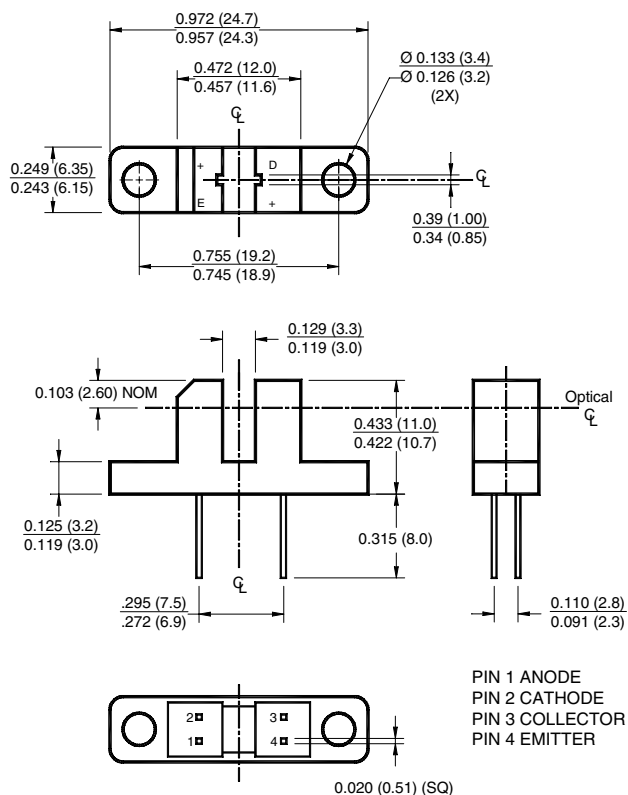
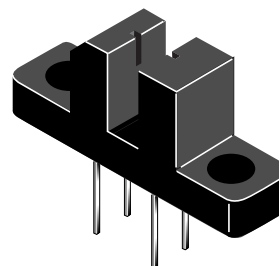


PACKAGE DIMENSIONS

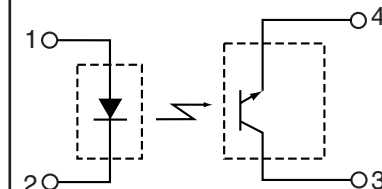


NOTES:

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of $\pm .010$ (.25) on all non-nominal dimensions unless otherwise specified.



SCHEMATIC



DESCRIPTION

The CNY28 is a gallium arsenide infrared emitting diode coupled with a silicon phototransistor in a plastic housing. The gap in the housing provides a means of interrupting the signal with tape, cards, shaft encoders or other opaque material, switching the output from an "ON" to an "OFF" state.

FEATURES

- Opaque housing
- Low cost
- 0.035" apertures
- European "Pro Electron" registered

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Units
Operating Temperature	T_{OPR}	-55 to +85	$^\circ\text{C}$
Storage Temperature	T_{STG}	- 55 to +85	$^\circ\text{C}$
Soldering Temperature (Iron) ^(2,3,4)	T_{SOL-I}	240 for 5 sec	$^\circ\text{C}$
Soldering Temperature (Flow) ^(2,3)	T_{SOL-F}	260 for 10 sec	$^\circ\text{C}$
INPUT (EMITTER)			
Continuous Forward Current	I_F	50	mA
Reverse Voltage	V_R	6	V
Power Dissipation ⁽¹⁾	P_D	100	mW
OUTPUT (SENSOR)			
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter- Collector Voltage	V_{ECO}	4.5	V
Collector Current	I_C	20	mA
Power Dissipation ⁽¹⁾	P_D	150	mW

NOTES:

- Derate power dissipation linearly 1.67 mW/ $^\circ\text{C}$ above 25°C .
- RMA flux is recommended.
- Methanol or isopropyl alcohols are recommended as cleaning agents.
- Soldering iron 1/16" (1.6mm) from housing.

