

HAMAMATSU

TECHNICAL DATA SHEET
NOV. 1987

GaAsP
PHOTODIODE
/OP-AMP DEVICE
G1957

MAXIMUM RATINGS

Supply Voltage, V_s ± 18 V
Power Dissipation, P_d500 mW
Photocurrent, I_p max.....10 mA
Photodiode Reverse Voltage, V_R max.....5 V
Operating Temperature.....0~+70 °C
Storage Temperature.....-30~+100 °C

GENERAL RATINGS

Window Diameter.....3 mm
Spectral Response.....300~680 nm
Responsivity* at 640nm..... 1.3×10^7 V/W
NEP* at 640nm
Typ..... 2×10^{-14} W/Hz $^{1/2}$
Max..... 5×10^{-14} W/Hz $^{1/2}$
Noise Voltage(at 20Hz)*..... 10^{-6} V/Hz $^{1/2}$ Typ.

* Feedback resistance 100M Ω

PHOTODIODE CHARACTERISTICS(at 25°C)

Radiant Sensitivity at 640nm.....0.3 A/W Typ.
Wavelength of Peak Response, λ_p640 $\pm$ 30 nm Typ.
Junction Capacitance, C_j (f=10kHz, $V_R=0$ V).....1400 pF Typ.
Shunt Resistance R_{sh} ($V_R=10$ mV)
Min.....4 G Ω
Typ.....30 G Ω
Dark Current, I_d ($V_R=1$ V)
Typ.....5 pA
Max.....25 pA
Maximum Reverse Voltage, V_R5 V

OPERATIONAL AMPLIFIER ELECTRICAL CHARACTERISTICS(at 25°C, $V_S = \pm 15V$)

	Min.	Typ.	Max.	Units
Bias Current, $I_B(T_J=25^\circ C)^*$	-	30	100	pA
Offset Current, $I_{OS}(T_J=25^\circ C)$	-	3	20	pA
Offset Voltage, $V_{OS}(R_S=50\Omega)$	-	3	10	mV
Offset Drift, $\Delta V_{OS}/\Delta T$	-	5×10^{-6}	1×10^{-6}	V/°C
Output impedance, R_O	-	-	50	Ω
Slew Rate, $SR(A_v=+5)$	20	40	-	V/ μs
Output Voltage Swing($R_L=2k\Omega$).....	± 10	± 12	-	V
Gain Bandwidth Product, GBW.....	-	10	-	MHz
Input Noise: $f=10 \sim 100kHz$, $R_S=50\Omega$	-	7×10^{-8}	2×10^{-8}	V
: $f=1kHz$, $R_S=50\Omega$	-	2×10^{-8}	-	V/Hz ^{1/2}
: $f=10kHz$, $R_S=50\Omega$	-	1.5×10^{-8}	-	V/Hz ^{1/2}

* The bias current doubles for every 10°C rise in junction temperature(T_J).

Figure 1: Photodiode Spectral Response

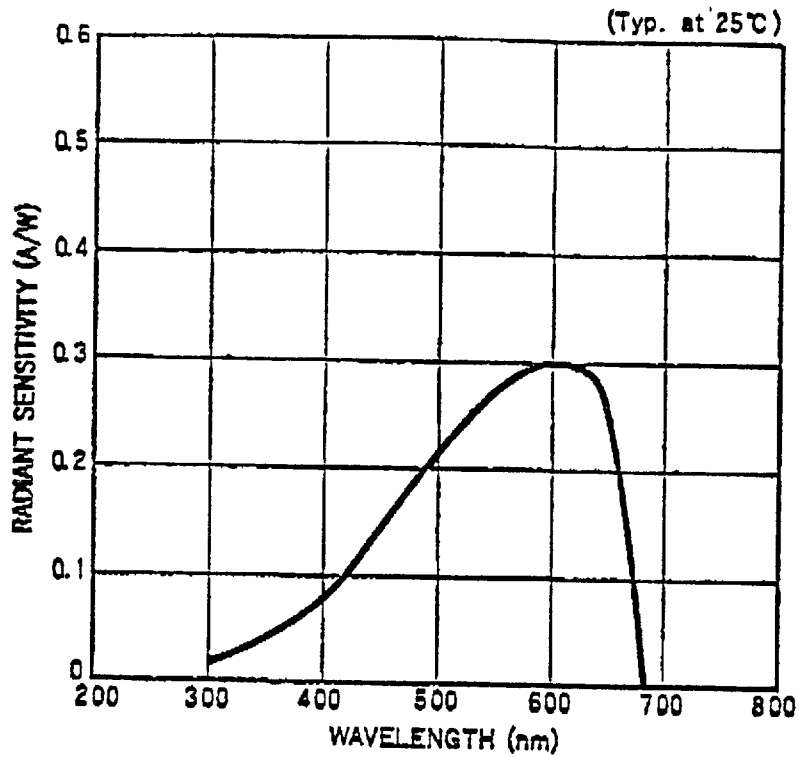


Figure 2: Dimensional Outline (Unit:mm)

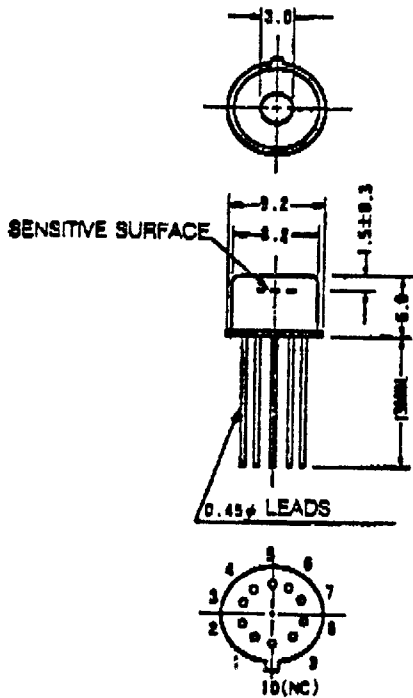


Figure 3: Pin Connection

