

DIGITAL OUTPUT PHOTO REFLECTOR

■ GENERAL DESCRIPTION

The NJL5801K is thin package digital output type photo reflector which consist of New JRC original designed one chip photo receiving IC and high output LED.

■ FEATURES

- Normally on type
- With schmitt trigger circuit
- TTL Compatible
- Built-in visible light cut-off filter.

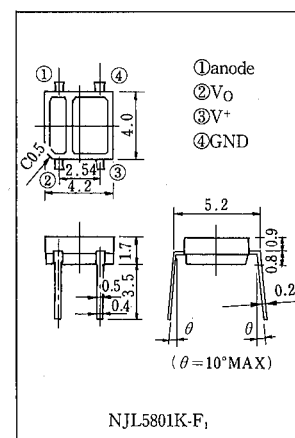
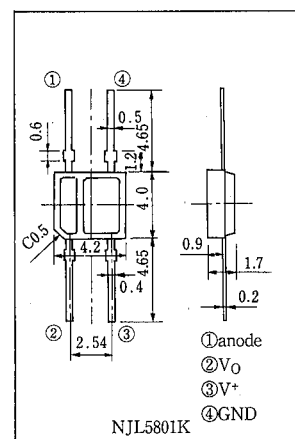
■ APPLICATIONS

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

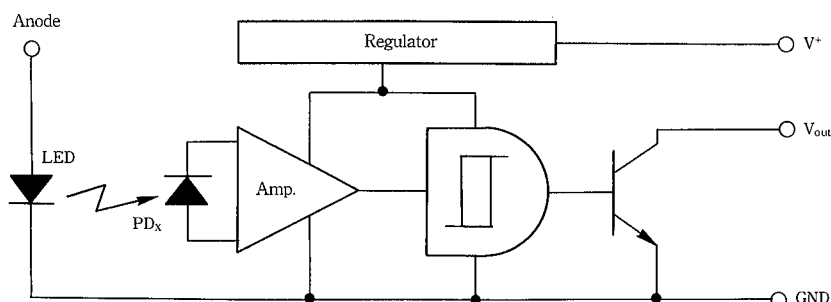
■ ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

PARAMETER	SYMBOL	RATINGS	UNIT
Emitter			
Forward Current (Continuous)	I_F	50	mA
Reverse Voltage (Continuous)	V_R	6	V
Power Dissipation	P_D	75	mW
Detector			
Supply Voltage	V^+	16	V
High Level Output Voltage	V_{OH}	16	V
Low Level Output Current	I_{OL}	50	mA
Power Dissipation	P_o	110	mW
Coupler			
Total Power Dissipation	P_{tot}	130	mW
Operating Temperature	T_{opr}	$-20 \sim +85$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-30 \sim +100$	$^\circ\text{C}$
Soldering Temperature	T_{sol}	260	$^\circ\text{C}$
			(5sec. 1.5mm from body)

