DIGITAL OUTPUT PHOTO REFLECTOR

■ GENERAL DESCRIPTION

The NJL5805K is a thin package photo reflectors designed for car-audio applications. Durability under the temperature cycle has been greatly improved by applying a newly developed resin, (Compared to our conventional products, the durability has been doubled.)

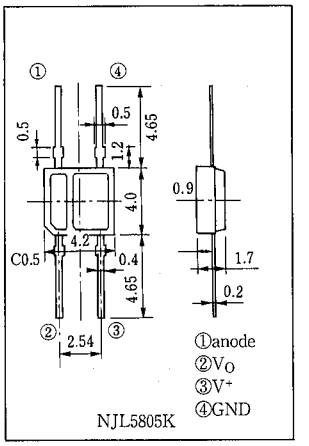
■ APPLICATIONS

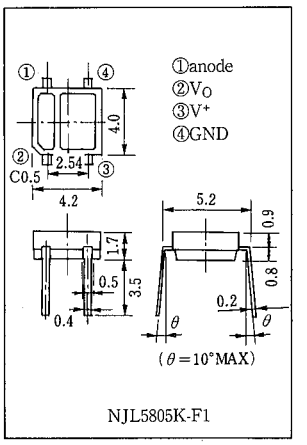
- The end detector for car-video or audio tape etc.
- Rotation detection and control to be applied for car audio turntable

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

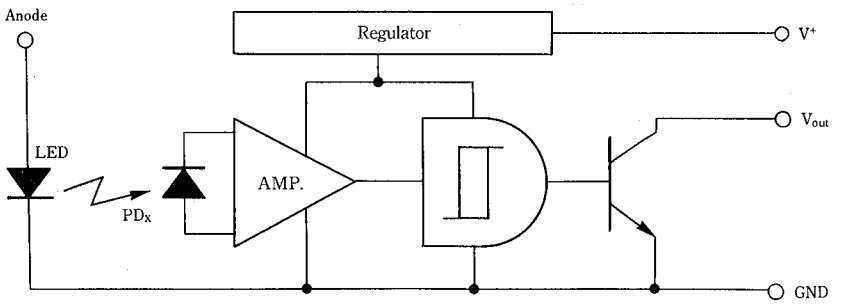
PARAMETER	SYMBOL	RATINGS	UNIT
Emitter			
Forward Current (Continuous)	I_F	25	mA
Reverse Voltage (Continuous)	V_R	6	V
Power Dissipation	P_D	45	mW
Detector			
Supply Voltage	V^+	16	V
High Level Output Voltage	V_{OH}	16	V
Low Level Output Current	I_{OL}	16	mA
Power Dissipation	P_O	110	mW
Coupler			
Total Power Dissipation	P_{tot}	130	mW
Operating Temperature	T_{opr}	−20～+75	°C
Storage Temperature	T_{stg}	−40～+85	°C
Soldering Temperature	T_{sol}	260 (5sec. 1.5mm from body)	°C

■ OUTLINE (typ.) Unit: mm





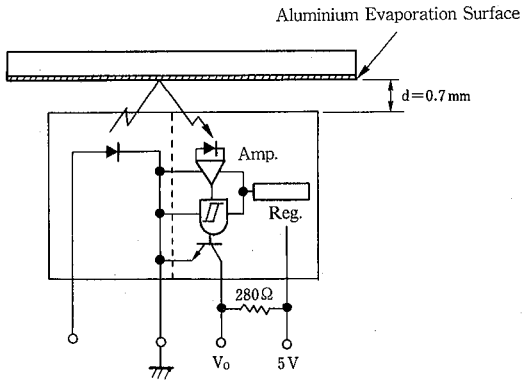
■ BLOCK DIAGRAM



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

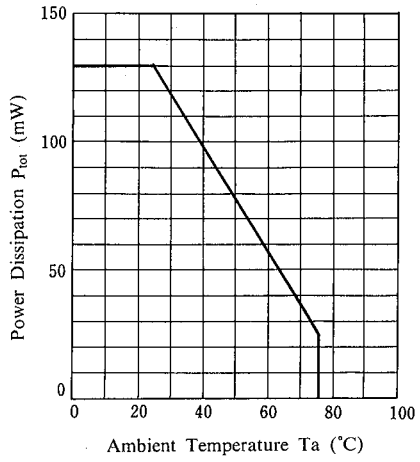
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Emitter						
Forward Voltage	V_F	I_F =10mA	—	—	1.3	V
Reverse Current	I_R	V_R =6V	—	—	10	μA
Capacitance	C_t	V_R =0V, f=1MHz	—	25	—	pF
Detector						
Supply Voltage Range	V^+		4.5	—	15	V
Low Level Output Voltage	V_{OL}	I_{OL}=16mA, V^+=5V, I_F =10mA,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

