

DIGITAL OUTPUT PHOTO REFLECTOR

■ GENERAL DESCRIPTION

The NJL5803K is thin package digital output type photo reflector, which consist of New JRC original designed one chip photo receiving IC and high output LED.

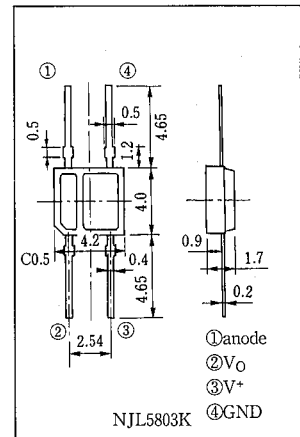
■ FEATURES

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

■ APPLICATIONS

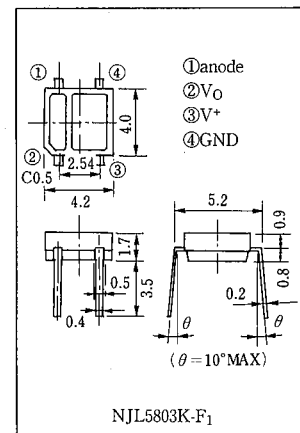
- Tape end sensor
- Reel rotation sensor
- Paper detector, Paper end sensor
- Bar code reader
- Sensor of FDD, Robot, manufacturing installation, etc.

■ OUTLINE (typ.) Unit: mm

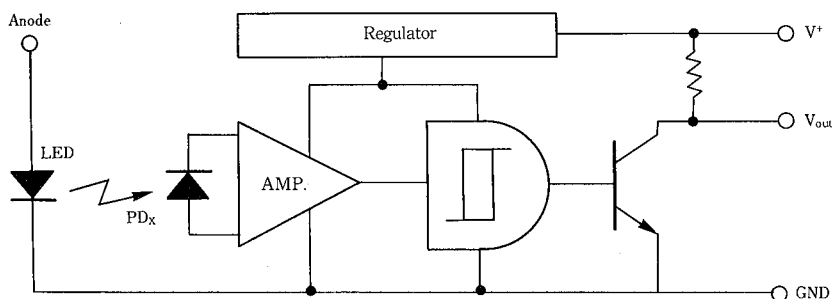
■ ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

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~+85	°C
Storage Temperature	T _{stg}	-30~+100	°C
Soldering Temperature	T _{sol}	260	°C

(5sec. 1.5mm from body)



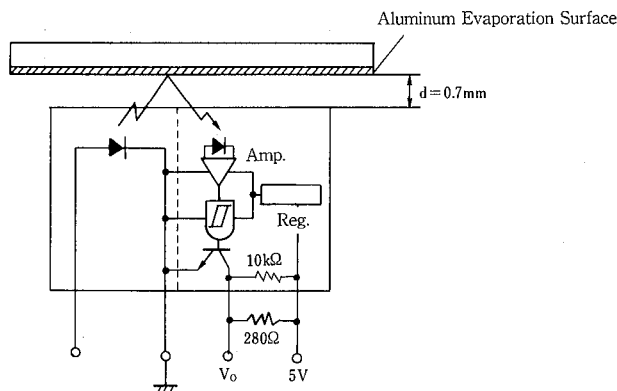
■ BLOCK DIAGRAM



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

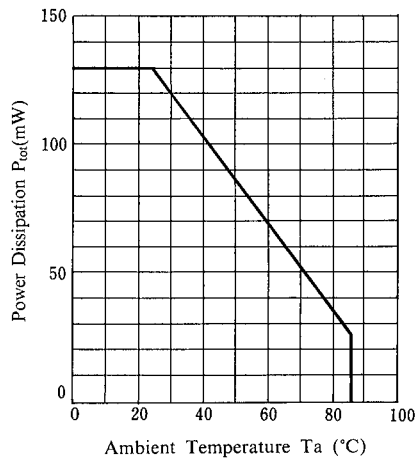
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Emitter						
Forward Voltage	V_F	$I_F=10\text{mA}$	—	1.1	1.3	V
Reverse Current	I_R	$V_R=6\text{V}$	—	—	1.0	μA
Capacitance	C_i	$V_R=0\text{V}$, $f=1\text{MHz}$	—	25	—	pF
Detector						
Supply Voltage Range	V^+		3.5	—	15	V
Low Level Output Voltage	V_{OL}	$I_{OL}=16\text{mA}$, $V^+=5\text{V}$, $I_F=0\text{mA}$	—	0.2	—	V
High Level Output Voltage	V_{OH}	$V^+=15\text{V}$, $I_F=10\text{mA}$, $d=0.7\text{mm}$	14.5	—	—	V
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

