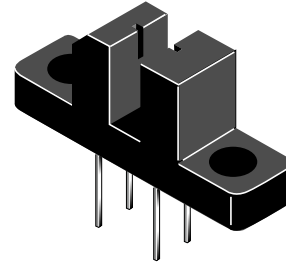
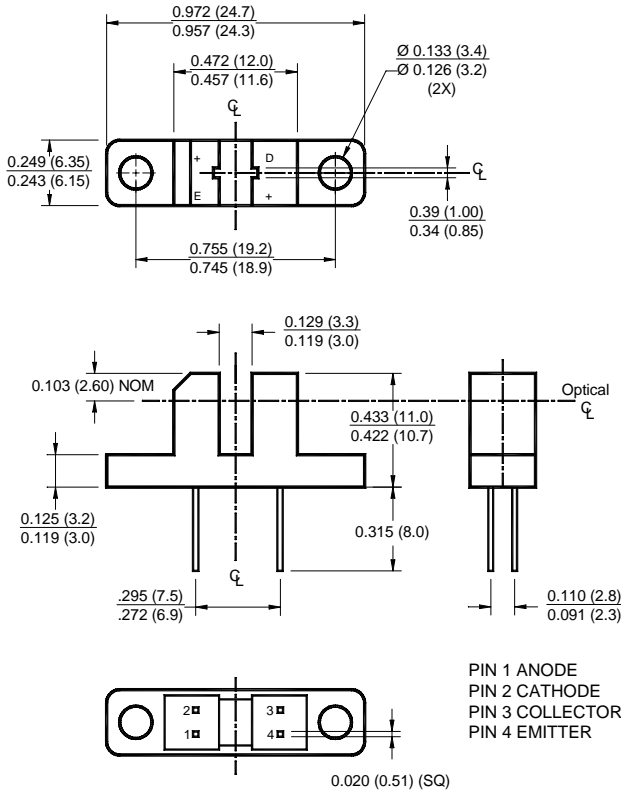
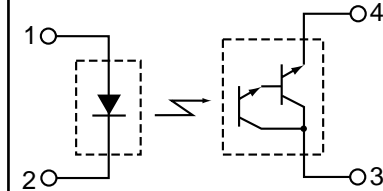


**PACKAGE DIMENSIONS**



**SCHEMATIC**



**NOTES:**

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

**DESCRIPTION**

The CNY29 is a gallium arsenide infrared emitting diode coupled with a silicon photo darlington 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
- .035" apertures
- European "Pro Electron" registered

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise specified)			
Parameter	Symbol	Rating	Unit
Operating Temperature	$T_{OPR}$	-55 to +100	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 to +100	$^\circ\text{C}$
Soldering Temperature (Iron) <sup>(2,3 and 4)</sup>	$T_{SOL-I}$	240 for 5 sec	$^\circ\text{C}$
Soldering Temperature (Flow) <sup>(2 and 3)</sup>	$T_{SOL-F}$	260 for 10 sec	$^\circ\text{C}$
<b>INPUT (EMITTER)</b>			
Continuous Forward Current	$I_F$	50	mA
Reverse Voltage	$V_R$	6	V
Power Dissipation <sup>(1)</sup>	$P_D$	100	mW
<b>OUTPUT (SENSOR)</b>			
Collector to Emitter Voltage	$V_{CEO}$	30	V
Emitter to Collector Voltage	$V_{ECO}$	6	V
Collector Current	$I_C$	40	mA
Power Dissipation ( $T_C = 25^\circ\text{C}$ ) <sup>(1)</sup>	$P_D$	150	mW

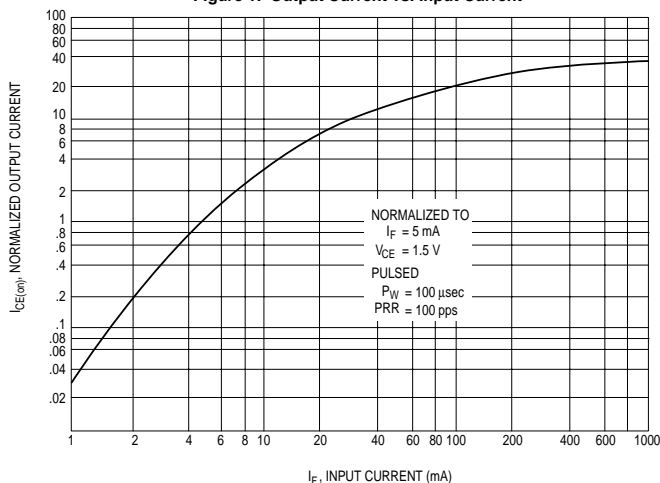
NOTE:

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

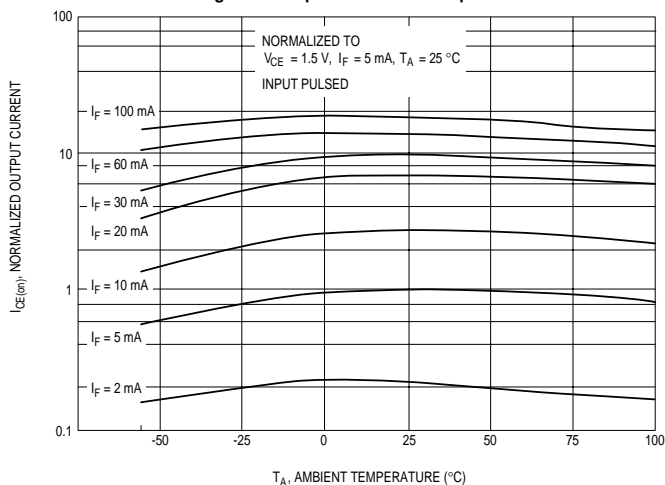
<b>ELECTRICAL / OPTICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ )						
PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
<b>INPUT (EMITTER)</b>						
Forward Voltage	$I_F = 10\text{ mA}$	$V_F$	—	—	1.7	V
Reverse Leakage Current	$V_R = 2\text{ V}$	$I_R$	—	—	10	$\mu\text{A}$
<b>OUTPUT (SENSOR)</b>						
Emitter to Collector Breakdown	$I_E = 100\ \mu\text{A}$ , $E_e = 0$	$BV_{ECO}$	7.0	—	—	V
Collector to Emitter Breakdown	$I_C = 10\text{ mA}$ , $E_e = 0$	$BV_{CEO}$	25	—	—	V
Collector to Emitter Leakage	$V_{CE} = 10\text{ V}$ , $E_e = 0$	$I_{CEO}$	—	—	100	nA
<b>COUPLED</b>						
On-State Collector Current	$I_F = 20\text{ mA}$ , $V_{CE} = 10\text{ V}$	$I_{C(ON)}$	2.5	—	—	mA
Saturation Voltage	$I_F = 20\text{ mA}$ , $I_C = 0.5\text{ mA}$	$V_{CE(SAT)}$	—	—	1.2	V
Turn-On Time	$I_F = 10\text{ mA}$ , $V_{CC} = 5\text{ V}$ , $R_L = 750\ \Omega$	$t_{on}$	—	150	—	$\mu\text{s}$
Turn-Off Time	$I_F = 10\text{ mA}$ , $V_{CC} = 5\text{ V}$ , $R_L = 750\ \Omega$	$t_{off}$	—	150	—	$\mu\text{s}$

**TYPICAL PERFORMANCE CURVES**

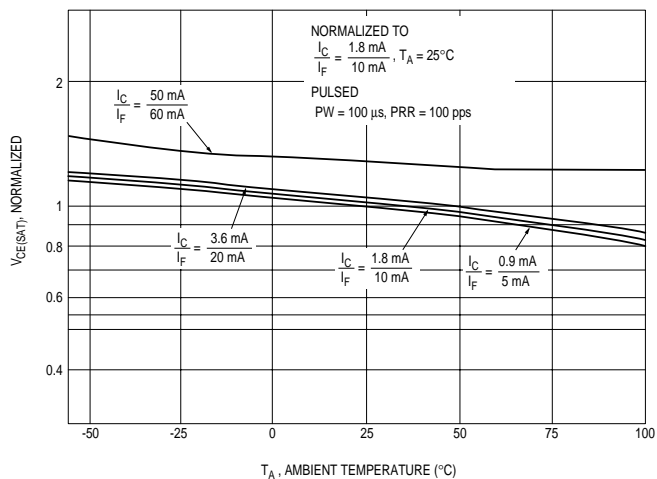
**Figure 1. Output Current vs. Input Current**



