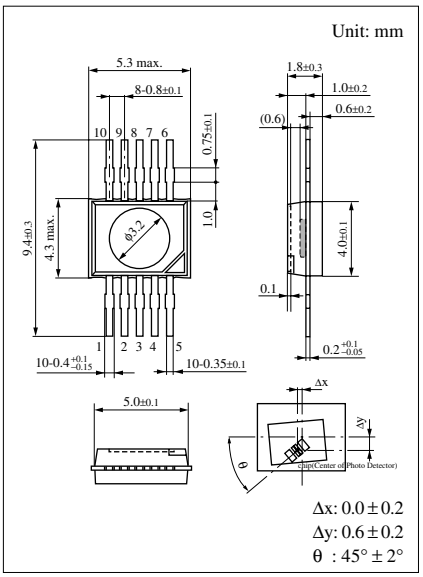
PNC4271F (PN7611)

Bipolar integrated circuit with photodetection function

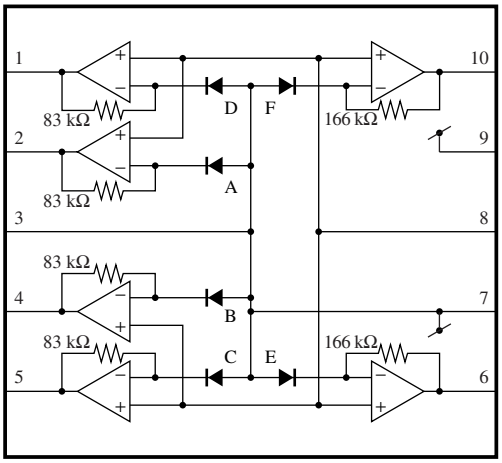
Optical pick up for CD, CD-ROM



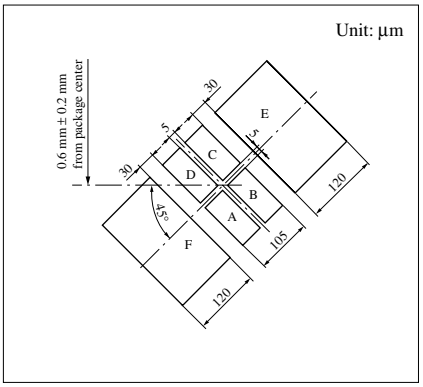
■ Features

- Built-in I-V conversion amplifier
- Support CD and 4 × CD-ROM

■ Block Diagram



■ Dimensions of Detection Area



■ Pin Descriptions

Pin No.	Description	Pin No.	Description
1	D-out	6	E-out
2	A-out	7	Common GND
3	Common GND	8	V_C
4	B-out	9	V_{CC}
5	C-out	10	F-out

Note) The part number in the parenthesis shows conventional part number.

■ Absolute Maximum Ratings $T_a = 25°C$

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	+6	V
Power dissipation	P_D	115	mW
Operating ambient temperature	T_{opr}	−20 to +80	°C
Storage temperature	T_{stg}	−30 to +85	°C

■ Electro-Optical Characteristics $V_{CC} = 5$ V, $R_L = 83$ kΩ, $T_a = 25°C \pm 3°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Current of all circuits	I_{CC}			1.5	3.0	mA
Output voltage *1, 2, 3, 6	V_O	$P_I = 10$ μW, A to D element	240	300	360	mV
		$P_I = 10$ μW, E to F element	520	660	800	
Output offset voltage *1	V_{OFF}	A to F element	−20	0	+20	mV
Output offset voltage difference	ΔV_{OFF}	(A + B) − (C + D) element	−20	0	+20	mV
		(A + D) − (B + C) element	−20	0	+20	
		(A + C) − (B + D) element	−20	0	+20	
		E − F element	−15	0	+15	
Maximum output voltage *2, 5, 6	V_{OM}	$P_I = 100$ μW	3.7	4.1		V
Output noise voltage *6	V_{ON}			0.2	1.0	mV[rms]
Frequency characteristics *2, 4, 6	f_C	A to D element	6	8		MHz
		E to F element	0.5	1.5		
Peak sensitivity wavelength *6	λ_P			900		nm
Response time *2	t_r , t_f	10% to 90% of output wave		90		ns

Note) ∗1: Based on reference supply voltage range.

∗2: Semiconductor laser light source ($\lambda = 780$ nm)

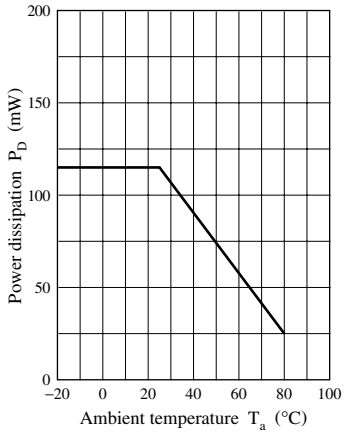
∗3: Not include the output offset voltage.

∗4: Frequency when starting from 100 kHz and the output voltage decreased by 3 dB.

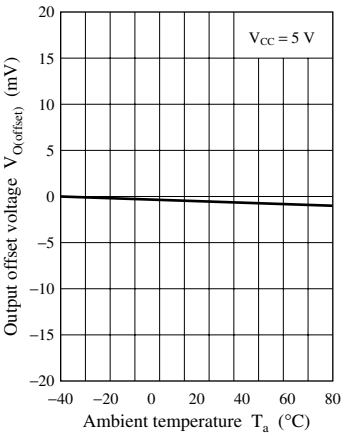
∗5: Based on GND.

∗6: Designed specification.

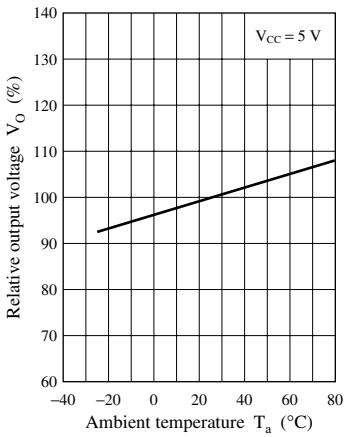
P_D — T_a



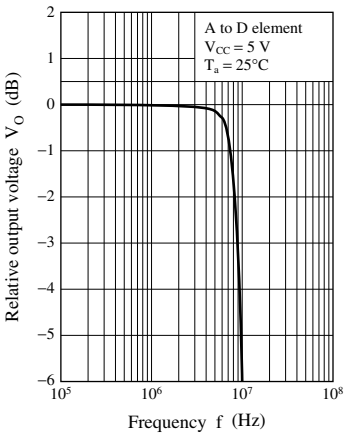
$V_{O(offset)}$ — T_a



V_O — T_a



Frequency characteristics



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