

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 sensitive Si photo Transistor.

■ FEATURES

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

■ APPLICATIONS

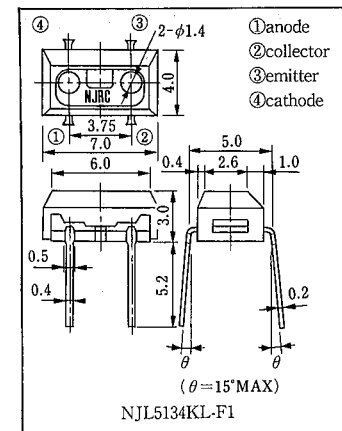
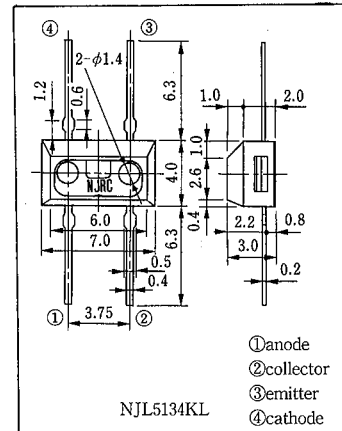
- DAT End Sensor

■ 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	mW
Operating Temperature	T _{opr}	-20~+85	°C
Storage Temperature	T _{stg}	-30~+100	°C
Soldering Temperature	T _{sol}	260	°C

(Ssec. 1.5mm from body)

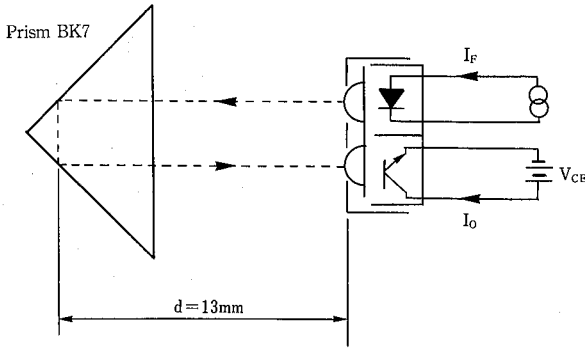
■ OUTLINE (typ.) Unit: mm



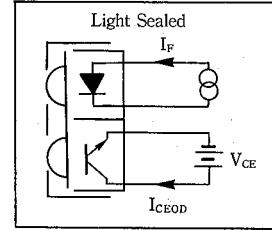
■ ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

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 _f	I _F =20mA, V _{CE} =5V, R _L =1kΩ	—	10	—	μs

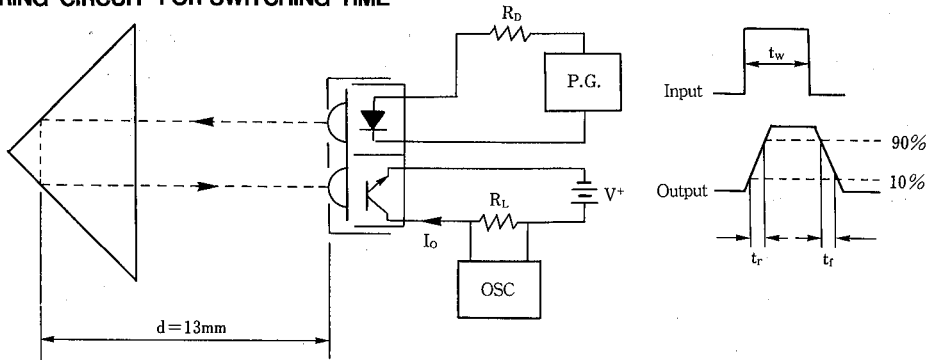
MEASURING SPECIFICATION FOR OUTPUT CURRENT