■ MEASURING SPECIFICATION FOR THRESHOLD INPUT CURRENT

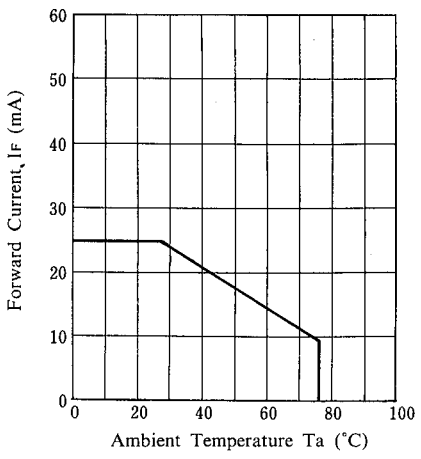


■ MAXIMUM RATING CURVES

■ Power Dissipation vs. Temperature

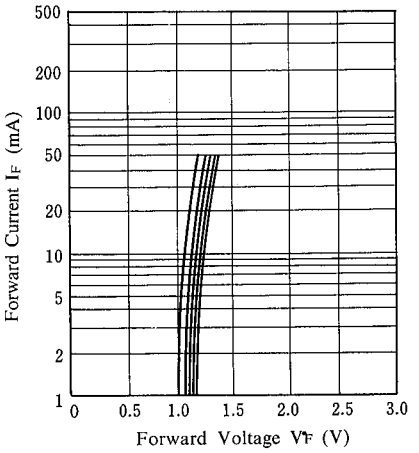


Forward Current vs. Temperature

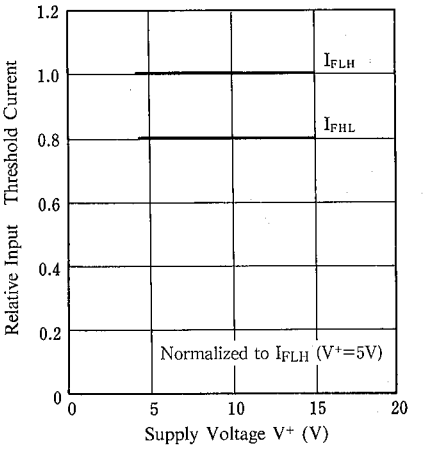


■ TYPICAL CHARACTERISTICS

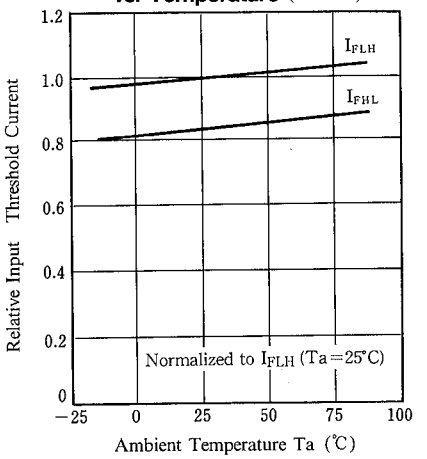
Forward Current vs. Forward Voltage
(Ta=85℃, 50℃, 25℃, 0℃, −20℃)



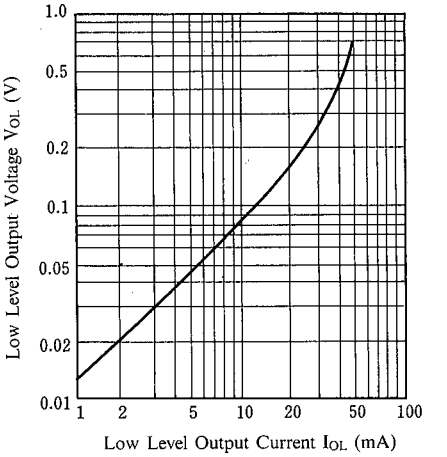
Input Threshold Current vs. Supply Voltage (Ta=25℃)