ELECTRICAL / OPTICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
INPUT (EMITTER)						
Forward Voltage	$I_F = 10\text{ mA}$	V_F	—	—	1.7	V
Reverse Leakage Current	$V_R = 2\text{ V}$	I_R	—	—	10	μA
OUTPUT (SENSOR)						
Emitter-Collector Breakdown	$I_E = 100\text{ }\mu\text{A}$, $E_e = 0$	BV_{ECO}	5.0	—	—	V
Collector-Emitter Breakdown	$I_C = 10\text{ mA}$, $E_e = 0$	BV_{CEO}	30	—	—	V
Collector-Emitter Leakage	$V_{CE} = 10\text{ V}$, $E_e = 0$	I_{CEO}	—	—	100	nA
COUPLED						
Collector Current	$I_F = 20\text{ mA}$, $V_{CE} = 10\text{ V}$	$I_{C(ON)}$	0.20	—	—	mA
Collector Emitter Saturation Voltage	$I_F = 20\text{ mA}$, $I_C = 25\text{ }\mu\text{A}$	$V_{CE(SAT)}$	—	—	0.40	V
Turn-On Time	$I_F = 30\text{ mA}$, $V_{CC} = 5\text{ V}$, $R_L = 2.5\text{ k}\Omega$	t_{on}	—	5	—	μs
Turn-Off Time	$I_F = 30\text{ mA}$, $V_{CC} = 5\text{ V}$, $R_L = 2.5\text{ k}\Omega$	t_{off}	—	5	—	μs

TYPICAL PERFORMANCE CURVES

Fig. 1 Output Current vs. Input Current

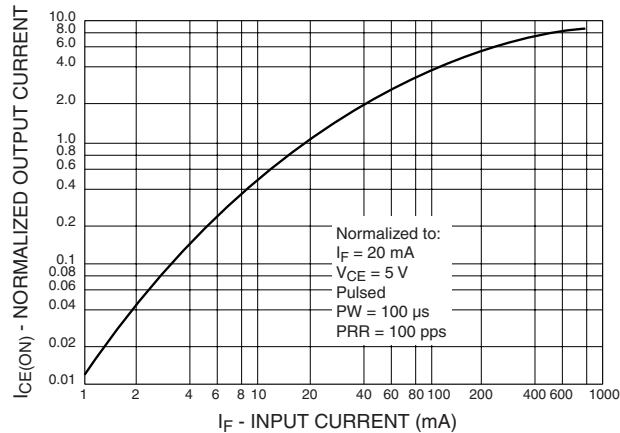


Fig. 2 Output Current vs. Temperature

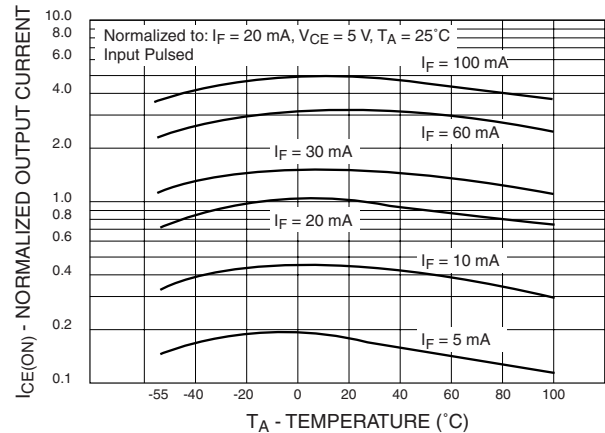


Fig. 3 Saturation Voltage vs. Ambient Temperature

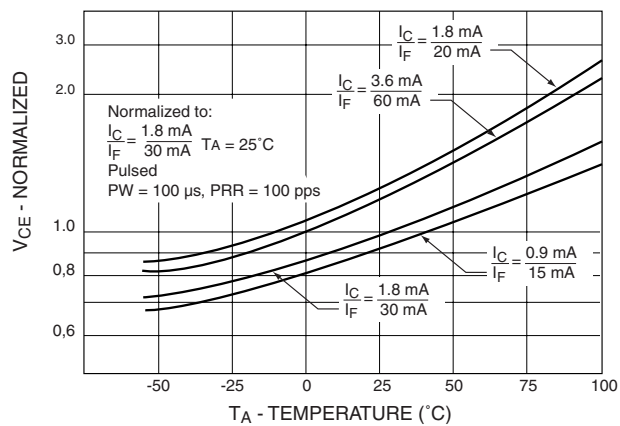


Fig. 4 Normalized Dark Current vs. Ambient Temperature (Detector)

