

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

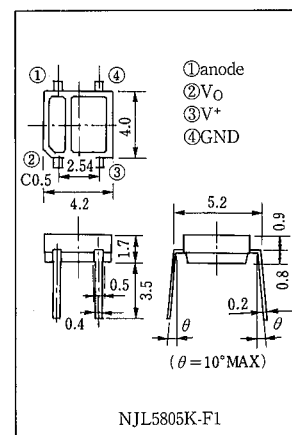
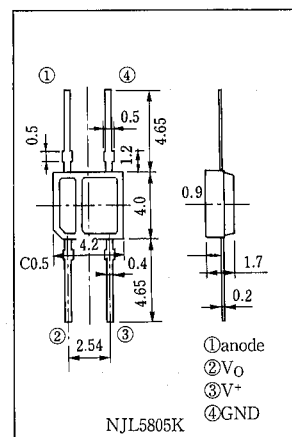
- The end detector for car-video or audio tape etc.
- Rotation detection and control to be applied for car audio turntable

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

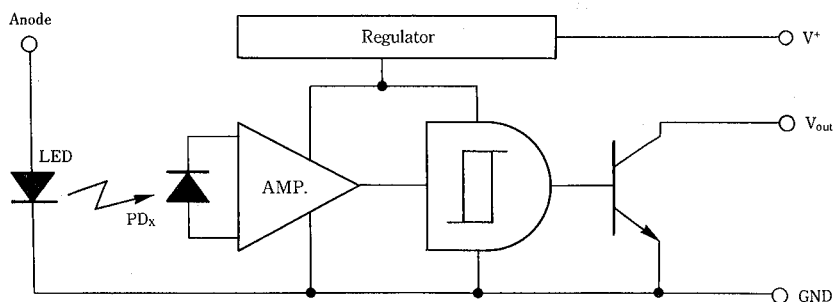
PARAMETER	SYMBOL	RATINGS	UNIT
Emitter			
Forward Current (Continuous)	I_F	25	mA
Reverse Voltage (Continuous)	V_R	6	V
Power Dissipation	P_D	45	mW
Detector			
Supply Voltage	V^+	16	V
High Level Output Voltage	V_{OH}	16	V
Low Level Output Current	I_{OL}	16	mA
Power Dissipation	P_O	110	mW
Coupler			
Total Power Dissipation	P_{tot}	130	mW
Operating Temperature	T_{opr}	$-20\sim+75$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-40\sim+85$	$^\circ\text{C}$
Soldering Temperature	T_{sol}	260	$^\circ\text{C}$

(5sec. 1.5mm from body)

■ OUTLINE (typ.) Unit: mm



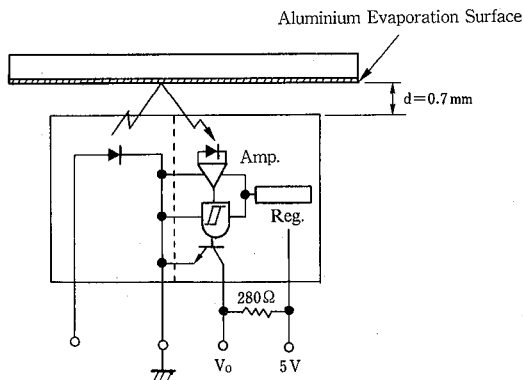
■ BLOCK DIAGRAM



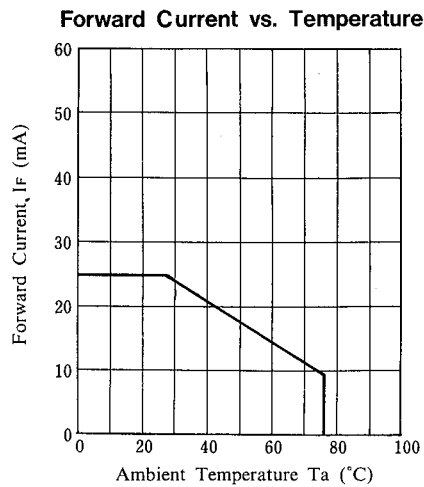
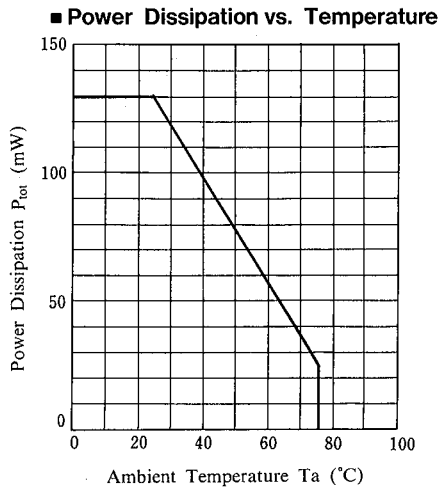
■ ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