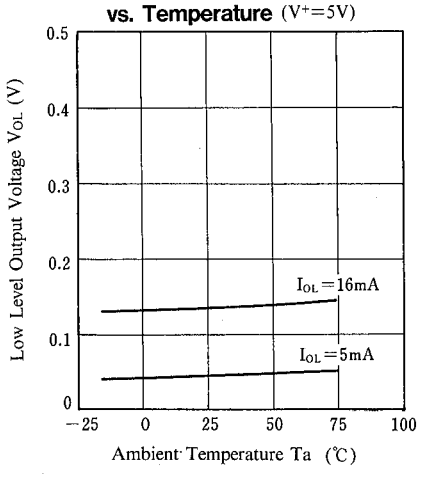
Input Threshold Current vs. Temperature (V^+=5V)



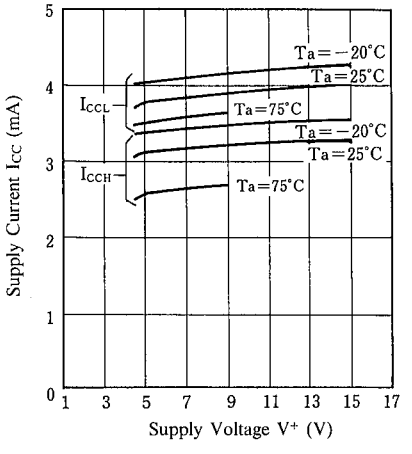
Low Level Output Voltage vs. Low Level Output Current (V^+=5V, Ta=25℃)



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

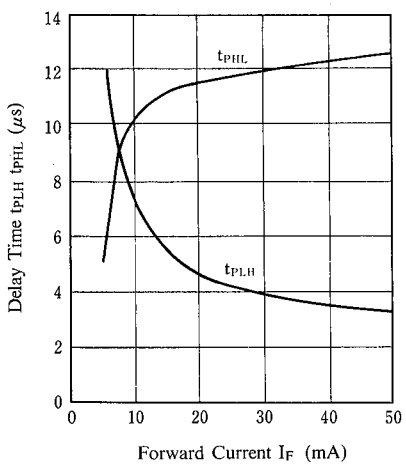


Supply Current vs. Supply Voltage



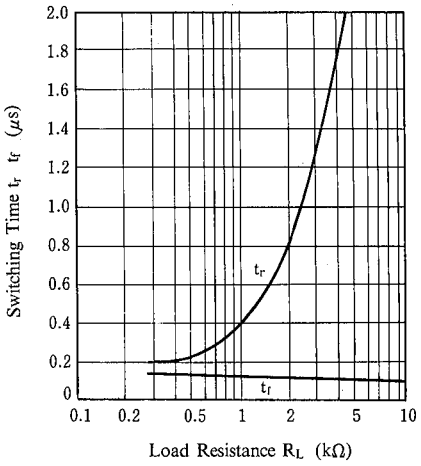
Delay Time vs. Forward Current

(V^+=5V, R_L =280Ω, Ta=25℃)



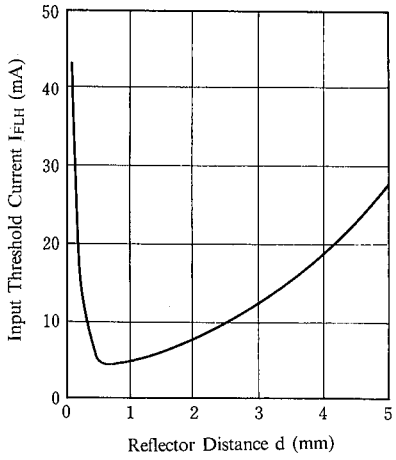
Switching Time vs. Load Resistance

(V^+=5V, I_F =10mA, Ta=25℃)

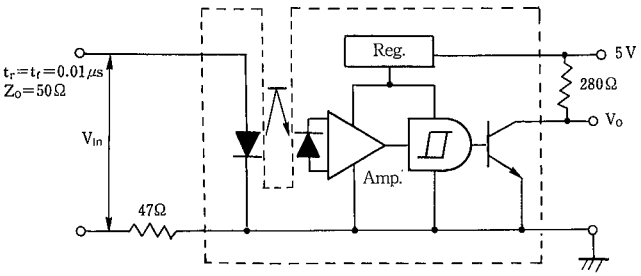


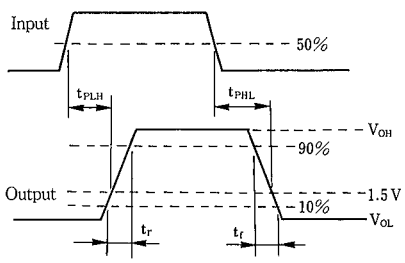
Input Threshold Current vs. Distance

(V^+=5V, R_L =280Ω, Ta=25℃)



Measuring Circuit for Response Time





MEMO

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