PREAMPLIFIER FOR REMOTE CONTROL USE

General Descriptions

The HL3279 is a miniaturized receiver ICs for use in infrared remote control system receiving preamplifiers.
Capable of accepting a photodiode directly, these ICs house a high gain initial amplifier, a gain control amplifier, a limiter, a band pass filter, a detection circuit, two comparator circuits, gain control circuits, integrator circuits, a waveform shaping circuit assembled on a single chip.

Features

- Wide Operating Supply Voltage 2.7V ~ 5.5 V
- Maximum interference safety against optical and electrical disturbances
- No external components necessary
- The Center Frequency can be varied with option PADs
  (32.7kHz, 36.7kHz, 37.9kHz, 40kHz, 56.7kHz)
- Internal filter for a high frequency lighting fluorescent lamp
- Open collector output (Open collector output a pull-up resistance)
- Output active low

Floor Planning Diagram

U.R.(1710,1530)

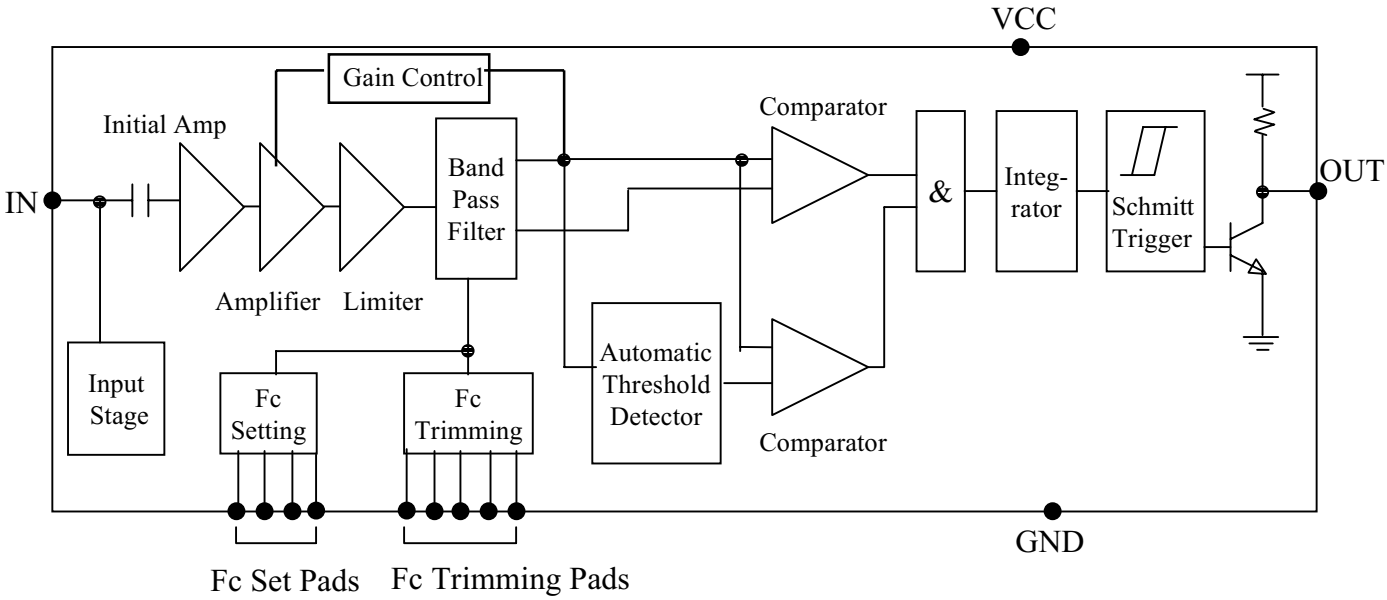
L.L.(0 , 0)

* Chip size : 1710㎛ x1530㎛
* PAD Open Size : 100㎛ x 100㎛ (in case of Trimming and Test pads, 80㎛ x 100㎛)

PADs Descriptions

PAD Number	PAD Name	Description	PAD 좌표(X,Y)	
1	VCC	VCC Pad	202.5	1258.5
2	S4	BPF Frequency selection pad. (This pad connected to GND or OPEN)	196.5	1088.5
3	GND	Ground Pad	129	601
4	IN	Signal Input Pad	192	152
5	MP1	PAD for test (no used)	1580	130
6	MP2		1583.5	684
7	S3	BPF Frequency selection pad. Total five frequency are controlled by connecting to GND(S1~S4) or OPEN	1580.5	844
8	S2		1580.5	1014
9	S1		1580.5	1184
10	GND	Ground Pad for Output	1580.5	1354
11	OUTPUT	Signal Output Pad	1229.5	1351.5
12	T5	Pads for exact adjustment and trimming the center frequency(fo) of BPF. (no used)	991	1344
13	T4		834	1344
14	T1		673.5	1344
15	T2		516.5	1344
16	T3		362.5	1344

