	28	500	
	Typ. mcd	72*	35	72*	224*	180*	1000	
Optical intensity	Lm/w	NA	NA	NA	36	7	NA	

\*/F=20mA, \*\*Pulse width 1ms Duty cycle 1:5, \*\*\*/F=50mA, \*\*\*\*Luminous Flux l/m