

Features

- Cut-off frequency (Vcc=5 V)
59391 : 15 MHz
59392 : 35 MHz
- Low noise (f=1 MHz)
59391 : 25 nVrms/Hz^{1/2}
59392 : 28 nVrms/Hz^{1/2}
- 3 pin TO-18 package
- Active area: φ0.8 mm

Applications

- Optical fiber communication
- Video signal transmission
- Optical disk pick-up

■ Electrical and optical characteristics [Ta=25 °C, Vcc=5 V, RL=500 Ω, CL=13 pF] *1

Parameter	Symbol	Condition	59391			59392			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		320 to 1060			320 to 1000			nm
Peak sensitivity wavelength	λp		-	900	-	-	800	-	nm
Photo sensitivity	S	λ=660 nm	-	13.5	-	-	8.5	-	mV/μW
		λ=780 nm	-	15.5	-	-	11	-	
		λ=830 nm	-	16.5	-	-	11	-	
Trans-impedance	Rt		-	30	-	-	20	-	kΩ
Power supply current	Icc	RL=∞	-	-	3	-	-	3	mA
Output bias voltage *2	Vo	RL=∞ Pin=0 μW	0.55	0.65	0.8	0.65	0.8	0.9	V
Temperature coefficient of output bias voltage	-		-	-2	-	-	-2	-	mV/°C
Cut-off frequency	fc	Pin=10 μW *3	12	15	-	28	35	-	MHz
Maximum output voltage amplitude	-	Nonlinear distortion: 10 % Max.	0.5	-	-	0.5	-	-	Vp-p
Output impedance	Zo	f=5 Hz	-	30	-	-	30	-	Ω
Output noise voltage	Vn	Pin=0 μW f=1 MHz	-	25	-	-	28	-	nV/Hz ^{1/2}
Overshoot	-	Pin=10 μW *3	-	-	10	-	-	10	%

■ Absolute maximum ratings

Parameter	Symbol	Min.	Max.	Unit
Power supply voltage *4	Vcc	-0.5	7	V
Power dissipation	P	-	300	mW
Operating temperature	Topr	-20	70	°C
Storage temperature	Tstg	-40	100	°C

■ Recommended operating conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	Vcc	4.75	5	5.25	V
Load resistance	RL	500	-	-	Ω
Load capacitance	CL	-	-	13	pF
Operating temperature	Topr	0	-	60	°C

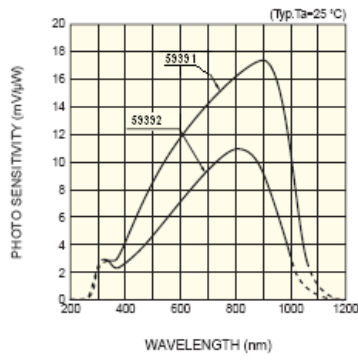
*1: For definitions of RL and CL, refer to the basic connection.

*2: Output voltage Vout =Vo-(Pin × S) Pin: incident radiant flux (μW)

*3: Peak value

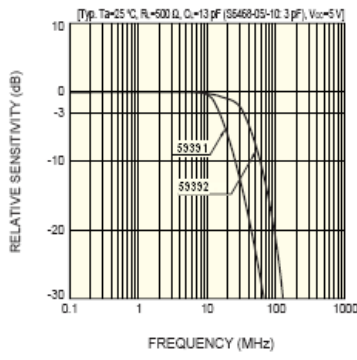
*4: A bypass capacitor (0.01 μF to 0.1 μF ceramic) is connected between the Vcc lead and the GND lead.

■ Spectral response



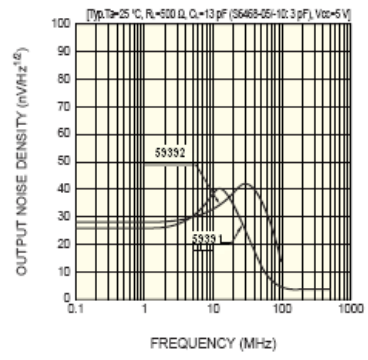
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■ Frequency characteristics



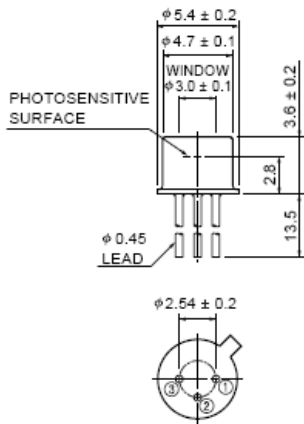
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■ Output noise spectrum



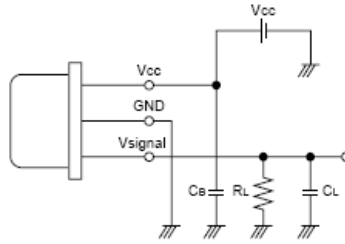
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■ Dimensional outline (unit: mm)



- ① Vcc
- ② GND (CASE)
- ③ V signal

■ Basic connection



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