PHOTO REFLECTOR

■ GENERAL DESCRIPTION

The NJL5134KL is super thin type Digital Audio Tape End Sensor which consist of high power infrared emitting diode and high sensitve Si photo Transistor.

■ FEATURES

- Super thin type (Super thin sealed mold package)
- Built-in visible light cut-off filter.
- High S/N Ratio

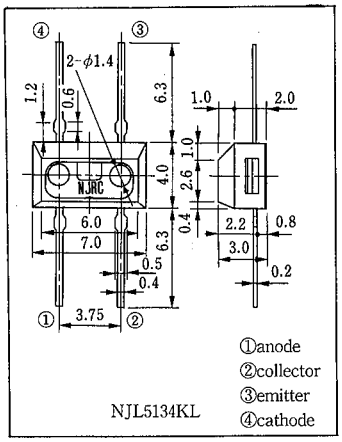
■ APPLICATIONS

- DAT End Sensor

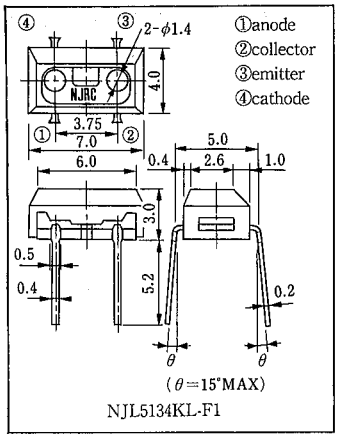
■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

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			
Collector Emitter Voltage	V_{CEO}	25	V
Emitter Collector Voltage	V_{ECO}	6	V
Collector Current	I_C	20	mA
Collector Power Dissipation	P_C	75	mW
Coupled			
Total Power Dissipation	P_{tot}	100	mV
Operating Temperature	T_{opr}	−20～+85	°C
Storage Temperature	T_{stg}	−30～+100	°C
Soldering Temperature	T_{sol}	260 (5sec. 1.5mm from body)	°C

■ OUTLINE (typ.) Unit: mm



NJL5134KL

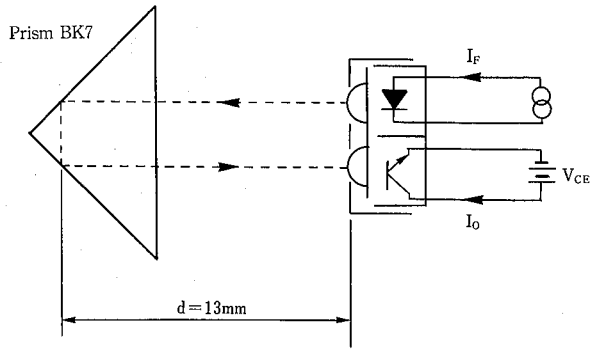


NJL5134KL-F1

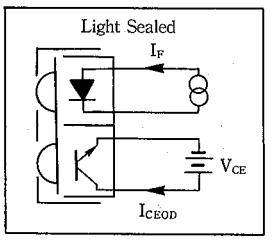
■ ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Emitter						
Forward Voltage	V_F	I_F=20mA	—	1.2	1.4	V
Reverse Current	I_R	V_R=6V	—	—	1.0	μA
Capacitance	C_t	V_R=0V, f=1MHz	—	25	—	pF
Detector						
Dark Current	I_{CEO}	V_{CE}=6V	—	—	200	nA
Collector Emitter-Voltage	V_{CE}	I_{CE}=100μA	25	—	—	V
Emitter Collector-Current	I_{ECO}	V_{ECO}=6V	—	—	100	μA
Coupled						
Output Current	I_O	I_F=20mA, V_{CE}=5V	110	—	550	μA
Operating Dark Current	I_{CEOD}	I_F=20mA, V_{CE}=5V	—	—	45	μA
Output Current/ Operating Dark Current	I_O/I_{CEOD}	I_F=20mA, V_{CE}=5V	50	—	—	
Rise Time	t_r	I_F=20mA, V_{CE}=5V, R_L=1kΩ	—	10	—	μs
Fall Time	t_r	I_F=20mA, V_{CE}=5V, R_L=1kΩ	—	10	—	μs