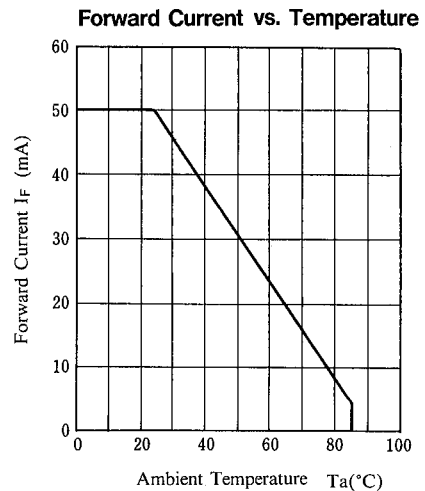
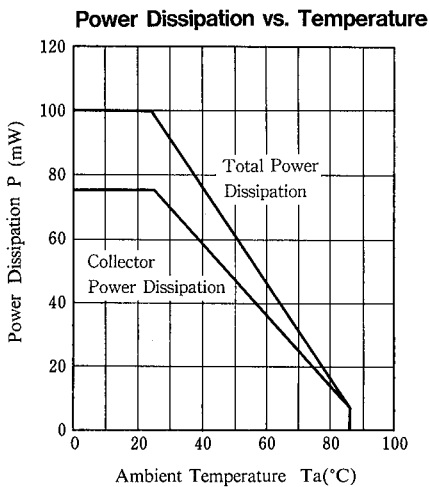
MEASURING CIRCUIT FOR OPERATING DARK CURRENT



MEASURING CIRCUIT FOR SWITCHING TIME

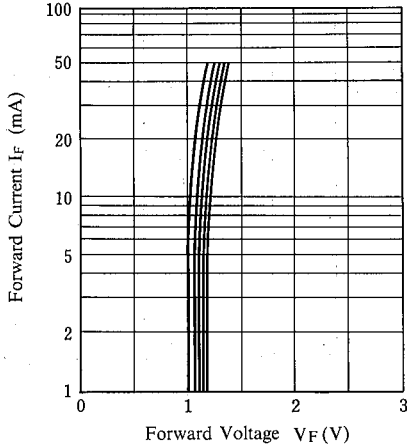


MAXIMUM RATING CURVES

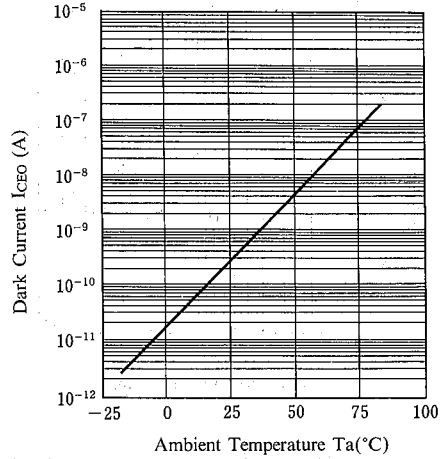


■ TYPICAL CHARACTERISTICS

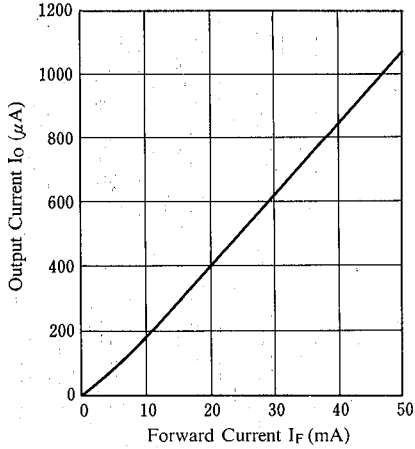
Forward Current vs. Forward Voltage
($T_a = 85^\circ\text{C}, 50^\circ\text{C}, 25^\circ\text{C}, 0^\circ\text{C}, -20^\circ\text{C}$)



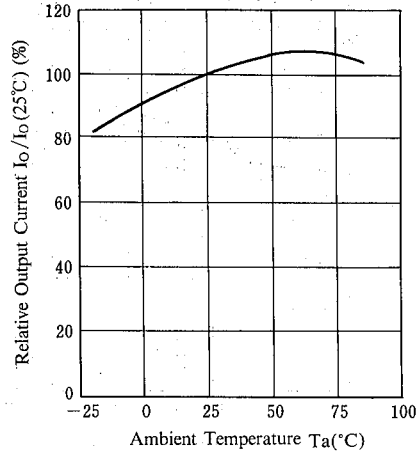
Dark Current vs. Temperature
($V_{CE} = 6\text{V}$)