**Figure 2. Output Current vs. Temperature**

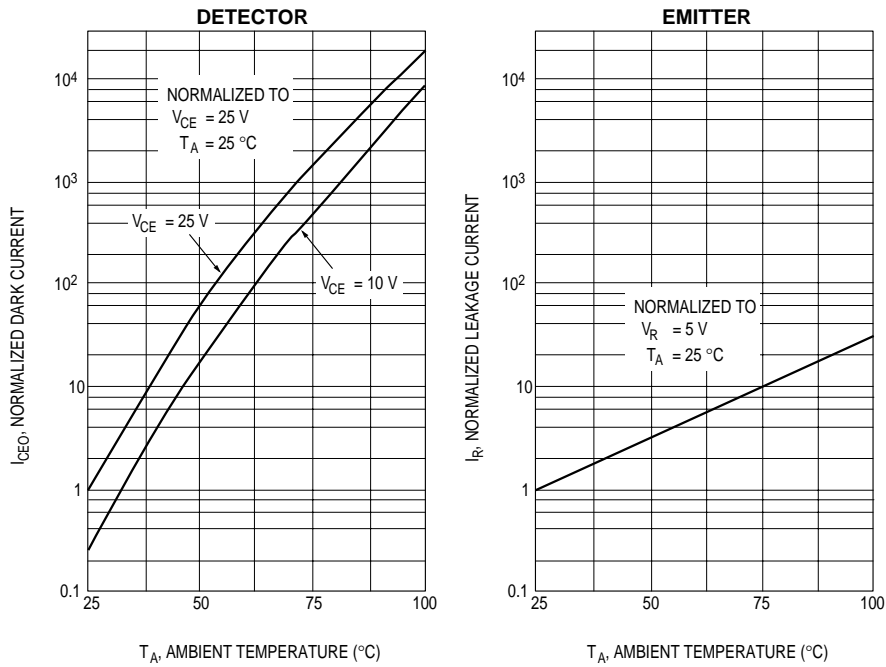


**Figure 3.  $V_{CE(SAT)}$  vs. Temperature**

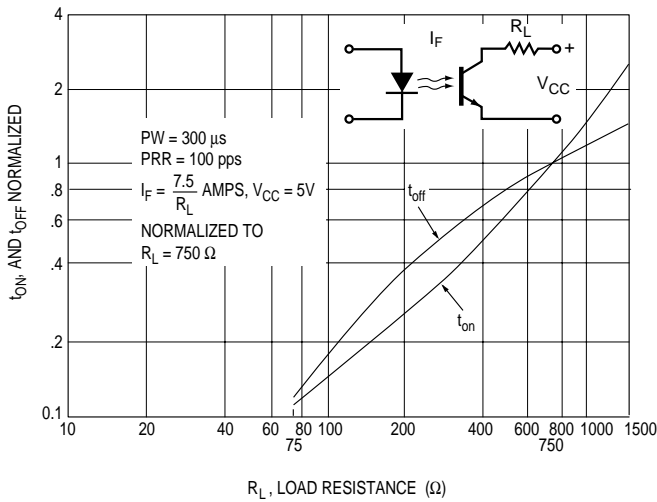


**TYPICAL PERFORMANCE CURVES (CONTINUED)**

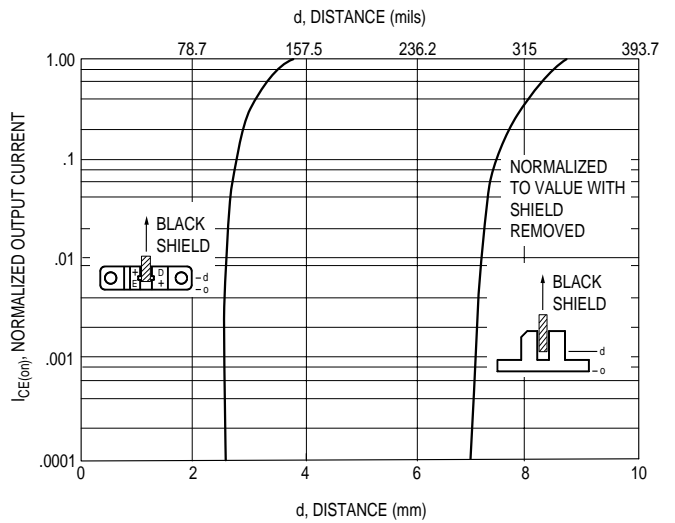
**Figure 4. Leakage Current vs. Temperature**



**Figure 5. Switching Speed vs. RL**



**Figure 6. Output Current vs. Distance**



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