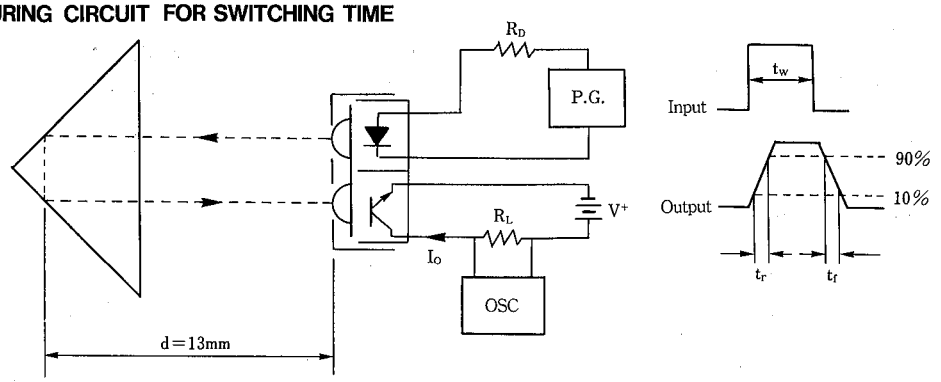
■ MEASURING SPECFICATION FOR OUTPUT CURRENT



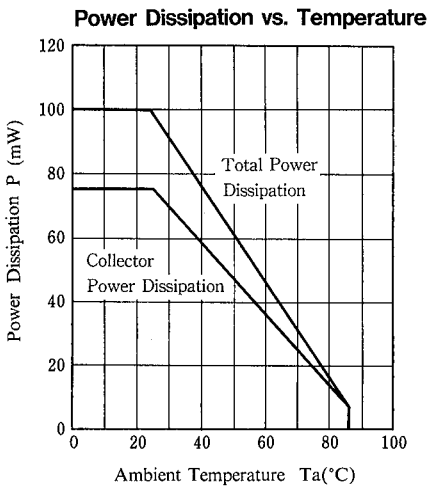
■ MEASURING CRICUIT FOR OPERATING DARK CURRENT

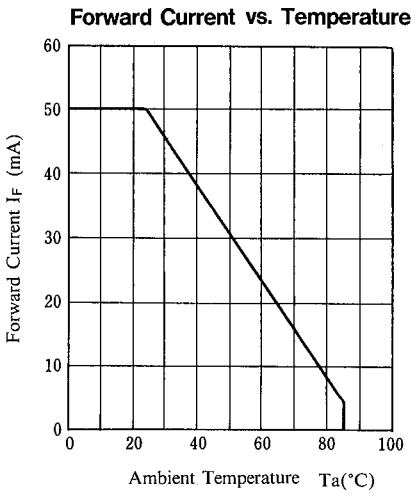


■ MEASURING CIRCUIT FOR SWITCHING TIME



■ MAXIMUM RATING CURVES

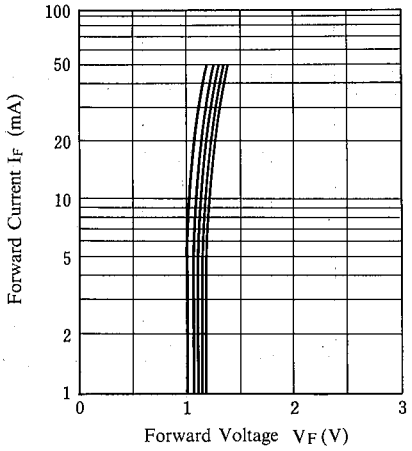




■ TYPICAL CHARACTERISTICS

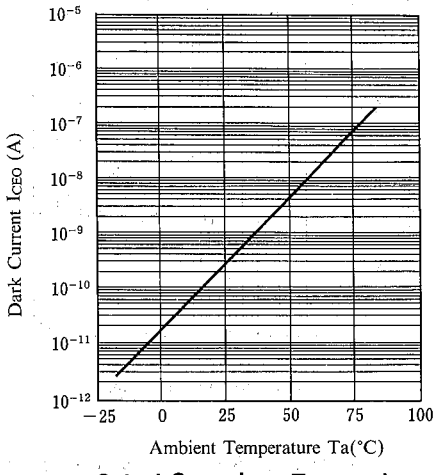
Forward Current vs. Forward Voltage

(Ta=85℃, 50℃, 25℃, 0℃, −20℃)