■ OUTLINE (typ.) Unit: mm



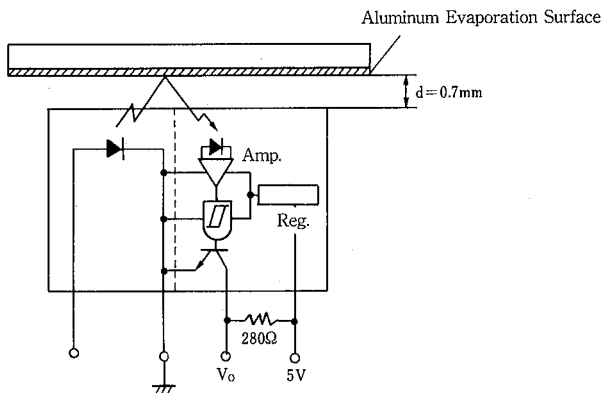
■ BLOCK DIAGRAM



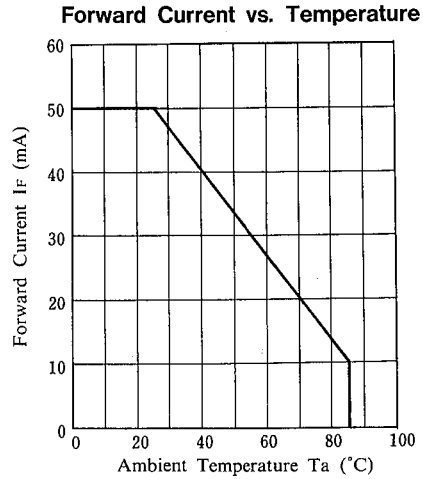
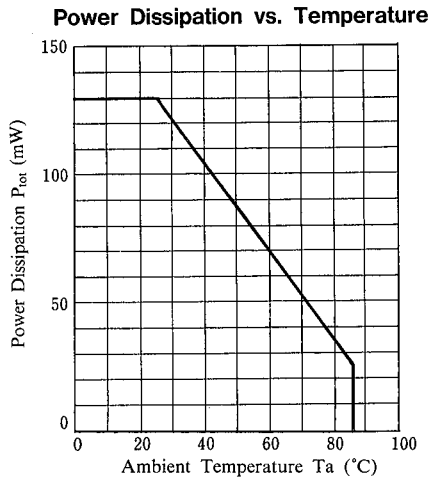
■ ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Emitter						
Forward Voltage	V_F	$I_F=10\text{mA}$	—	1.1	1.3	V
Reverse Current	I_R	$V_R=6\text{V}$	—	—	1.0	μA
Capacitance	C_t	$V_R=0\text{V}$, $f=1\text{MHz}$	—	25	—	pF
Detector						
Supply Voltage Range	V^+		3.5	—	15	V
Low Level Output Voltage	V_{OL}	$I_{OL}=16\text{mA}$, $V^+=5\text{V}$, $I_F=0\text{mA}$	—	0.2	0.5	V
High Level Output Current	I_{OH}	$V_O=V^+=15\text{V}$, $I_F=10\text{mA}$, $d=0.7\text{mm}$	—	—	100	μA
Low Level Supply Current	I_{CCL}	$V^+=5\text{V}$, $I_F=0\text{mA}$	—	4.5	10	mA
High Level Supply Current	I_{CCH}	$V^+=5\text{V}$, $I_F=10\text{mA}$, $d=0.7\text{mm}$	—	3	10	mA
Coupled						
L→H Threshold Input Current	I_{FLH}	$V^+=5\text{V}$, $R_L=280\Omega$, $d=0.7\text{mm}$	—	—	10	mA
Hysteresis	I_{FHL}/I_{FLH}	$V^+=5\text{V}$, $R_L=280\Omega$, $d=0.7\text{mm}$	—	0.8	—	
L→H Delay Time	t_{PLH}	$V^+=5\text{V}$, $R_L=280\Omega$, $I_F=10\text{mA}$, $d=0.7\text{mm}$	—	10	—	μs
H→L Delay Time	t_{PHL}	$V^+=5\text{V}$, $R_L=280\Omega$, $I_F=10\text{mA}$, $d=0.7\text{mm}$	—	5	—	μs
Rise Time	t_r	$V^+=5\text{V}$, $R_L=280\Omega$, $I_F=10\text{mA}$, $d=0.7\text{mm}$	—	0.1	—	μs
Fall Time	t_f	$V^+=5\text{V}$, $R_L=280\Omega$, $I_F=10\text{mA}$, $d=0.7\text{mm}$	—	0.1	—	μs