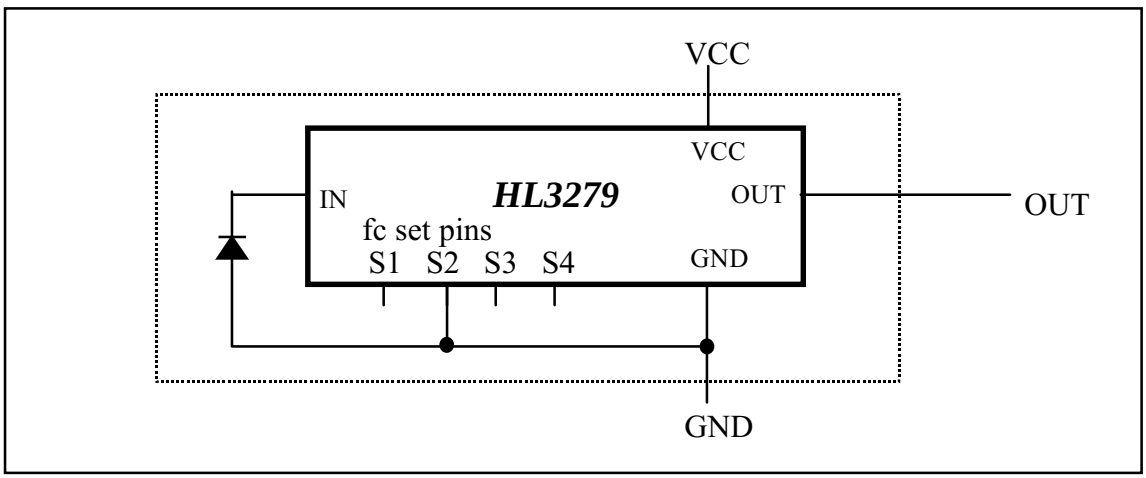
Functional Block Diagram



* Fc(center frequency) can be varied with 4 optional pads.
  : 32.7kHz, 36.7kHz,40.0KHz, 37.9kHz, 56.7kHz

Fc(Center Frequency)	PAD Setting Method (S1,S2,S3,S4)
32.7 kHz	No connection
36.7 kHz	S1(PAD9) is Ground
37.9 kHz	S2(PAD8) is Ground
40.0 kHz	S3(PAD7) is Ground
56.7 kHz	S4(PAD2) is Ground

Application Circuits (e.g. 37.9kHz)



Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Conditions
Supply Voltage	V_{cc}	0	6.0	V	
Output Voltage	V_{out}	0	6	V	
Output Current	I_{out}	0	2.5	mA	
Operating Temperature	T_{opr}	-25	85	℃	
Storage Temperature	T_{st}	-40	125	℃	

* Stress above those listed under Absolute Maximum Ratings may cause permanent damage of device. This is stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for longer periods may affect device reliability.
During overload conditions (VIN>Vcc or VIN<GND), those voltage on Vcc pins with respect to ground must not exceed the values defined by the absolute maximum ratings.

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Operating Voltage	V_{cc}	2.7	-	5.5	V	
Input Frequency	f_{in}	30	38	60	kHz	
Operating Temperature	T_{opr}	-20	25	80	℃	

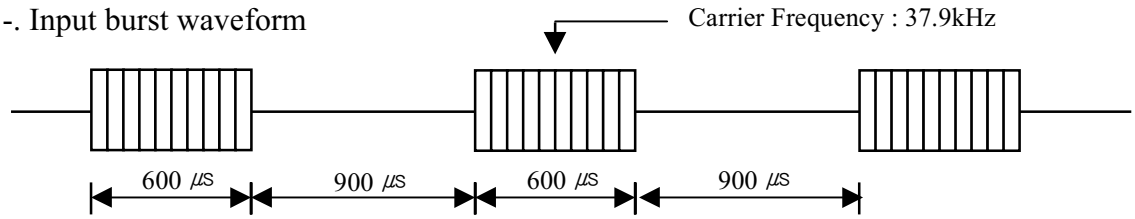
Electrical Specifications

(Specifications hold over the Recommended Operating Conditions, unless otherwise noted herein.
All values are at 25℃ and Vcc=3.0V)

