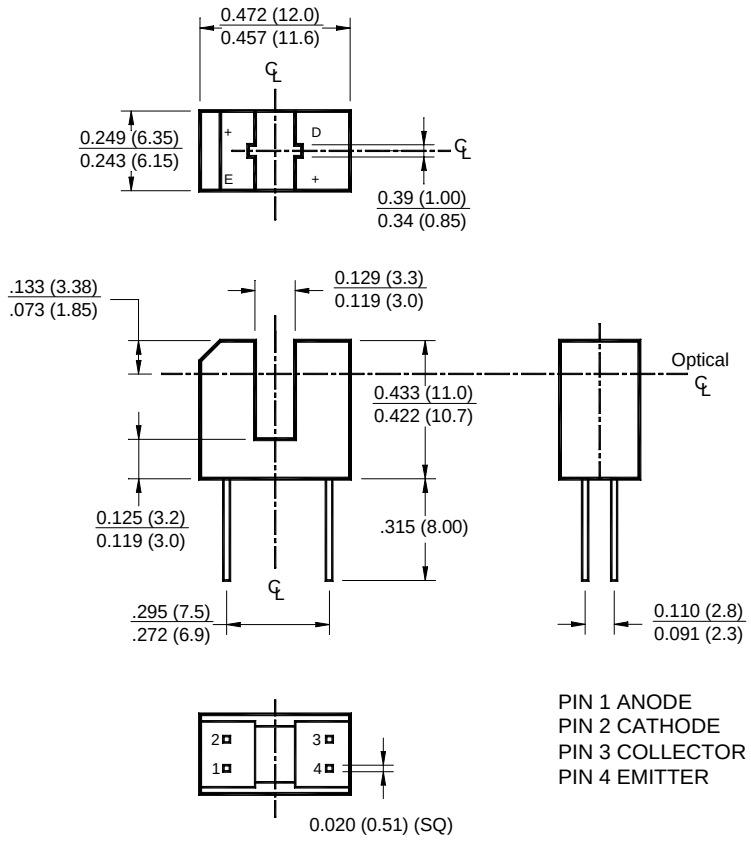
FAIRCHILD
SEMICONDUCTOR®

PHOTOTRANSISTOR OPTICAL INTERRUPTER SWITCH

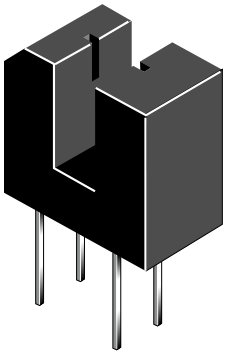
CNY36

PACKAGE DIMENSIONS

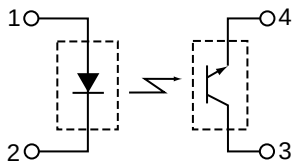


PIN 1 ANODE
PIN 2 CATHODE
PIN 3 COLLECTOR
PIN 4 EMITTER

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



SCHEMATIC



DESCRIPTION

The CNY36 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
- .035” apertures
- European “Pro Electron” registered

PHOTOTRANSISTOR OPTICAL INTERRUPTER SWITCH

CNY36

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Operating Temperature	T_{OPR}	-55 to +85	°C
Storage Temperature	T_{STG}	-55 to +85	°C
Soldering Temperature (Iron)(3,4 and 5)	T_{SOL-I}	240 for 5 sec	°C
Soldering Temperature (Flow)(3 and 4)	T_{SOL-F}	260 for 10 sec	°C
INPUT (EMITTER) Continuous Forward Current	I_F	60	mA
Reverse Voltage	V_R	3	V
Power Dissipation (1)	P_D	100	mW
OUTPUT (SENSOR) Collector to Emitter Voltage	V_{CEO}	30	V
Emitter to Collector Voltage	V_{ECO}	5.0	V
Power Dissipation (T_C = 25°C)(1)	P_D	150	mW

ELECTRICAL / OPTICAL CHARACTERISTICS (T_A =25°C)(All measurements made under pulse condition)