■ MEASURING SPECIFICATION FOR THRESHOLD INPUT CURRENT

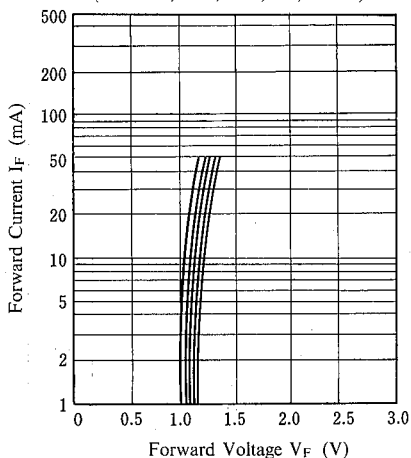


■ MAXIMUM RATING CURVES

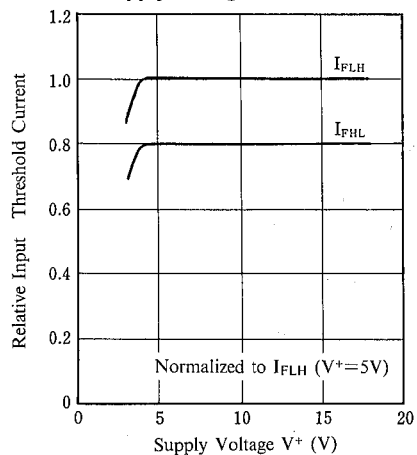


TYPICAL CHARACTERISTICS

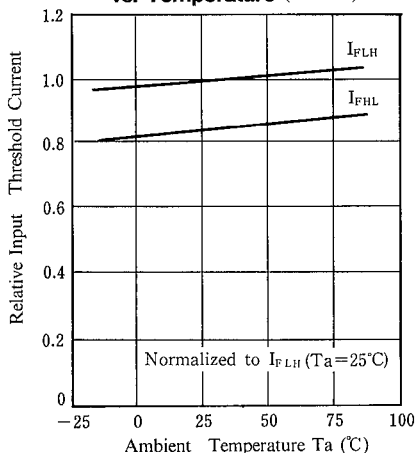
Forward Current vs. Forward Voltage
($T_a = 85^\circ\text{C}, 50^\circ\text{C}, 25^\circ\text{C}, 0^\circ\text{C}, -20^\circ\text{C}$)



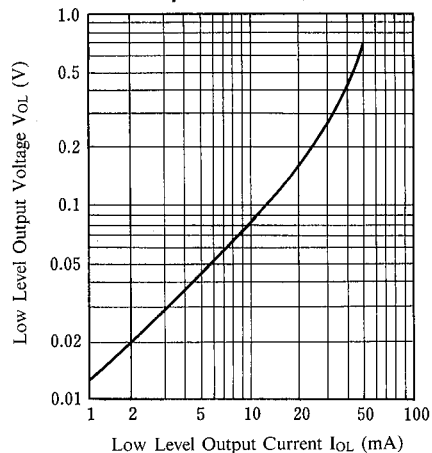
Input Threshold Current vs. Supply Voltage ($T_a = 25^\circ\text{C}$)



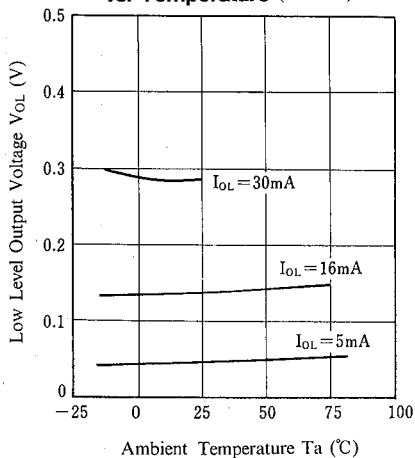
Input Threshold Current vs. Temperature ($V^+ = 5\text{V}$)



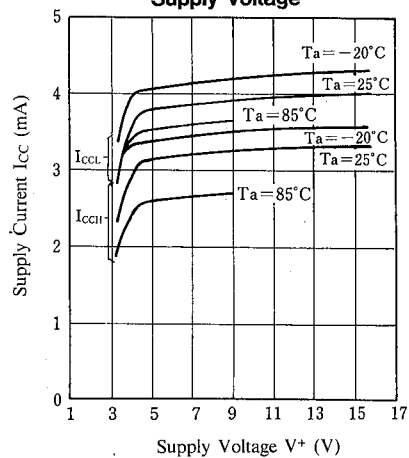
Low Level Output Voltage vs. Low Level Output Current ($V^+ = 5\text{V}, T_a = 25^\circ\text{C}$)



