

17.June.2003

Approved		Charged
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Specification proposal

(2.5Gbps. PD Preamp Module Vcc=+3.3V)

FU-319SPP-x6M2x

PRELIMINARY

MITSUBISHI ELECTRIC CORP.

A	B	C	D
	X		
Date		Approved	
19 Jun.2003		H.Watanabe	

PRELIMINARY

TZ7-02-133C(2/6)
MITSUBISHI (OPTICAL DEVICES)

FU-319SPP-x6M2x

InGaAs PD PREAMP MODULE FOR THE 1.3 μm WAVELENGTH RANGE

DESCRIPTION

FU-319SPP-x6M2x is InGaAs pin photodiode module with SiGe preamplifier, designed for use in high-speed, long haul optical communication systems. The coaxial package contains an InGaAs pin photodiode coupled with single-mode fiber pigtail and SiGe preamplifier.

FEATURES

- High-sensitivity (-23dBm typ)
- 5pin coaxial package
- Single power supply voltage +3.3V
- Differential output (50 Ω)

APPLICATION

2.5Gbps optical receiver (OC-48, STM-16)
Extended reach datacom and telecom applications
Long haul optical communication systems
FEC rate systems

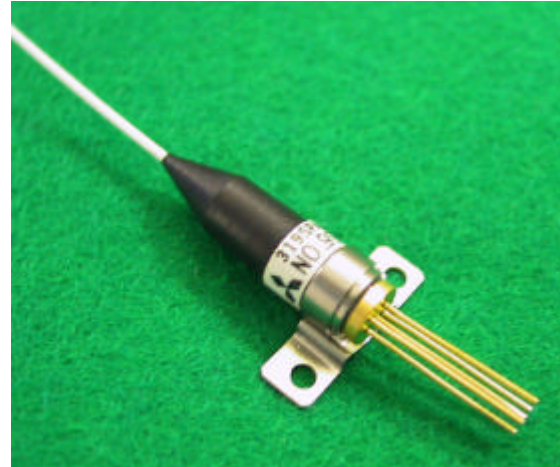


Photo:FU-319SPP-x6M20

ABSOLUTE MAXIMUM RATINGS (T_c=25°C)

Parameter	Symbol	Rating	Unit
PD Reverse voltage	VPD	20	V
PD Reverse current (CW)	I _r	4	mA
PD Forward current (CW)	I _f	2	mA
Power supply voltage	VCC	-0.5~6	V
Operating case temperature	T _c	-40~+85	°C
Storage temperature	T _{stg}	-40~+85	°C

PRELIMINARY

TZ7-02-133C(3/6)

MITSUBISHI (OPTICAL DEVICES)

FU-319SPP-x6M2x

InGaAs PD PREAMP MODULE FOR THE 1.3 μ m WAVELENGTH RANGE

ELECTRICAL/OPTICAL CHARACTERISTICS (Tc=25°C, λ =1.3 μ m, VPD=VCC=3.3V, unless otherwise noted)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
Detection range	-	-	1000	-	1600	nm
Responsivity	R	CW	0.7	0.8	-	A/W
Transimpedance	Zt	AC, f=200MHz, RL=50 Ω , Pin=-17dBm, Single end, (Note 1)	1.0	1.37	1.75	k Ω
Maximum output voltage	Vod_max	AC, RL=50 Ω , Pin=0dBm, Single end,	75	150	310	mV
Cutoff frequency(-3dB)	fc_High	AC, RL=50 Ω	1.8	2.1	-	GHz
	fc_Low	AC, RL=50 Ω	-	30	100	kHz
Average input equivalent noise current density	in	AC, RL=50 Ω , 1MHz~1.8GHz	-	7.5	-	pA/ \sqrt Hz
Output impedance	Zo	(Differential output)	-	50	-	Ω
Sensitivity	Pr	AC, RL=50 Ω , NRZ, 2.48832Gbps.,	-	-23	-21	dBm
Over load power	Po	PRBS=2 ²³ -1, BER=10 ⁻¹⁰ , (Note 2)	1	3	-	
Power supply voltage	VCC VPD	-	3.1	3.3	3.5	V
Power supply current	ICC	VCC=3.3V	-	35	60	mA
Optical return loss	Prtn	λ =1.3 μ m	27	-	-	dB

Note 1. Zt=OUTN/Iin Iin:Preamp input current amplitude.

