MITSUBISHI ELECTRIC CORPORATION

Tentative

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PARED BY:				
CKED BY:				
APPROVED BY:				

1. TYPE : PD839C4-01
2. APPLICATION : OPTICAL COMMUNICATION
3. STRUCTURE : ϕ35 μm InGaAs AVALANCHE PHOTODIODE with TIA
4. OUTLINE : G480XXX
5. ABSOLUTE MAXIMUM RATINGS

No.	PARAMETER	SYMBOL	CONDITION	RATINGS	UNIT
(1)	APD supply voltage	V_{PD}	-	Vbr	V
(2)	Pre-amplifier supply voltage	V_{DD}	-	6	V
(3)	APD Reverse Current	I_R	-	0.5	mA
(4)	Storage Case Temperature	Tstg	-	-20 ~ +85	°C

6. Recommended operating conditions

No.	Parameter	Symbol	Conditions	Limit			Unit
				Min.	Typ.	Max.	
(1)	Pre-amplifier voltage	Vdd	-	TBD	3.3	TBD	V
(2)	Case temperature	Tc	-	0	-	+75	°C

7. OPTICAL AND ELECTRICAL CHARACTERISTICS

No	PARAMETER	SYMBOL	CONDITION (Tc=25 C, Vdd=3.3V, λ=1550nm otherwise specified)	RATINGS			UNIT
				MIN.	TYP.	MAX.	
(1)	Detection range	D	-	1000	-	1600	nm
(2)	APD dark current	Id	Vr=0.9VBR	-	20	60	nA
(3)	Break-down Voltage	Vbr	Id=100μA	40	-	80	V
(4)	APD responsivity	R	M=1, λ=1550nm	0.80	0.95	-	A/W
(5)	Pre-amplifier supply current	Idd	Pin=0μW	-	35	63	mA
(6)	Trans-impedance	Zt_off	f=200MHz	-	2.75	-	kΩ
(8)	Cut-off frequency	fc	-3dB, RL=50Ω, M=10	TBD	2.0	-	GHz
(9)	Averaged equivalent input noise current density	in	Pin=0μW,f=10MHz-1.8GHz, RL=50Ω, Tc=25 C	-	9	-	$pA/\sqrt{Hz}$

8. ACCOMPANYING DATA

Accompanying data with each shipped APD shall include following data.
:Vbr, Idd, R, Vr(M=2)

9. Precautions

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Some characteristics of this product n ing condition.

The system should be carefully designed so that problems do not occur.

10. Safety precautions relating to handling of optical semiconductor device

General:

Although the manufacturer is always striving to improve the reliability of its products, problems and errors may occur with semiconductor products. Hence, it is required so that the user's products are designed with full regard to safety by incorporating the redundancy, fire prevention, error prevention so that any problems or error with a semiconductor product does not cause any accidents resulting in injury or death, fire, or environmental damage. The following requirements must be strictly observed.

Warning!

1. Handling of the product

This product uses GaAs (gallium arsenate). In normal conditions this product is not toxic. However, if it is powdered or vaporized, its powder or vapor is dangerous to humans. Never attempt to crush, grind, bake or chemically treat this product. Do not put this product into your mouth or swallow it.

2. Discarding the product

This product uses GaAs (gallium arsenate). It should be discarded as a specially controlled industrial waste, it should be separated from general industrial and household wastes, according to the "Law of Wastes and Cleaning".

Caution!

1. High temperature

During operation the product may become hot. Therefore do not touch it directly during operation. The product will remain hot even after the power is turned off, so wait until it cools before you touch it. Otherwise burns may be caused. Never place any inflammable substance which may cause a fire near the product.