

#### FIRC5730W09-B20

# **SMD Type 730nm Infrared Emitter**

#### **CT Microelectronics**

#### **Features**

- High reliability
- High total radiated power
- Good spectral matching to Si photo detector
- RoHS compliance

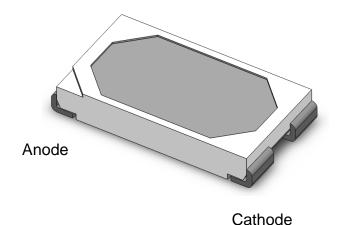
#### **Applications**

- Infrared sensor
- Light barrier

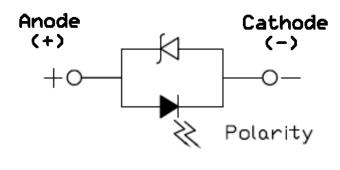
#### **Description**

The FIRC5730W09-B20 is a GaAlAs infrared LED housed in a miniature SMD package. The device has a peak wavelength of 730nm LED.

#### **Package Outline**



#### **Schematic**



### Absolute Maximum Rating at 25°C

Symbol	Parameters	Ratings	Units	Notes
lF	Continuous Forward Current	150	mA	
I <sub>FP</sub>	Peak Forward Current	1.0	Α	1
V <sub>R</sub>	Reverse Voltage	5	V	
T <sub>opr</sub>	Operating Temperature	-40 ~ +85	°C	
T <sub>stg</sub>	Storage Temperature	-40 ~ +100	°C	
T <sub>sol</sub>	Soldering Temperature	260	°C	2
PD	Power Dissipation at(or below) 25°CFree Air Temperature	510	mW	

### Electro-Optical Characteristics TA = 25°C (unless otherwise specified)

#### **Optical Characteristics**

Symbol	Parameters	Test Conditions	Min	Тур	Max	Units	Notes
le	Radiant Intensity	I <sub>F</sub> =20mA	-	5.0	-		
		I <sub>F</sub> =100mA	-	25.3	-	mW/sr	
		I <sub>F</sub> =150mA	-	37.6	-		
Po	Total radiated power	I <sub>F</sub> =20mA	-	15.7	-		
		I <sub>F</sub> =100mA	-	80	-	mW	
		I <sub>F</sub> =150mA	-	118	-		
λр	Peak Wavelength	I <sub>F</sub> =20mA	720	730	750	nm	
Δλ	Spectral Bandwidth	I <sub>F</sub> =20mA	-	25	-	nm	
θ1/2	Angle of Half Intensity	I <sub>F</sub> =20mA	-	±60	-	deg	

#### **Electrical Characteristics**

Symbol	Parameters	Test Conditions	Min	Тур	Max	Units	Notes
		I <sub>F</sub> =20mA	1.7	2.0	2.4		
VF	Forward Voltage	I <sub>F</sub> =100mA	2.2	2.5	3.1	V	
		I <sub>F</sub> =150mA	2.3	2.7	3.4		
I <sub>R</sub>	Reverse Current	V <sub>R</sub> =5V	-	-	10	μΑ	

#### Notes:

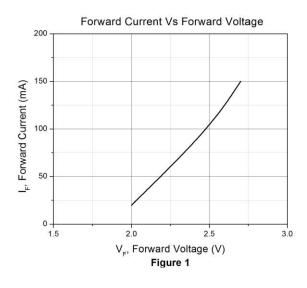
- 1 : I<sub>FP</sub> Conditions--Pulse Width≦ 100µs and Duty≦ 1%.
- 2 : Soldering time  $\leqq 5$  seconds.

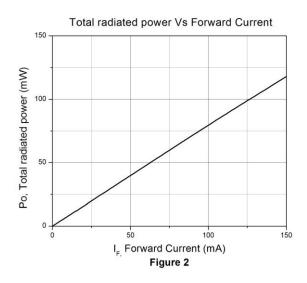


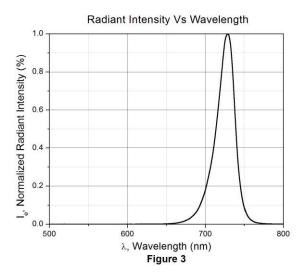
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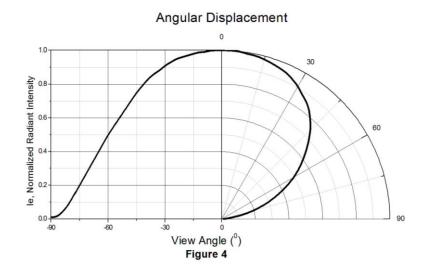
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### **Typical Characteristic Curves**



