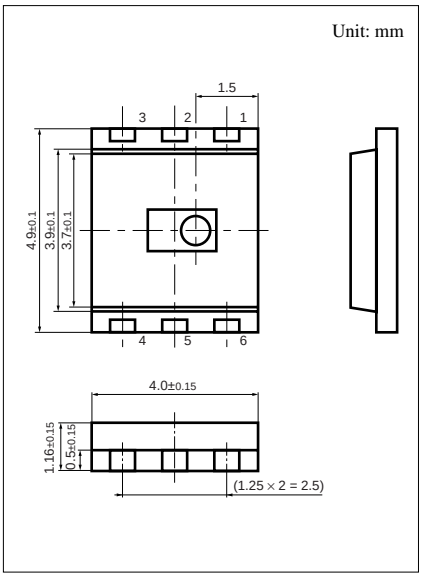
PNA4S87F

Photodiode with amplifier functions

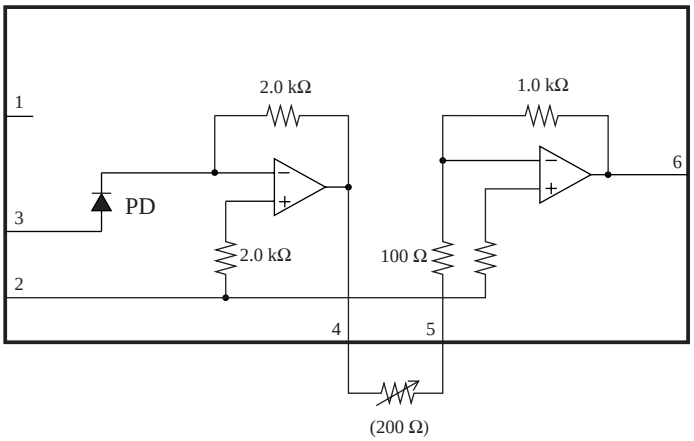
For optical control system



■ Features

- High-speed response supports 40 times normal speed (settling time < 10 ns)
- Wide dynamic range: 2.2 V
- Gain control possible
- Compact COB (chip on board) package
  Package size: 4.9 mm × 4.0 mm × 1.16 mm
  Reflow soldering possible

■ Block Diagram



■ Pin Descriptions

Pin No.	Description	Pin No.	Description
1	V_{CC}	4	I / V OUT
2	V_{ref}	5	IN
3	GND	6	OUT

■ Absolute Maximum Ratings T_a = 25°C

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	6	V
Power dissipation	P_D	250	mW
Operating ambient temperature	T_{opr}	−20 to +70	°C
Storage temperature	T_{stg}	−40 to +85	°C

■ Electro-Optical Characteristics

V_{CC} = 5.0 V, V_{ref} = 2.5 V, R_L = 10 kΩ, C_L = 10 pF, VR = 200 Ω, T_a = 25°C ± 3°C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Operating supply voltage *5	V_{CC}		4.5	5.0	5.5	V
V_{ref} supply voltage *5, 6	V_{ref}		2.25	2.5	2.75	V
Supply current	I_{CC}	No signal	—	17	20	mA
Output voltage *1	V_O	PI = 100 μW, λ = 780 nm	−140	−190	−240	mV
Offset voltage *2	V_{off}		−8	0	8	mV
Cut-off frequency *3, 4	$f_{C(-3\ dB)}$		75	100	—	MHz
Switching time	t_r , t_f	V_O = 1 V	—	5	—	ns
Maximum output voltage *2, 4	V_{om}		−2.0	−2.2	—	V

Note) ∗1: Standard voltage level: V_{ref} (exclude offset voltage)

∗2: Standard voltage level: V_{ref}

∗3: The frequency that the output level is −3 dB. (The output voltage at f_C = 1 MHz is the reference)

∗4: Guarantee item on design

∗5: (V_{CC} − V_{ref}) voltage: More than 2.2 V

∗6: Use it with the condition that becomes V_{ref} = V_{CC} /2

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