Low Level Output Voltage vs. Temperature ($V^+ = 5\text{V}$)

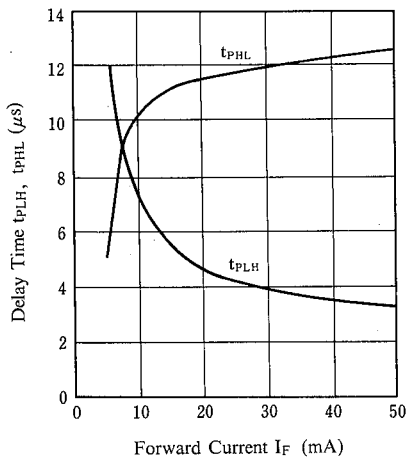


Supply Current vs. Supply Voltage



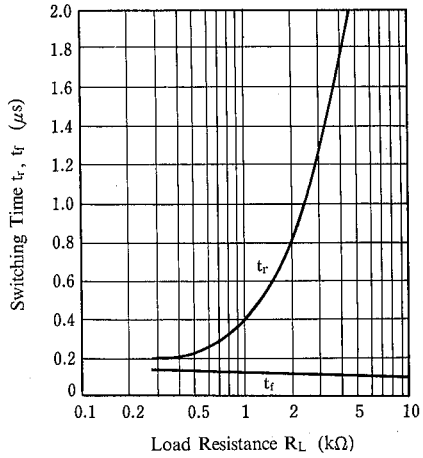
Delay Time vs. Forward Current

($V^+=5V$, $R_L=280\Omega$, $T_a=25^\circ C$)



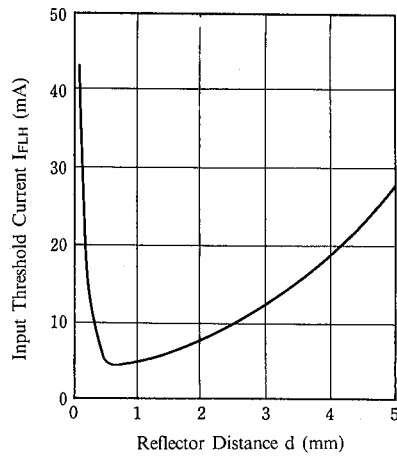
Switching Time vs. Resistance

($V^+=5V$, $I_F=10mA$, $T_a=25^\circ C$)

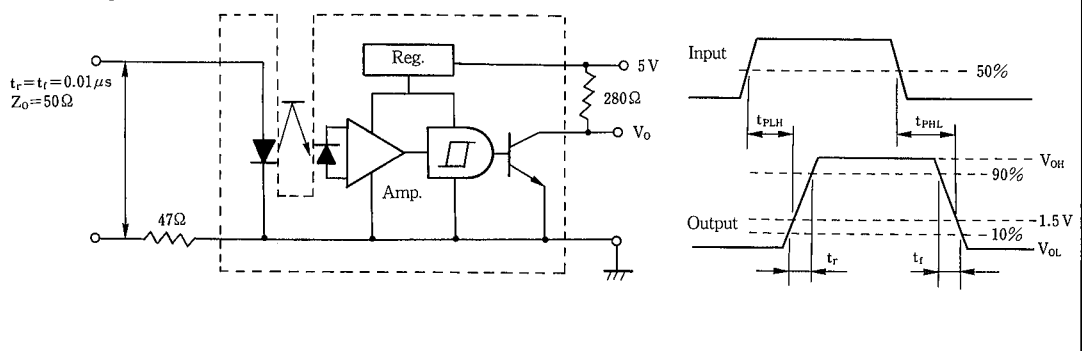


Input Threshold Current vs. Distance

($V^+=5V$, $R_L=280\Omega$, $T_a=25^\circ C$)



Measuring Circuit for Response Time



MEMO

[CAUTION]

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