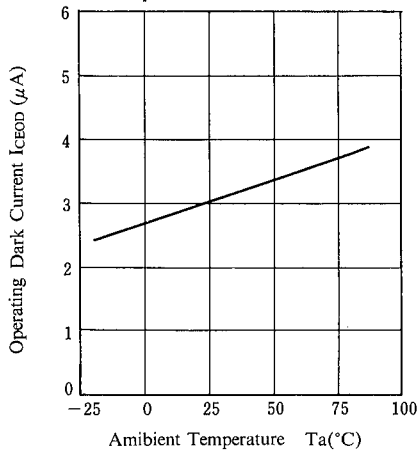
Output Current vs. Forward Current
($V_{CE} = 5\text{V}, T_a = 25^\circ\text{C}$)



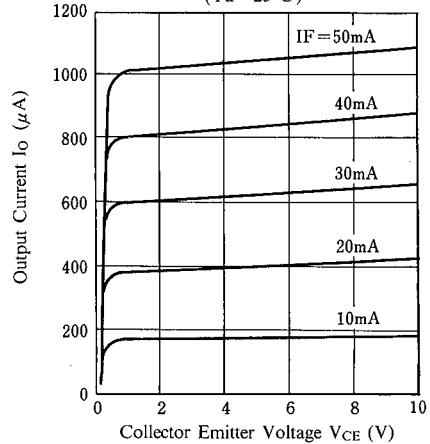
Output Current vs. Temperature
($I_F = 20\text{mA}, V_{CE} = 5\text{V}$)



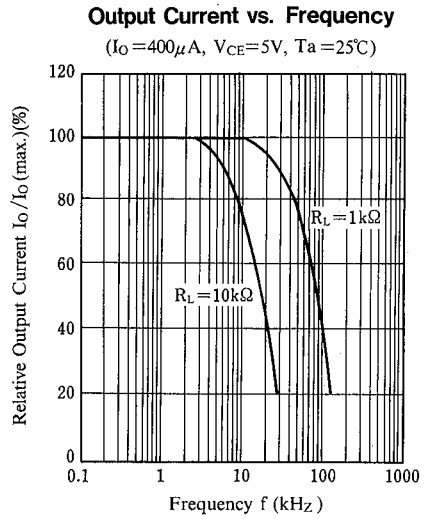
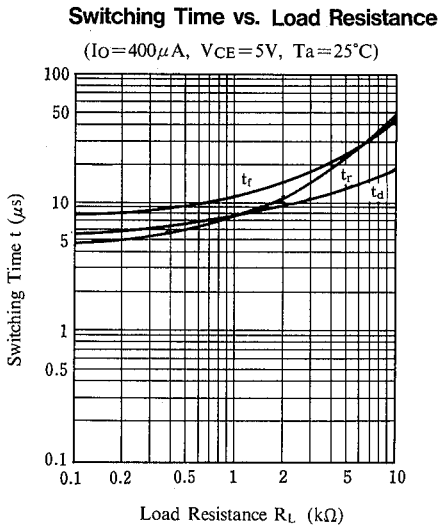
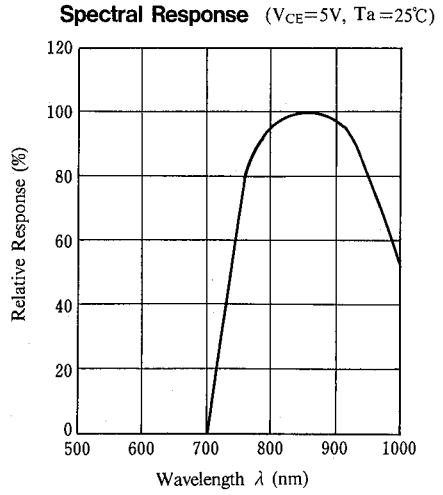
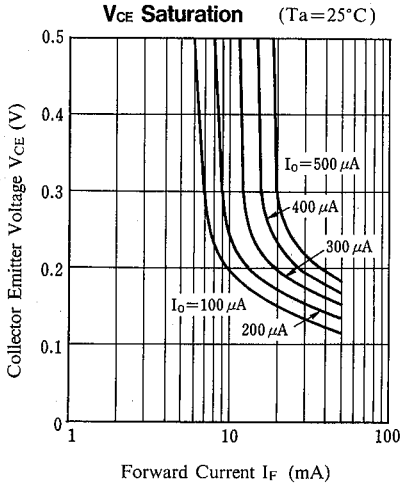
Operating Dark Current vs. Temperature
($I_F = 20\text{mA}, V_{CE} = 5\text{V}$)



Output Characteristics
($T_a = 25^\circ\text{C}$)



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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°C 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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