Note 2. Used post-amp bandwidth is 1.86GHz, Laser source extinction ratio is 10dB.

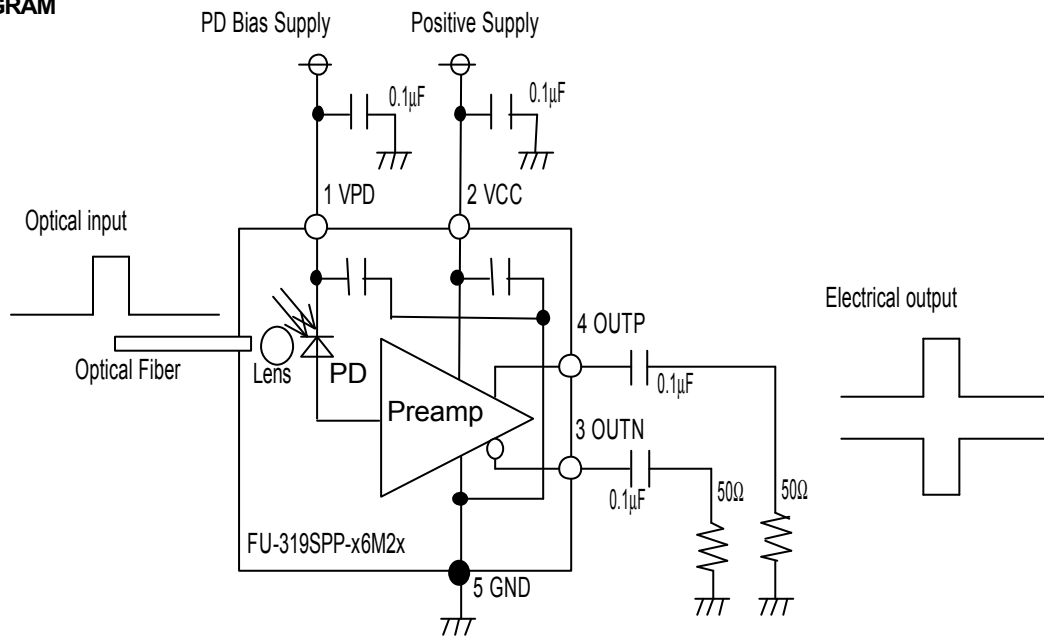
OPTICAL FIBER SPECIFICATION

Parameter	Limits	Unit
	FU-319SPP-x6M2x	
Type	SM	-
Mode field dia.	9.5 \pm 1	μ m
Cladding dia.	125 \pm 2	μ m
Jacket dia.	0.9 typ.	mm
Connector return loss	40(min)	dB

FU-319SPP-x6M2x

InGaAs PD PREAMP MODULE FOR THE 1.3 μm WAVELENGTH RANGE

BLOCK DIAGRAM



ORDERING INFORMATION

FU-319SPP-x6M2x

Flange Code

Flange Code	Flange type		
0	Horizontal mount	Standard	See Fig.1
1	Vertical mount	Standard	See Fig.2

Connector Code

Connector Code	Connector type	
V	FC/PC	Standard
W	SC/PC	Standard
T	LC/PC	Optional
U	MU/PC	Optional

PRELIMINARY

TZ7-02-133C(5/6)

MITSUBISHI (OPTICAL DEVICES)