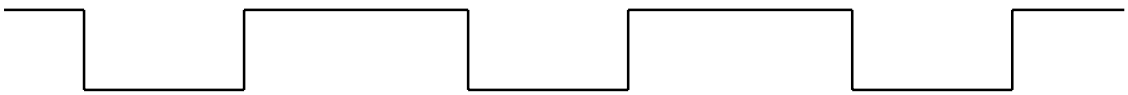
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Supply Current	Icc	-	0.8	1.5	mA	Iin = 0 μA
Max. Input current	I_{IN}	0.3	-	0.8	mA	Vin = 0 V
Max. Voltage gain	Av	80	95	110	dB	fin=37.9kHz Vin=30μVp-p AGC Off시
BPF Bandwidth	f_{BW}	2	3.3	5	kHz	-3dB Bandwidth Vin=30μVp-p
Output pulse width	t_{PW1}	500	600	700	μs	fin=37.9kHz, burst wave Vin=500 μVp-p note*1
	t_{PW2}	500	600	700	μs	fin=37.9kHz, burst wave Vin= 50mVp-p note*1
Low level output voltage	V_{OL}	-	0.2	0.4	V	-
High level output voltage	V_{OH}	2.8	3.0	-	V	-

Note 1 :

-. Input burst waveform

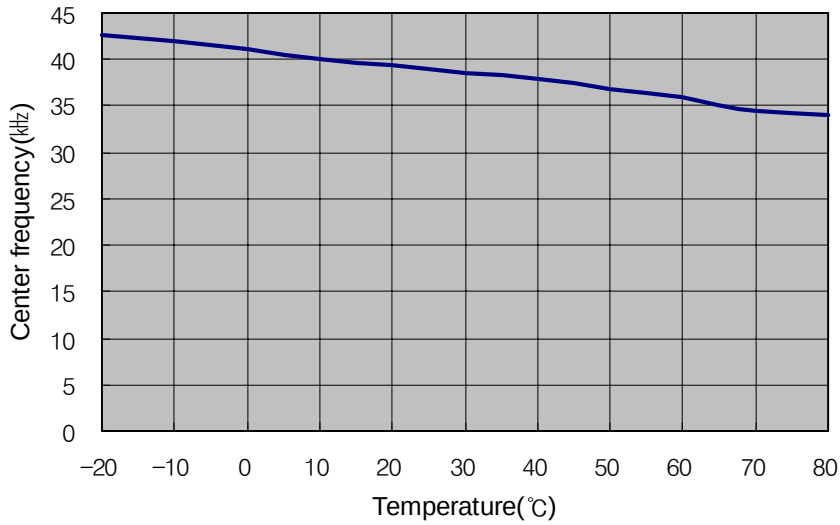


-.Output pulse

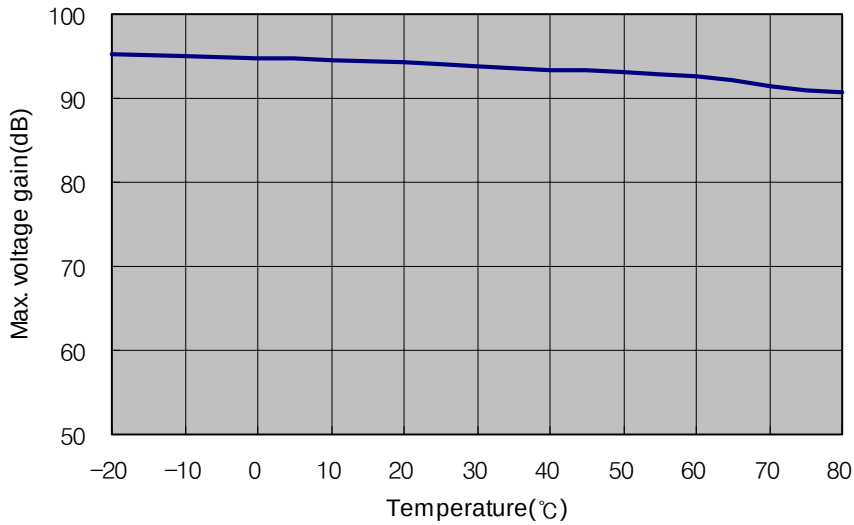


Characteristic Curves

(All values are at Vcc=5.0V, unless otherwise noted)



[Center frequency vs. Temperature]



[Max voltage gain vs. Temperature]