DIGITAL OUTPUT PHOTO REFLECTOR

■ GENERAL DESCRIPTION

The NJL5809K is thin package digital output type photo reflector, which consist of New JRC original designed one chip photo recieving IC and high output LED.

■ FEATURES

- Normaly on type
- With schmitt triger circuit
- TTL Compatible
- Built-in visible light cut-off filter.
- With pull up resistance

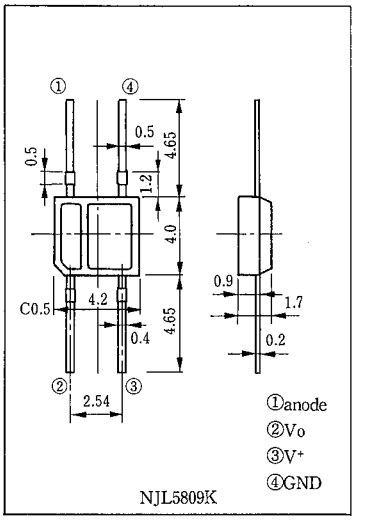
■ APPLICATIONS

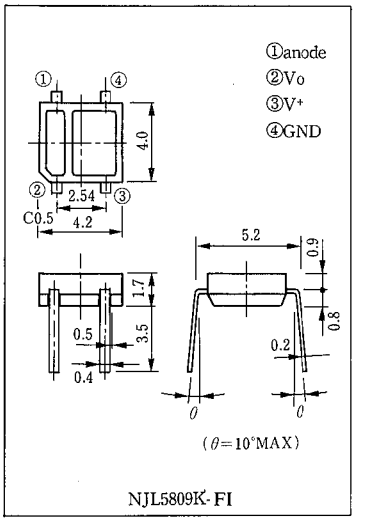
- Tape end sensor
- Reel rotation sensor
- Paper detector, Paper end sensor
- Bar code reader
- Sensor of FDD, Robot, manufacturing installation, etc.

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

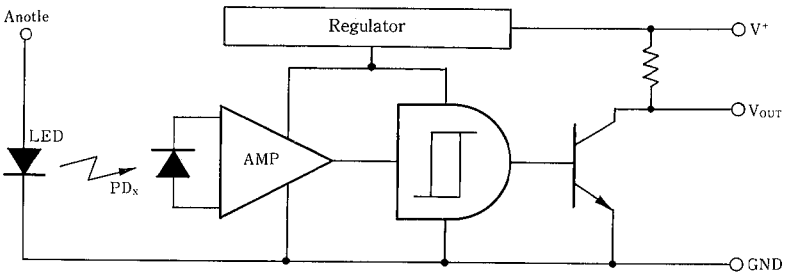
PARAMETER	SYMBOL	RATINGS	UNIT
Emitter			
Forward Current (Continous)	I_F	30	mA
Reverse Voltage (Continous)	V_R	6	V
Power Dissipation	P_D	45	mW
Detector			
Supply Voltage	V^+	6	V
High Level Output Voltage	V_{OH}	6	V
Low Level Output Current	I_{OL}	3	mA
Power Dissipation	P_O	55	mW
Coupled			
Total Power Dissipation	P_{tot}	100	mW
Operating Temperature	T_{opr}	−10～+60	°C
Storage Temperature	T_{stg}	−30～+100	°C
Soldering Temperture	T_{sol}	260 (5sec. 1.5mm from body)	°C