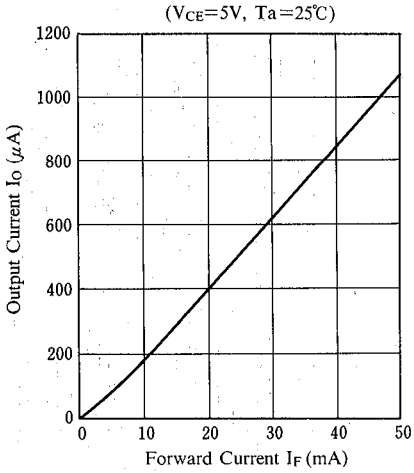
Dark Current vs. Temperature

(V_{CE}=6V)



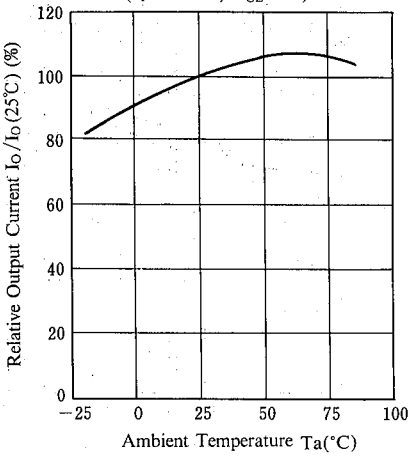
Output Current vs. Forward Current

(V_{CE}=5V, Ta=25℃)

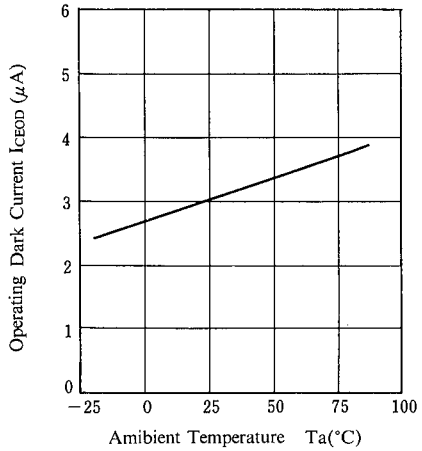


Output Current vs. Temperature

(I_F =20mA, V_{CE}=5V)

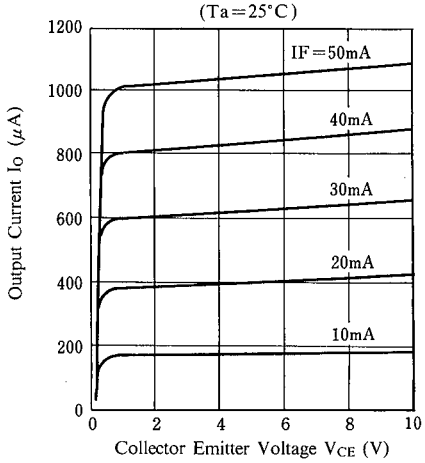


Operating Dark Current vs. Temperature (I_F =20mA, V_{CE}=5V)

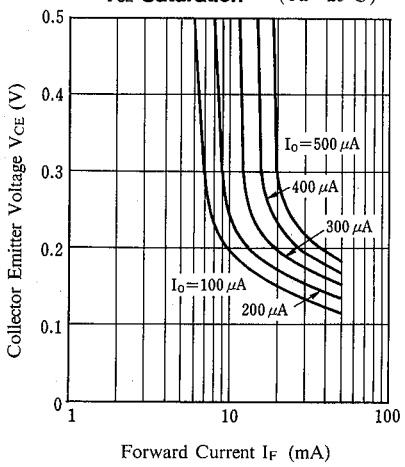


Output Characteristics

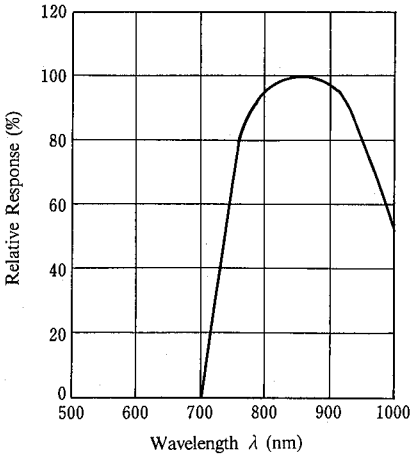
(Ta=25°C)



