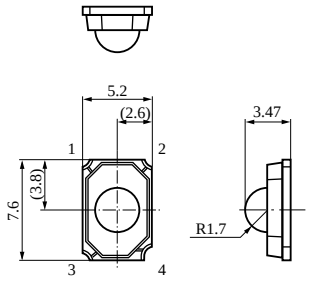
PNA4S01M Series (PNA4S01M/4S02M/4S03M/4S04M)

Bipolar Integrated Circuit with Photodetection Function

For infrared remote control systems

Unit : mm



1: V_O
2: V_{CC}
3: GND
4: GND

■ Features

- Surface-mouting type for reflow soldering
- Metal shieldless
- Space saved by miniaturization
- Ready for automatic mounting

■ Absolute Maximum Ratings (Ta = 25˚C)

Parameter	Symbol	Ratings	Unit
Power supply voltage	V_{CC}	−0.5 to +7	V
Power dissipation	P_D	200	mW
Operating ambient temperature	T_{opr}	–20 to +60	˚C
Storage temperature	T_{stg}	−30 to +70	˚C

■ Main Characteristics (Ta = 25˚C V_{CC} = 5V)

Parameter		Symbol	Conditions	min	typ	max	Unit
Operating supply voltage		V_{CC}		4.7	5.0	5.3	V
Current consumption		I_{CC}	No signal condition	1.8	2.4	3.0	mA
Maximum reception distance		L_{max} *1		5.0			m
Low-level output voltage		V_{OL} *2	L≤5.0m, 10L=400μA		0.35	0.5	V
High-level output voltage		V_{OH}	No signal condition	4.8	5.0	V_{CC}	V
Low-level pulse width		T_{WL} *1	L=5.0m, 16Pulse	200	400	600	μs
High-level pulse width		T_{WH} *1	L=5.0m, 16Pulse	200	400	600	μs
Carrier frequency	PNA4S01M	f_0			36.7		kHz
	PNA4S02M				38.0		
	PNA4S03M				40.0		
	PNA4S04M				56.9		

*1 Fig.1 burst wave, L=L_{max}, 16 pulses

*2 Fig.2 continuous wave, L≤L_{max}

Carrier wave : f_o

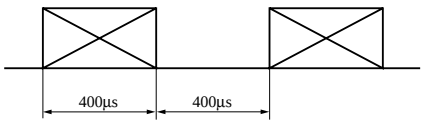


Fig.1

Carrier wave : f_o

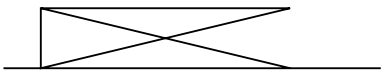
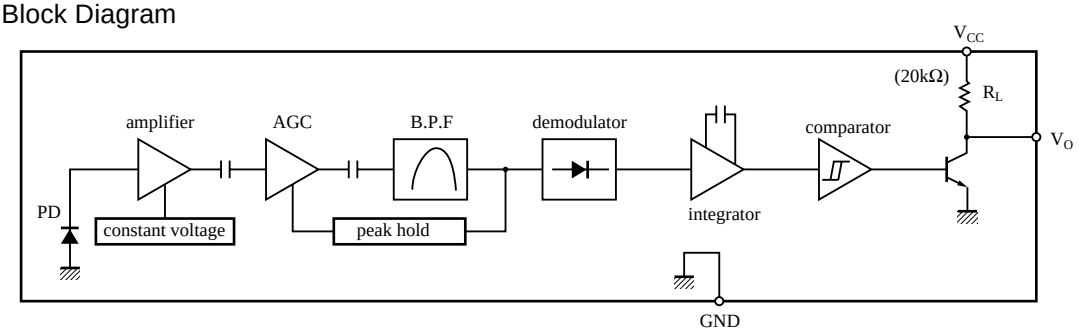
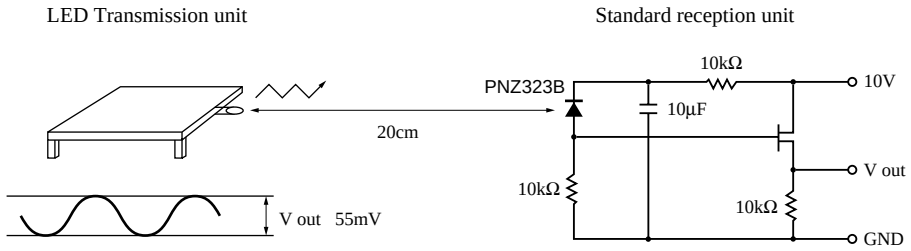


Fig.2

■ Block Diagram

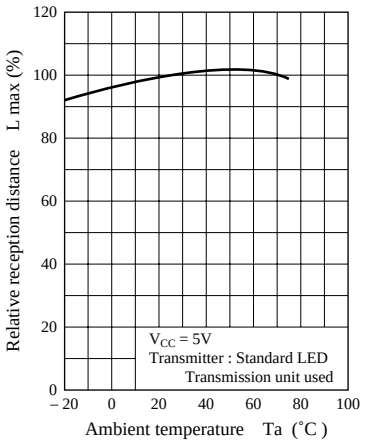


■ Panasonic Transmitter Specifications

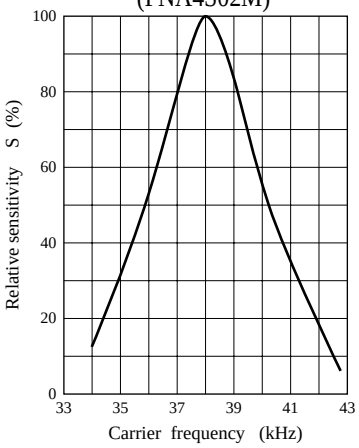


- The light output of the LED transmission unit is adjusted so that the transmission output (V out) of the standard reception unit will be 55 mV when the transmission waveform (duty = 50%) is output from the LED transmission unit. Here, infrared sensitivity (SIR) of PNZ323B is 0.53 μA when emission illuminance (H) is 12.45 μW/cm^2.
- The maximum reception distance under these specifications is an assurance that T_{WH} and T_{WL} values will be within the tolerance ranges when 16 consecutive pulses of an optical output equivalent to the maximum reception distance are transmitted by the above transmission unit (The maximum reception distance is measured in the dark without external disturbance noise.)

L max — Ta

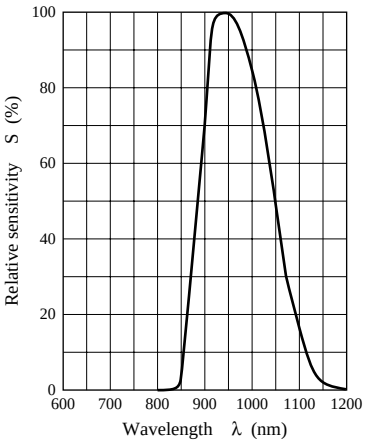


B.P.F frequency characteristics (PNA4S02M)*



* The peaks for PNA4S01M, PNA4S08M are all f_0.

Spectral sensitivity characteristics



Directivity characteristics