FU-319SPP-X6M2X

InGaAs PD PREAMP MODULE FOR THE 1.3 μm WAVELENGTH RANGE

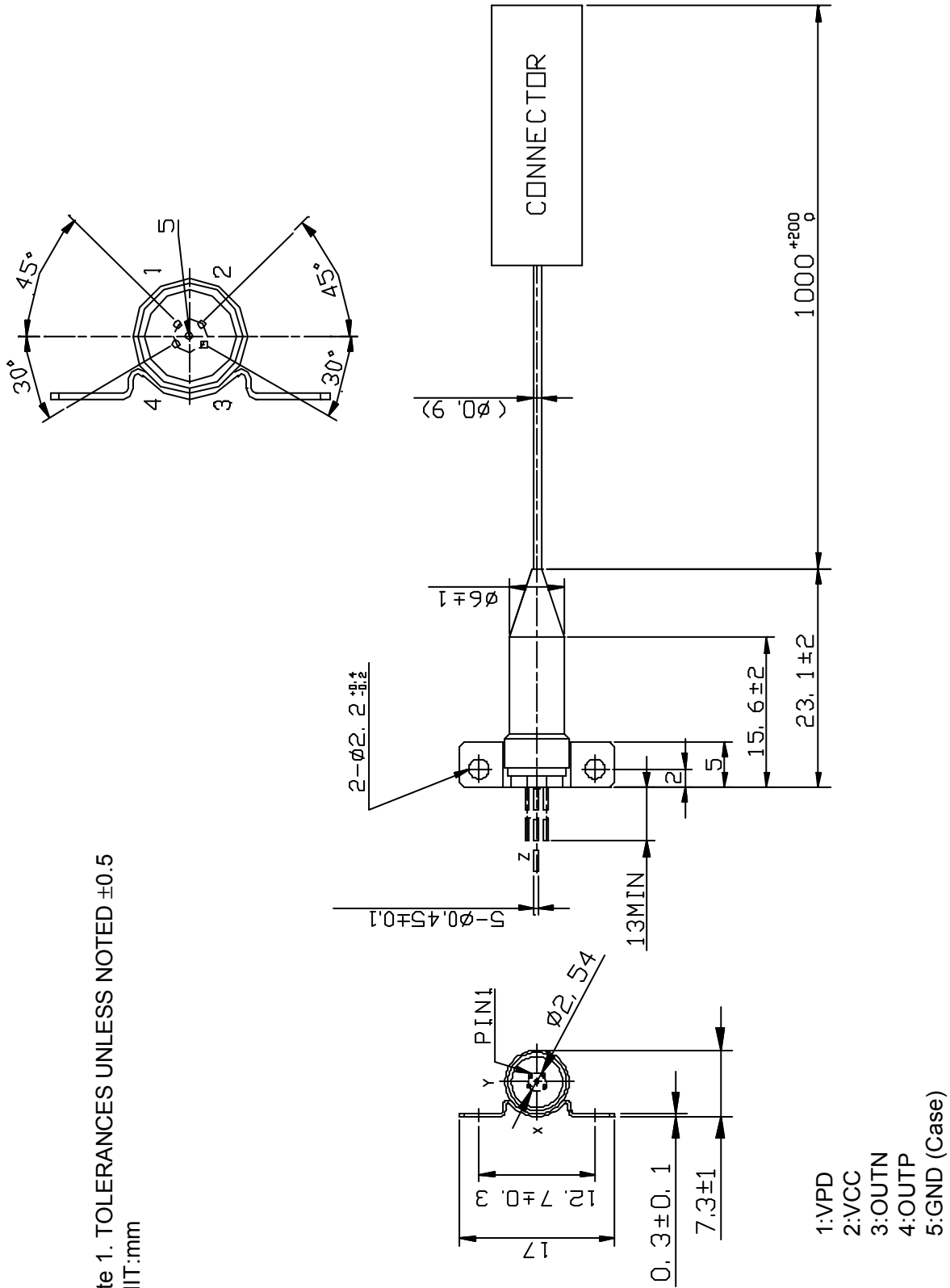


Fig.1 Horizontal mount flange type FU-319SPA-x6M20

PRELIMINARY

TZ7-02-133C(6/6)

MITSUBISHI (OPTICAL DEVICES)