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

■ MEASURING SPECIFICATION FOR THRESHOLD INPUT CURRENT

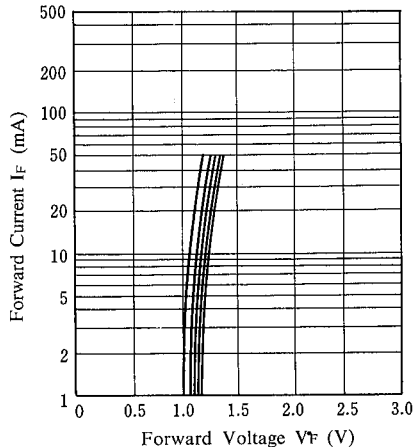


■ MAXIMUM RATING CURVES

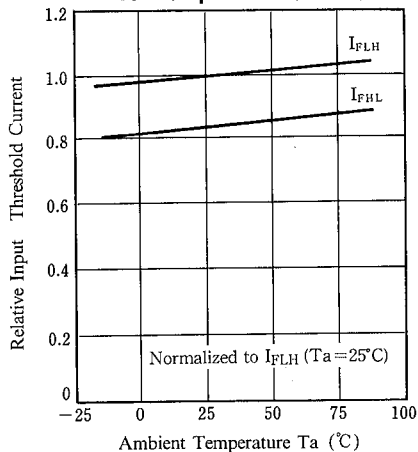


TYPICAL CHARACTERISTICS

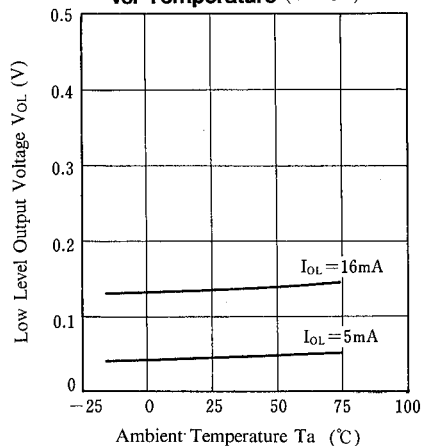
Forward Current vs. Forward Voltage
($T_a = 85^\circ\text{C}, 50^\circ\text{C}, 25^\circ\text{C}, 0^\circ\text{C}, -20^\circ\text{C}$)



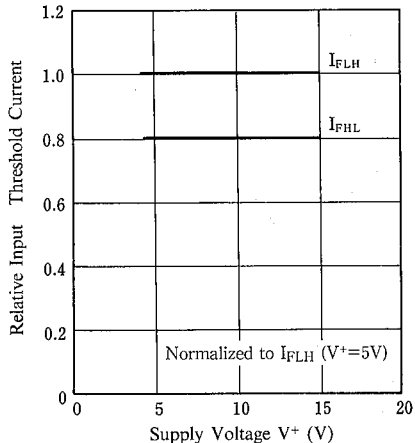
Input Threshold Current vs. Temperature ($V^+ = 5\text{V}$)



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

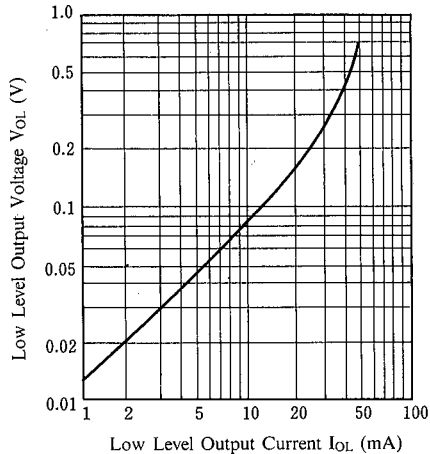


Input Threshold Current vs. Supply Voltage ($T_a = 25^\circ\text{C}$)