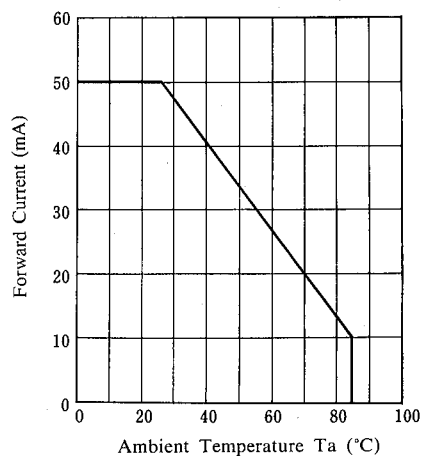


■ MAXIMUM RATING CURVES

■ Power Dissipation vs. Temperature

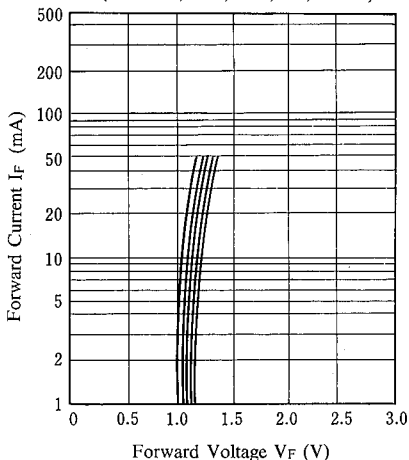


Forward Current vs. Temperature

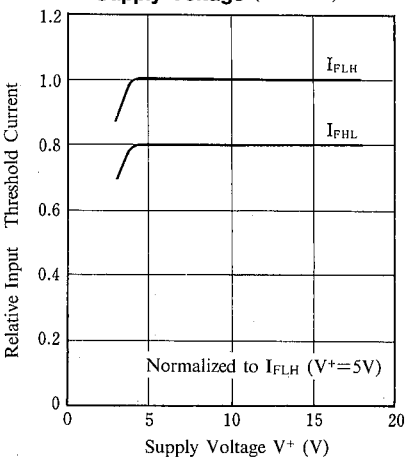


■ TYPICAL CHARACTERISTICS

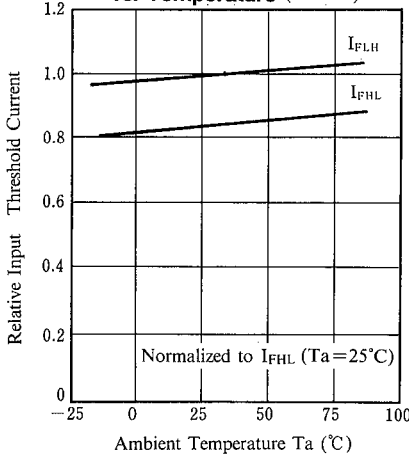
Forward Current vs. Forward Voltage
($T_a=85^\circ\text{C}, 50^\circ\text{C}, 25^\circ\text{C}, 0^\circ\text{C}, -20^\circ\text{C}$)



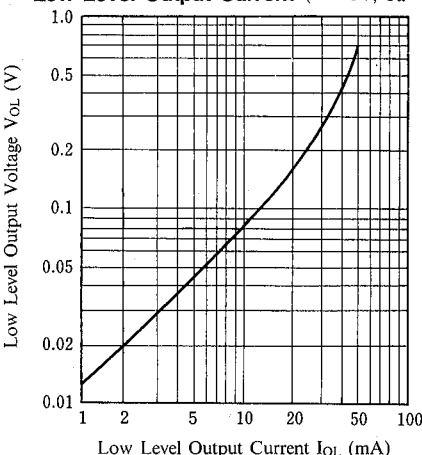
Input Threshold Current vs. Supply Voltage ($T_a=25^\circ\text{C}$)



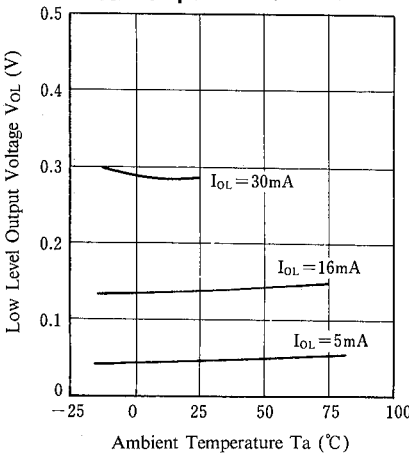
Input Threshold Current vs. Temperature ($V^+=5\text{V}$)



