

# Specifications and Quality Assurance

## InGaAs Photodiode Part No. **KPDE030-S**

Rev.	Date	Remarks	Kyosemi Approval	Customer Approval	
				Signed by	Date
0	2006.12.21	First issue	E.Omura		
1	2009/12/11	Deleted bubble leak test	T.Takeda		
2	2010/3/5	Dark current at 70 °C is added to the Electro-Optical Characteristics and Shipping Test Criteria.  Sanmpling method is changed to ANSI/ASQC Z1.4-1993 from MIL-STD-105D level II.	T.Takeda		

**Kyosemi Corporation**

Specifications and quality assurance described hereunder are applied to the CAN packaged InGaAs photodiode with the 300 $\mu$ m diameter of the sensitive area.

## 1. Specifications

### 1-1. Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit	Remarks
Reverse Voltage	$V_R$	20	V	
Forward Current	$I_F$	10	mA	
Max. Optical Input Power	$P_{MAX}$	30	mW	
Operating Temperature	$T_{OP}$	-40 to +85	$^{\circ}C$	Avoid dew condensation
Storage Temperature	$T_{STR}$	-40 to +85	$^{\circ}C$	Avoid dew condensation
Humidity	H	85	%RH	
Soldering Temperature	$T_{SOL}$	260	$^{\circ}C$	2mm from header 10sec max

### 1-2. Electro-Optical Characteristics ( $T_a=25^{\circ}C$ , $V_R=5V$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Active Area Diameter	-	-	300			$\mu$ m
Responsivity	R	$\lambda=1310nm$ , $T_a=-10^{\circ}C$	0.8	0.9	-	A/W
		$\lambda=1550nm$ , $T_a=-10^{\circ}C$	0.9	1.0	-	A/W
Dark Current	$I_D$	$T_a=25^{\circ}C$	-	0.1	0.6	nA
		$T_a=70^{\circ}C$	-	-	5.0	
Band Width	BW	$R_L=50ohm$ , $P_{in}=-10dBm$ , Small signal modulation	-	600	-	MHz
Terminal Capacitance	$C_T$	$f=1MHz$	-	-	6	pF
Responsivity Uniformity	$\Delta R$	1530 to 1620nm, -10 to +85 $^{\circ}C$	-	-	0.5	dB

### 1-3. Dimensions

Refer to the attached drawing No. BFJ05015

## 2. Quality Assurance

### 2-1. Quality Assurance Levels

Lot-by-Lot Test Criteria

Sampling method is subjected to ANSI/ASQC Z1.4-1993

Terms	Definitions	AQL	Remarks
Fatal defects	Electrode shortage or open failure	-	0/1(Full inspection)
Severe defects	Excess dark current or cracks in the chip	0.25	
Minor defects	Slight scratches on the chip	0.65	

### 2-2. Shipping Test Criteria

- Visual Inspection Full inspection
- Electro-Optical Characteristics:
  - 1) Dark Current at Ta=25 °C Full inspection
  - Dark Current at Ta=70 °C Sampling\*1
  - 2) Responsivity at  $\lambda=1550\text{nm}$  Sampling\*1
- \*1: Special Inspection Levels:S-2 Single sampling plans for Normal Inspection AQL:2.5
- Leak Test:
  - 1) He leak test ( $\leq 5 \times 10^{-9}$  Pa-m<sup>3</sup>/sec) Full inspection

## 3. The remedy of the defective product

If non-conformity of the products applied to the above-mentioned specifications is found, it must be notified within three month after the date of delivery.

## 4. Warranty

As for any defect of this product for which Kyosemi Corporation is liable, Kyosemi Corporation shall, at its option, inspect or replace the product. This warranty period shall be twelve (12) months counting from the date of delivery.

## 5. Notice

- Kyosemi Corporation would assume this specification has been approved if no notification of approval or disapproval has reached within one month after issuing this specification.
- Kyosemi Corporation will ship the product based solely on this specification, not on other standards or specifications.
- If any malfunction out of this specification or necessity of the change of the specification arises, both parties shall first make a good faith attempt to solve the matter.

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