

**AT20S-14-01**

**DATA SHEET**

REV. : 1.0

DATE : 20-Apr.-2007

■ **FEATURES:**

- High reliability.
- High radiant intensity.
- Peak wavelength at 940nm.
- Lead Free product, in compliance with RoHS.

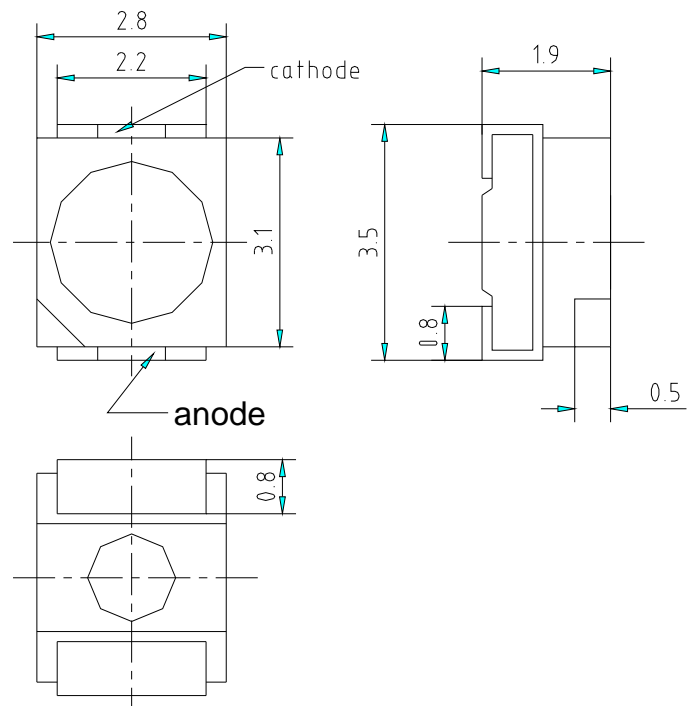
■ **DESCRIPTIONS:**

- AT20S-14-01 is a high response speed and high radiant intensity infrared emitting diode with exceptionally stable characteristics and high illumination sensitivity.
- Molded in a compact surface-mountable package.

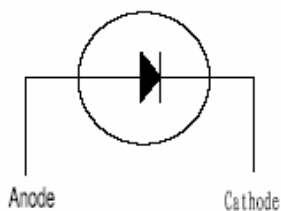
■ **APPLICATIONS:**

- Free air transmission system.
- Optoelectronic switch.
- Infrared applied system
- Sensor technology.

■ **DIMENSIONS:**



■ **INTERNAL CIRCUIT:**



**NOTE:** All dimensions are in millimeter, tolerance is  $\pm 0.20$  unless otherwise noted.

**■ ABSOLUTE MAXIMUM RATINGS AT Ta=25°C**

Parameter	Symbol	Ratings	Unit
Power Dissipation	P <sub>D</sub>	120	mW
Peak Forward Current	I <sub>FP</sub>	1	A
Reverse voltage	V <sub>R</sub>	5	V
Operating Temperature	T <sub>opr</sub>	-40~+85	°C
Storage Temperature	T <sub>stg</sub>	-55~+100	°C
Soldering Temperature	T <sub>sol</sub>	270°C for 6 sec Max (2mm from Body)	

**NOTE: I<sub>FP</sub> Conditions Pulse Width ≤ 100μS And Duty ≤ 1%.**

**■ TYPICAL ELECTRICAL & OPTICAL CHARACTERISTICS (Ta=25°C)**

Parameter	Symbol	Min.	Type	Max.	Unit	Test Condition
Radiant Intensity	E <sub>e</sub>		2.5		mW/Sr	I <sub>F</sub> =20 mA
		3.0	6.0		mW/Sr	I <sub>F</sub> =50 mA
<b>Forward Voltage</b>	V <sub>F</sub>		1.3	1.6	V	I <sub>F</sub> =50 mA
Reverse Current	I <sub>R</sub>			10	μA	V <sub>R</sub> =5V
<b>Peak Wavelength</b>	λ <sub>p</sub>		940			I <sub>F</sub> =20mA
Δλ	T <sub>f</sub>		30		nm	I <sub>F</sub> =20mA
<b>View Angle</b>	2θ <sub>1/2</sub>		120		deg	I <sub>F</sub> =20mA