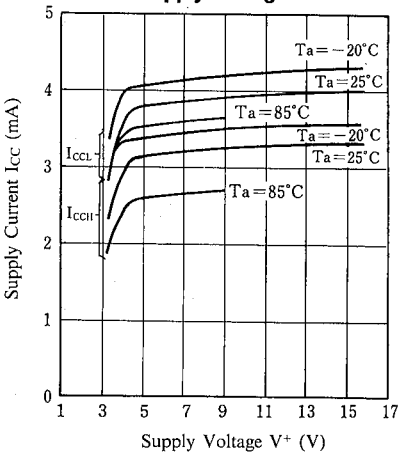
Low Level Output Voltage vs. Low Level Output Current ($V^+=5\text{V}, T_a=25^\circ\text{C}$)



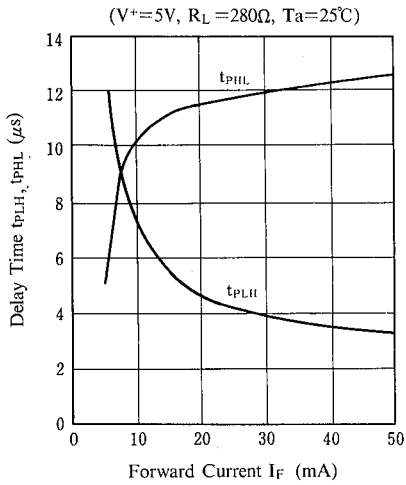
Low Level Output Voltage vs. Temperature ($V^+=5\text{V}$)



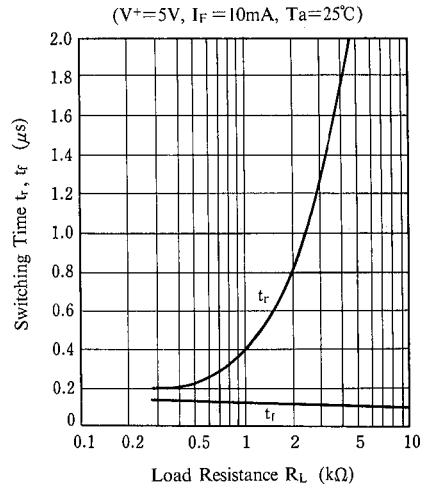
Supply Current vs. Supply Voltage



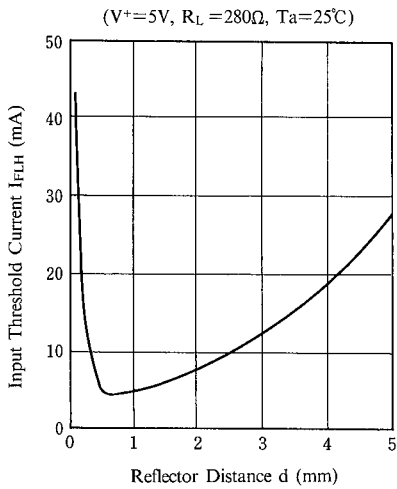
Delay Time vs. Forward Current



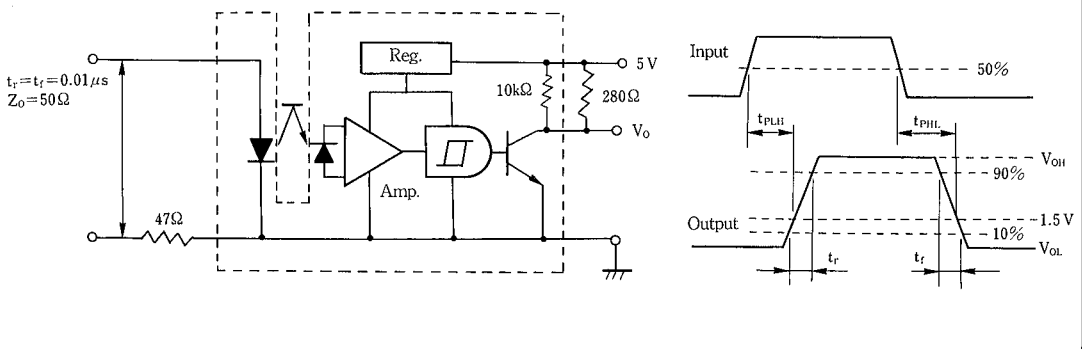
Switching Time vs. Load Resistance



Input Threshold Current vs. Distance



Measuring Circuit for Response Time



MEMO

[CAUTION]

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