■ OUTLINE (typ.) Unit : mm





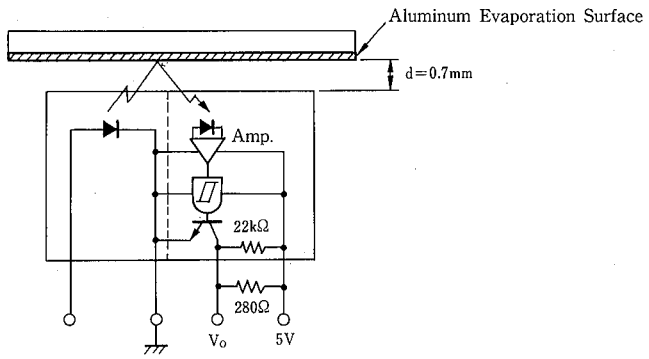
■ BLOCK DIAGRAM



■ ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

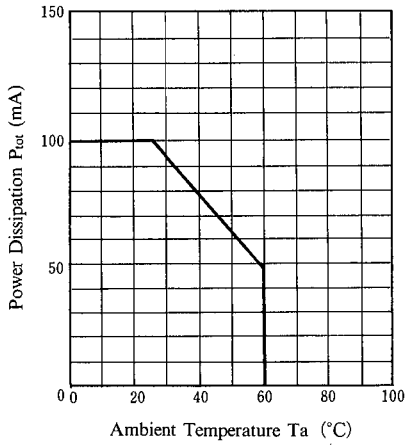
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Emitter						
Forward Voltage	V_F	I_F=13.5mA	—	—	1.4	V
Reverse Current	I_R	V_R=6V	—	—	1.0	μA
Capacitance	C_t	V_R=0v, f=1MHz	—	25	—	pF
Detector						
Supply Voltage Range	V^+	—	4.5	—	5.5	V
Low Level Output Voltage	V_{OL}	I_{OL}=3mA, V^+=5V, I_F=0mA, d=0.7mm	—	—	0.5	V
High Level Output Voltage	V_{OH}	V^+=5V, I_F=13.5mA, d=0.7mm	—	—	4.9	V
Low Level Supply Current	I_{CCL}	V^+=5V, I_F=0mA	—	2	5	mA
High Level Supply Current	I_{CCH}	V^+=5V, I_F=13.5mA, D=0.7mm	—	2	5	mA
Coupled						
L→H Threshold Input Current	I_{FLH}	V^+=5V, d=0.7mm	—	8	13.5	mA
Hysteresis	I_{FHL}/I_{FLH}	V^+=5V, d=0.7mm	—	0.7	—	
L→H Delay Time	t_{pLH}	V^+=5V, R_L=280Ω, I_F=13.5mA, d=0.7mm	—	5	—	μs
H→L Delay Time	t_{pHL}	V^+=5V, R_L=280Ω, I_F=13.5mA, d=0.7mm	—	5	—	μs
Rise time	t_r	V^+=5V, R_L=1kΩ, I_F=13.5mA, d=0.7mm	—	0.1	—	μs
Fall time	t_r	V^+=5V, R_L=1kΩ, I_F=13.5mA, d=0.7mm	—	0.1	—	μs

■ MEASUNING SPECIFICATION FOR THRESHOLD INPUT CURRENT

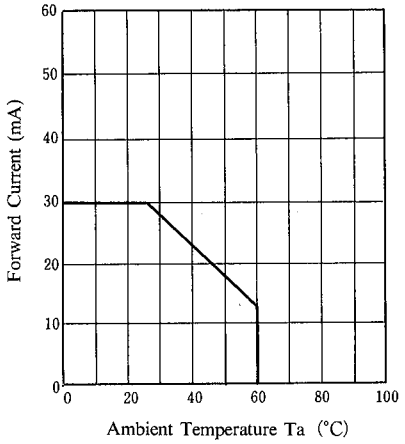


■ MAXIMUM RATING CURVES

Power Dissipation vs. Temperature



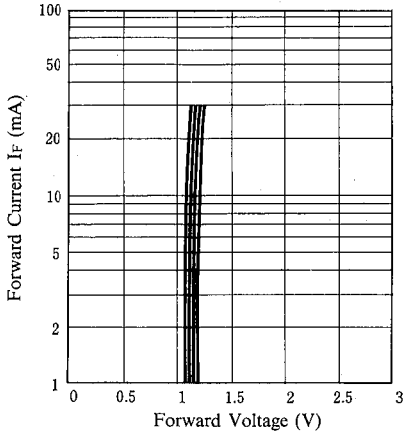
Forward Current vs. Temperature



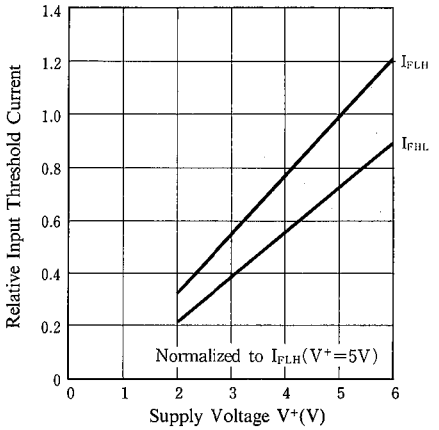
■ TYPICAL CHARACTERISTICS

Forward Current vs. Forward Voltage

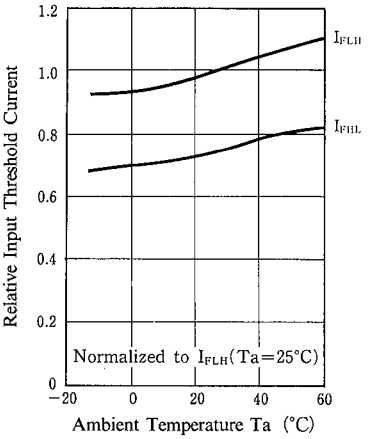
(Ta=85°C, 50°C, 25°C, 0°C, −20°C)



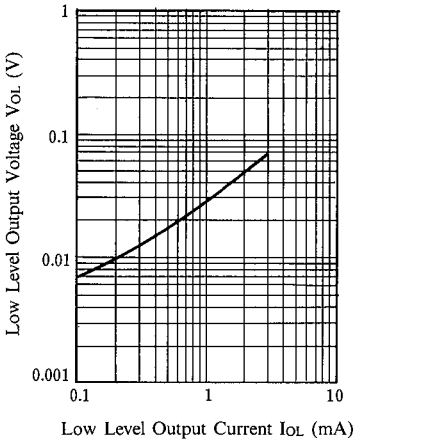
Input Threshold Current vs. Supply Voltage (Ta=25°C)