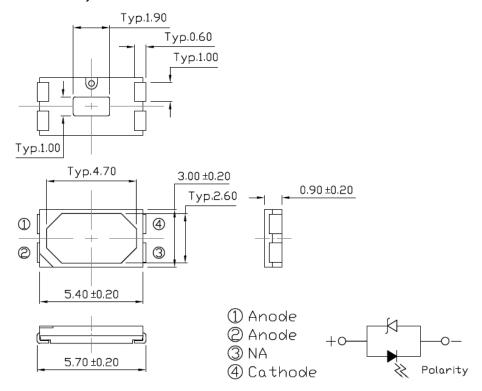






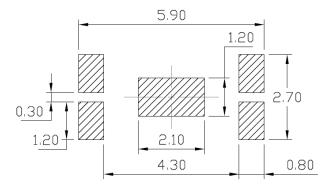
#### **Package Dimension**

All dimensions are in mm, unless otherwise stated.



# **Recommended Soldering Mask**

All dimensions are in mm, unless otherwise stated



#### **Ordering Information**

Part Number	Description	Quantity
FIRC5730W09-B20	Tape & Reel	2000 pcs



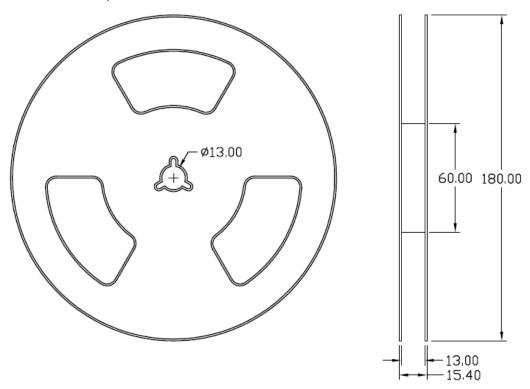
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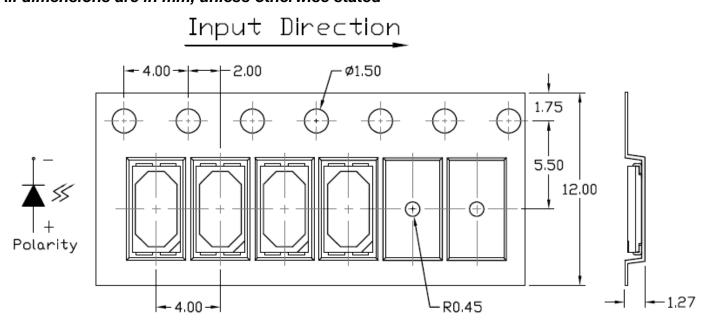
#### **Reel Dimension**

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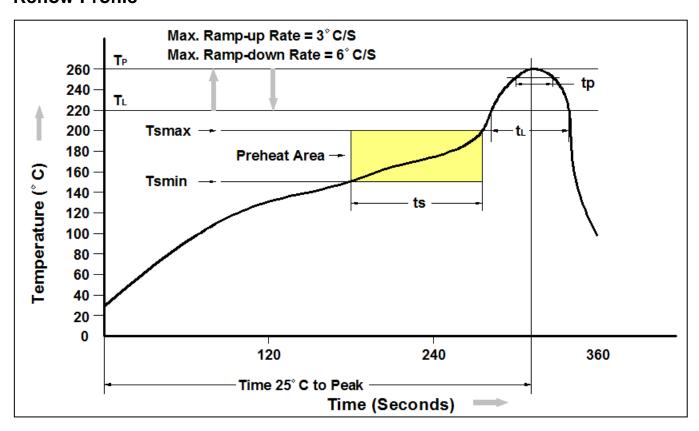
### **Tape Dimension**

All dimensions are in mm, unless otherwise stated





#### **Reflow Profile**



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	150°C
Temperature Max. (Tsmax)	200°C
Time (ts) from (Tsmin to Tsmax)	60-120 seconds
Ramp-up Rate (t∟ to t⊳)	3°C/second max.
Liquidous Temperature (T <sub>L</sub> )	217°C
Time (t <sub>L</sub> ) Maintained Above (T <sub>L</sub> )	60 – 150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time (t₂) within 5°C of 260°C	30 seconds
Ramp-down Rate (T <sub>P</sub> to T <sub>L</sub> )	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.



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