FU-319SPP-X6M2X

InGaAs PD PREAMP MODULE FOR THE 1.3 μm WAVELENGTH RANGE

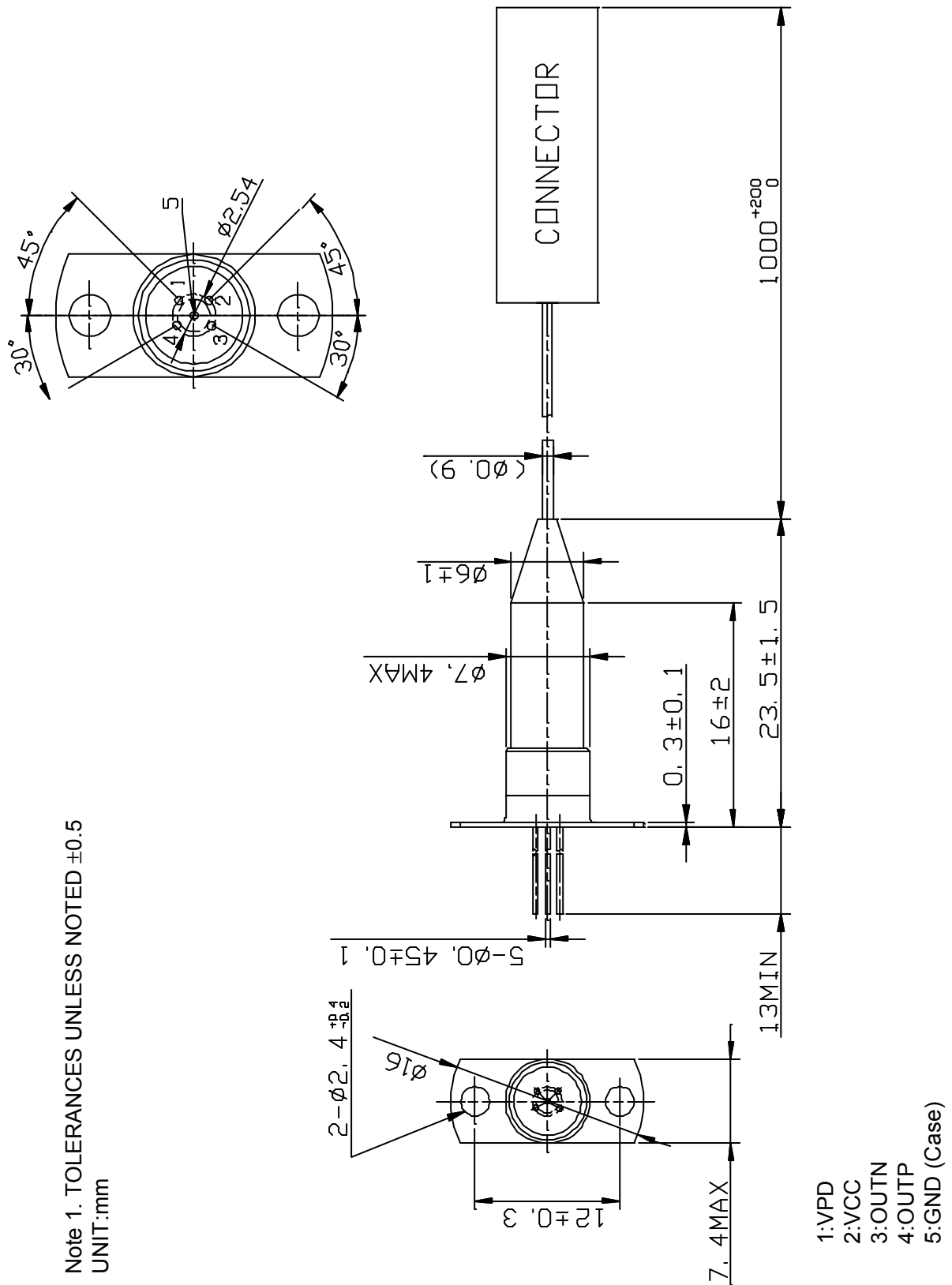


Fig.2 Vertical mount flange type FU-319SPA-x6M21