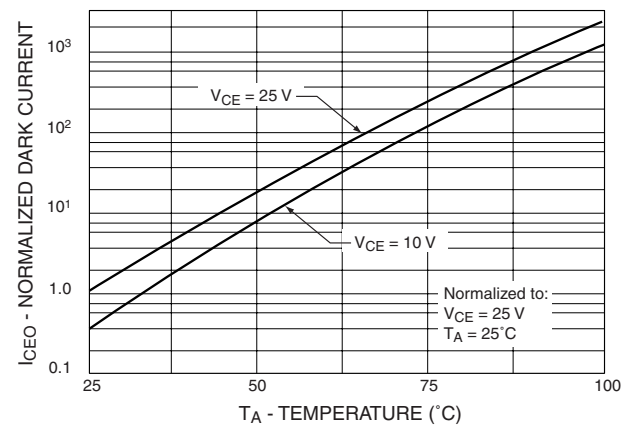
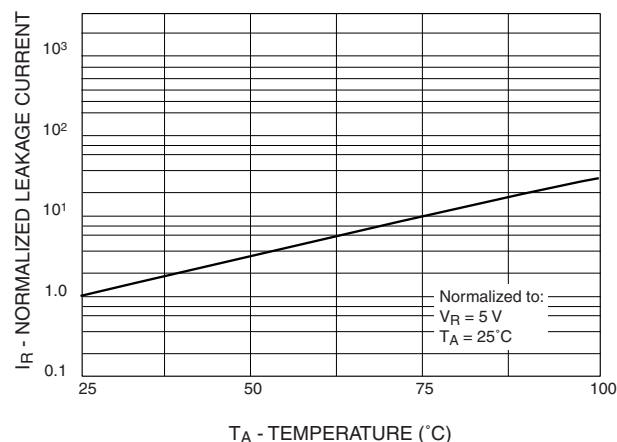


Fig. 5 Normalized Leakage Current vs. Ambient Temperature (Emitter)



TYPICAL PERFORMANCE CURVES

Fig. 6 Switching Time vs. Load Resistance

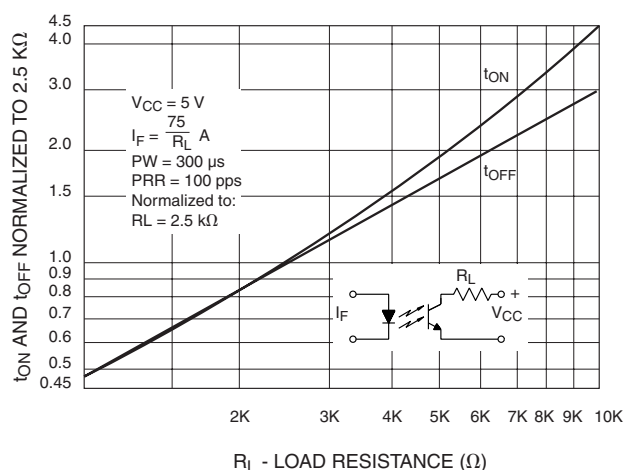
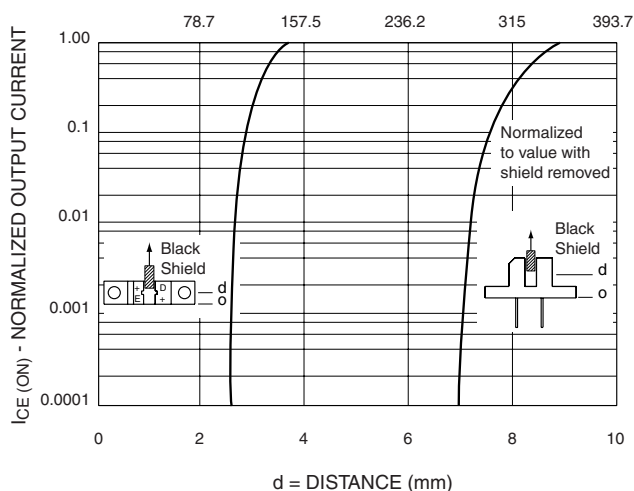


Fig. 7 Output Current vs. Distance



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