**■ RELIABILITY TEST ITEMS AND CONDITIONS:**

<b>NO</b>	<b>Item</b>	<b>Test Conditions</b>	<b>Test Hours/Cycle</b>	<b>Sample Quantity</b>	<b>Test Result</b>
<b>1</b>	<b>Solder Heat</b>	<b>TEMP: 270°C ± 3°C</b>	<b>10 SEC</b>	<b>11 pcs</b>	<b>0 DEFECT</b>
<b>2</b>	<b>Temperature Cycle</b>	<b>H:+85°C 60min</b> $\updownarrow$ <b>10min</b> <b>L:-25°C 60min</b>	<b>16 cycles</b>	<b>22 pcs</b>	<b>0 DEFECT</b>
<b>3</b>	<b>Thermal Shock</b>	<b>H:+85°C 30min</b> $\updownarrow$ <b>30sec</b> <b>L:-25°C 30min</b>	<b>10 cycles</b>	<b>11 pcs</b>	<b>0 DEFECT</b>
<b>4</b>	<b>High Temperature Storage</b>	<b>TEMP: +85°C</b>	<b>1000 HRS</b>	<b>22 pcs</b>	<b>0 DEFECT</b>
<b>5</b>	<b>Low Temperature Storage</b>	<b>TEMP: -25°C</b>	<b>1000 HRS</b>	<b>22 pcs</b>	<b>0 DEFECT</b>
<b>6</b>	<b>High Temperature High Humidity Storage</b>	<b>85°C/93% RH</b>	<b>1000HRS</b>	<b>22 pcs</b>	<b>0 DEFECT</b>

■ TYPICAL ELECTRO-OPTICAL CHARACTERISTICS CURVES:

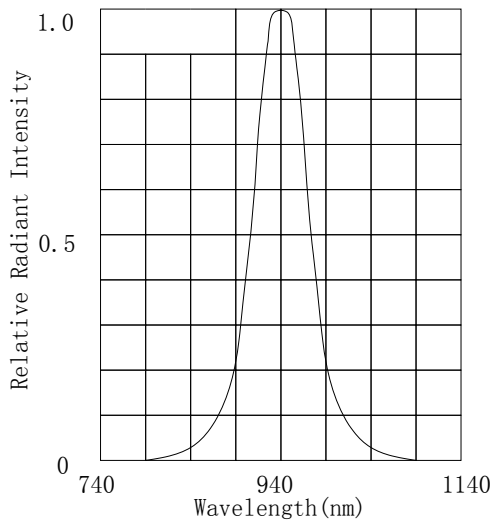


Fig.1 Spectral Distribution

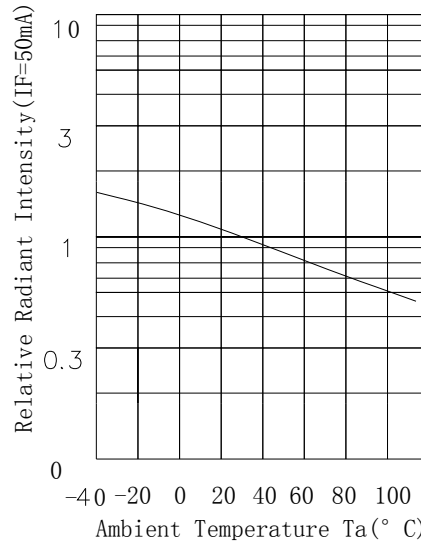


Fig.2 Relative Radiant Intensity Vs Ambient Temperature

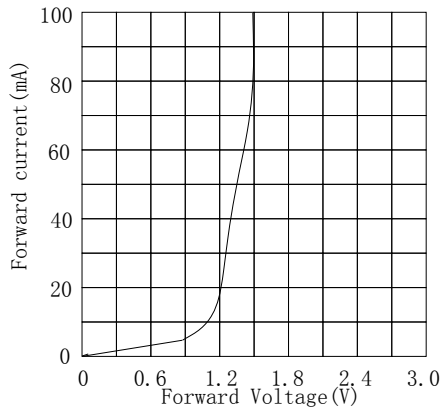


Fig.3 Forward Current Vs Forward Voltage

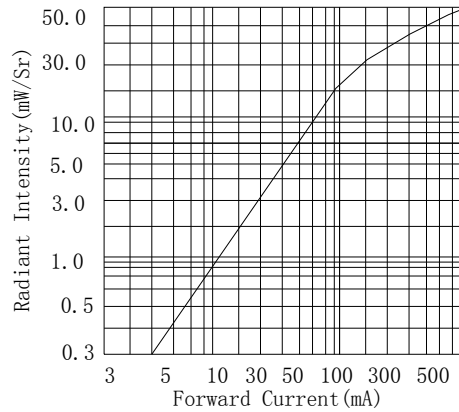


Fig.4 Forward Current Vs Radiant Intensity

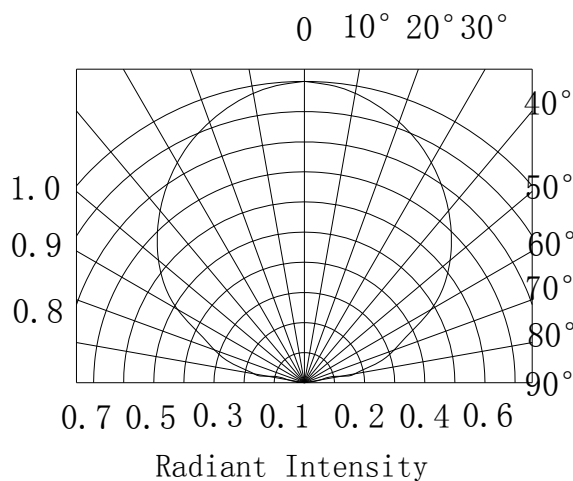


Fig.5 Angle Vs Radiant Intensity