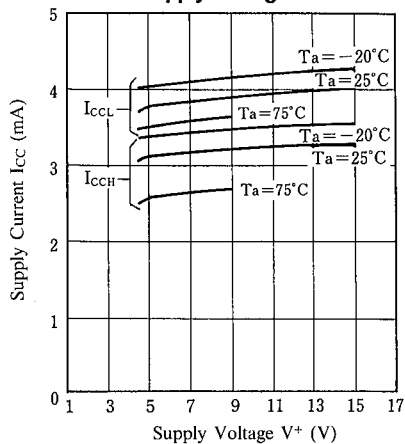


Low Level Output Voltage vs.

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

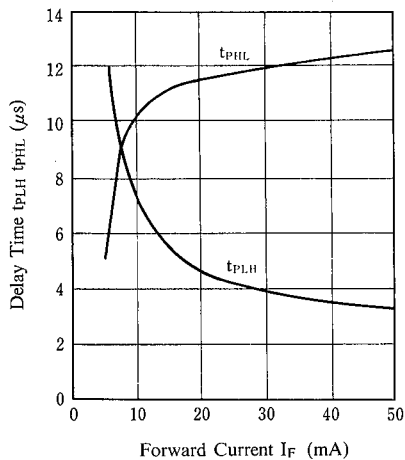


Supply Current vs. Supply Voltage



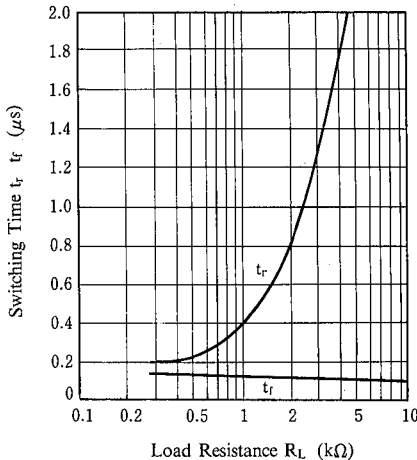
Delay Time vs. Forward Current

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



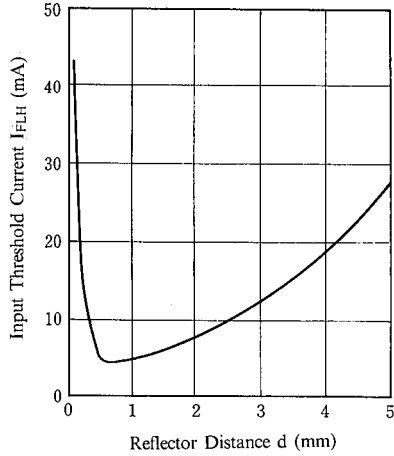
Switching Time vs. Load Resistance

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

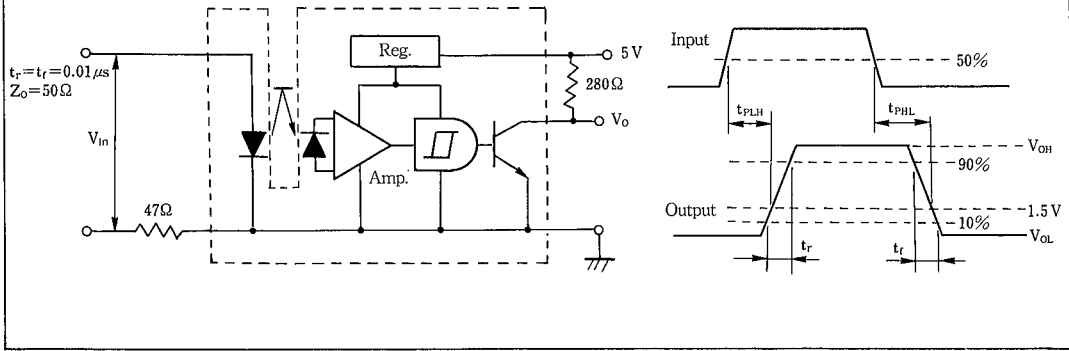


Input Threshold Current vs. Distance

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



Measuring Circuit for Response Time



MEMO

[CAUTION]

The specifications on this databook are only given for information , without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.