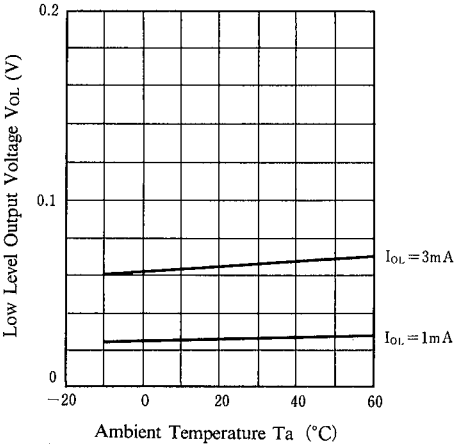
Input Threshold Current vs. Temperature (V^+=5V)



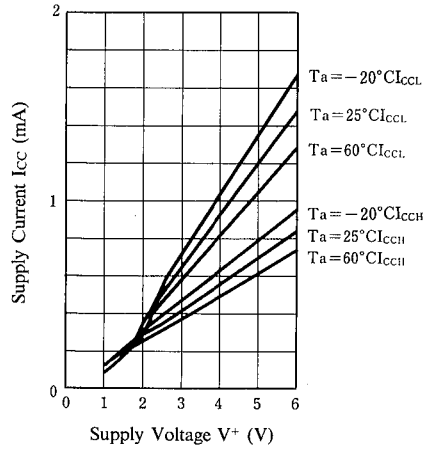
Low Level Output Voltage vs. Low Level Output Current (V^+=5V, Ta=25°C)



Low Level Output Voltage vs. Temperature (V^+=5V)

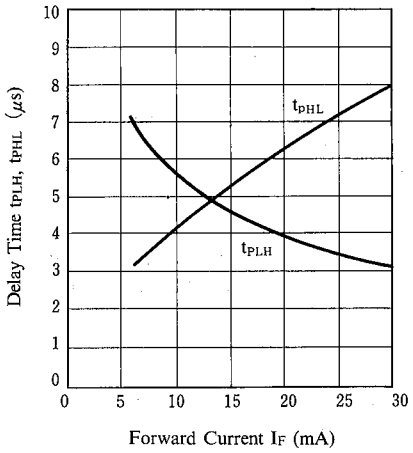


Supply Current vs. Supply Voltage



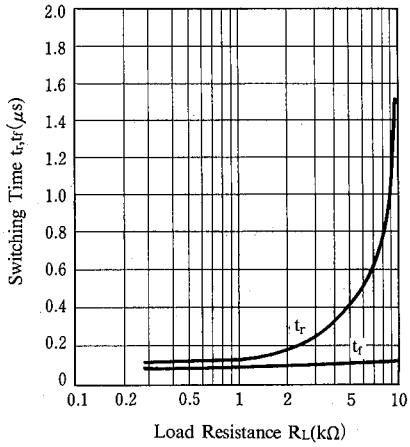
Delay Time vs. Forward Current

(V+=5V, RL=280Ω, Ta=25°C)



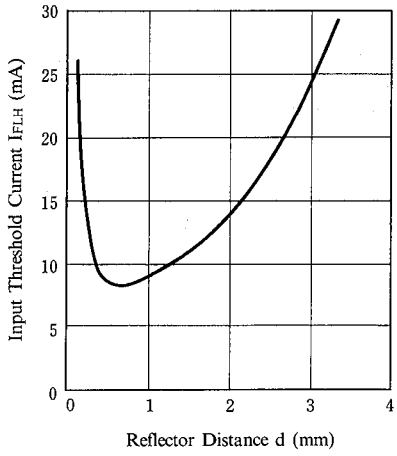
Switching Time vs. Load Resistance

(V+=5V, IF=13.5mA, Ta=25°C)

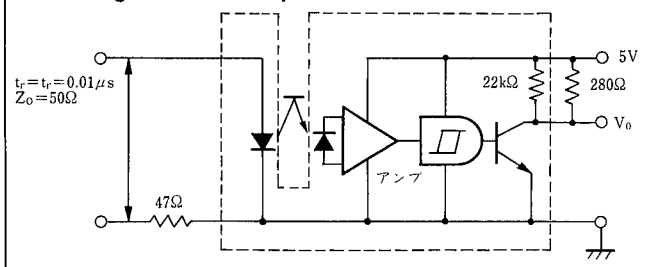


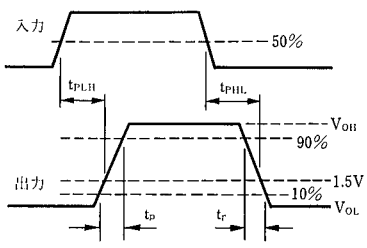
Input Threshold Current vs. Distance

(V+=5V, RL=280Ω, Ta=25°C)



Measuring Circuit for Response Time





MEMO

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