

# PNA4S54F

## Photodiode with amplifier functions

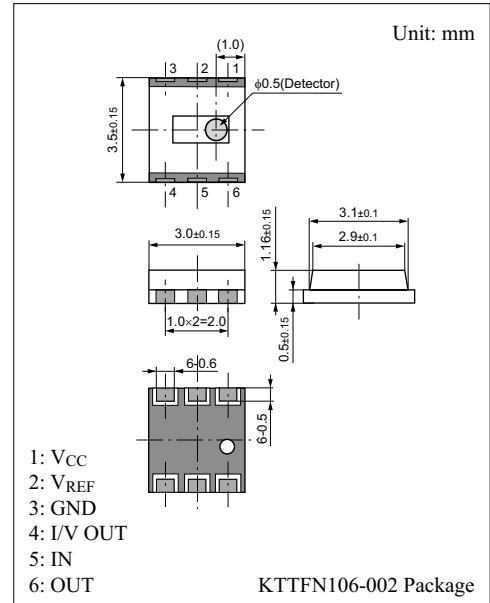
For optical control systems

### ■ Features

- Small package, × 52 speed
- Reflow soldering possible

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Operating supply voltage	$V_{CC}$	6	V
Power dissipation	$P_D$	250	mW
Operating ambient temperature	$T_{opr}$	-20 to +70	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-40 to +85	$^\circ\text{C}$



### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$ , $V_{CC} = 5.0\text{ V}$ , $V_{REF} = 2.5\text{ V}$ , $R_L = 10\text{ k}\Omega$ , $C_L = 10\text{ pF}$ , $V_R = 200\ \Omega$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Operating supply voltage *4	$V_{CC}$		4.5	5.0	5.5	V
Output voltage *1	$V_O$	$PI = 50\ \mu\text{W}$ , $\lambda = 780\text{ nm}$	-95	-140	-190	mV
Output offset voltage *2	$V_{OFF}$		-10	0	10	mV
Output maximum voltage	$V_{OM}$	$V_{REF}$ standard	-2.0	-2.2	—	V
Reference voltage *4	$V_{REF}$		2.0	2.5	2.75	V
Supply current	$I_{CC}$	No signal condition	—	1.5	20	mA
Cutoff frequency *3	$f_{C(-3dB)}$	Guarantee item on design	—	80	—	MHz
Rise time	$t_r$	$V_O = 1\text{ V}$ , 10% to 90%		5		ns
Fall time	$t_f$					

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.

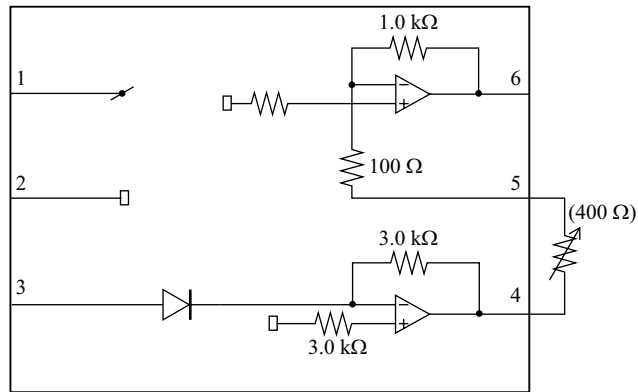
2. \*1: Standard voltage level;  $V_{REF}$  (Exclude output offset voltage)

\*2: Standard voltage level;  $V_{REF}$

\*3:  $20 \log (V_O (f_C \text{ MHz}) / V_O (1 \text{ MHz})) = -3$

\*4:  $(V_{CC} - V_{REF})$  Voltage: more than 2.0 V

■ Block Diagram



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