V_{CE} Saturation (Ta=25°C)

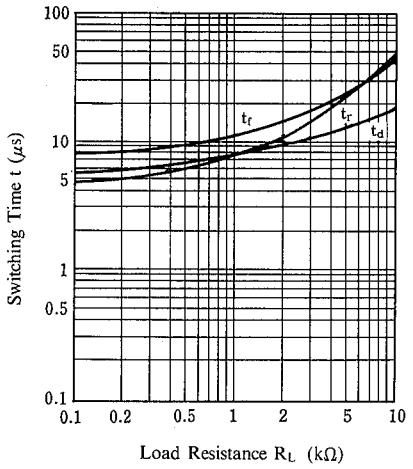


Spectral Response (V_{CE}=5V, Ta=25°C)



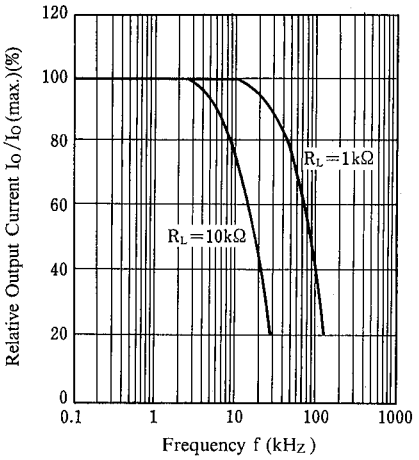
Switching Time vs. Load Resistance

(I_O=400μA, V_{CE}=5V, Ta=25°C)



Output Current vs. Frequency

(I_O=400μA, V_{CE}=5V, Ta=25°C)



PRECAUTION FOR HANDLING

1. Soldering

1) Avoid the reflow method and the solder to touch the body of the device during wave soldering. This is to prevent changes in optical characteristics of the device.
2) Recommended in Soldering

Temperature	Time Lead	Soldering Position
260℃ maximum	less than 5 seconds	At least 1.5mm from body

3) Soldering is recommended to be done in as short period of the time as possible by controlling the temperature of the soldering iron or by the iron of less than 15 watts.
4) The resin gets softened right after soldered, so, the following care has to be taken.
   - Not to contact the lens surface to anything
   - Not to dip the device into water or any solvents
5) It is recommended not to solder when the leads or between the lead get pulled, depressed or twisted.
6) In the case of using rosin flux, be careful to avoid contact with the lens surface. If the lens is covered with the flux, the specified characteristics cannot be achieved.

2. Post Solder Cleaning

1) Not to dip the plastic part of the device. Dip just the leads when the organic solvent is used for cleaning flux.
2) Not to use any other than solvent specified by the manufacture to avoid impact on the optical characteristics.
3) Since the lens are made of acryl type material, avoid to keep the device in the solvent or keep it in vapor of the solvent even during the mounting or using.

3. Attention in handling

1) Avoid dust and any other foreign materials(flux, paint, bonding material, etc) on the lens surface.
2) Never to apply reverse voltage(V_{EC}) of more than 6V on the photo transistor when measuring the characteristics or adjusting the system. If applied, it causes to lower the sensitivity.
3) When mounting, special care has to be taken on the mounting position and tilting of the device because it is very important to place the device to the optimum position to the object.
4) The use of the device without the holder or the use of the device re-placed the holder eliminates warranty of the product.
5) Avoid the evaluation or use in liquid because the lens is not completely sealed.

4. Storage

The leads are silver plated and they are discolored if the device is left open to the air for long after taken out of the envelope. It causes deterioration of soldering characteristics. Mount the device as short as possible after opening the envelope.

MEMO

[CAUTION]
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