PARAMETER	TEST CONDITIONS	SYMBOL	DEVICES	MIN	TYP	MAX	UNITS
INPUT (EMITTER) Forward Voltage	I_F = 10 mA	V_F	All	—	—	1.7	V
Reverse Leakage Current	V_R = 2 V	I_R	All	—	—	1.0	µA
OUTPUT (SENSOR) Emitter to Collector Breakdown	I_E = 100 µA, Ee = 0	BV_{ECO}	All	5.0	—	—	V
Collector to Emitter Breakdown	I_C = 10 mA, Ee = 0	BV_{CEO}	All	30	—	—	V
Collector to Emitter Leakage	V_{CE} = 10 V, Ee = 0	I_{CEO}	All	—	—	100	nA
COUPLED On-State Collector Current	I_F = 20 mA, V_{CE} = 10 V	$I_{C(ON)}$	All	2.0	—	—	mA
Saturation Voltage	I_F = 20 mA, I_C = 25 µA	$V_{CE(SAT)}$	All	—	—	0.40	V
Turn-On Time	I_F = 30 mA, V_{CC} = 5 V, R_L = 2.5 kΩ	t_{on}	All	—	5	—	µs
Turn-Off Time	I_F = 30 mA, V_{CC} = 5 V, R_L = 2.5 kΩ	t_{off}	All	—	5	—	µs

NOTE:
1. Derate power dissipation linearly 1.67 mW/°C above 25°C.
2. Derate power dissipation linearly 2.50 mW/°C above 25°C.
3. RMA flux is recommended.
4. Methanol or isopropyl alcohols are recommended as cleaning agents.
5. Soldering iron tip 1/16" (1.6mm) minimum from housing.

Figure 1. Output Current vs. Input Current

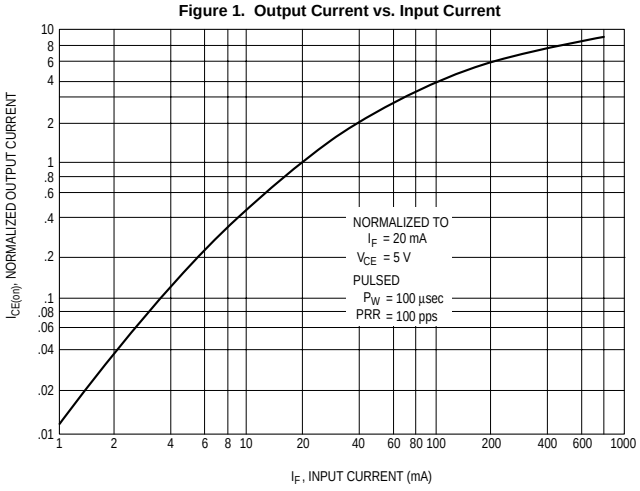


Figure 2. Output Current vs. Temperature

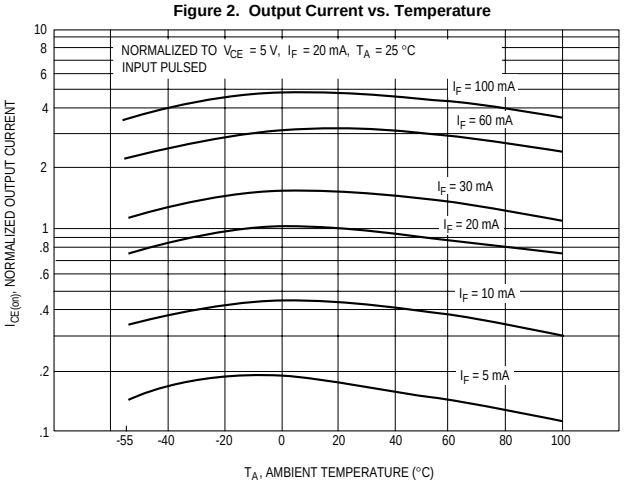


Figure 3. $V_{CE(SAT)}$ vs. Temperature

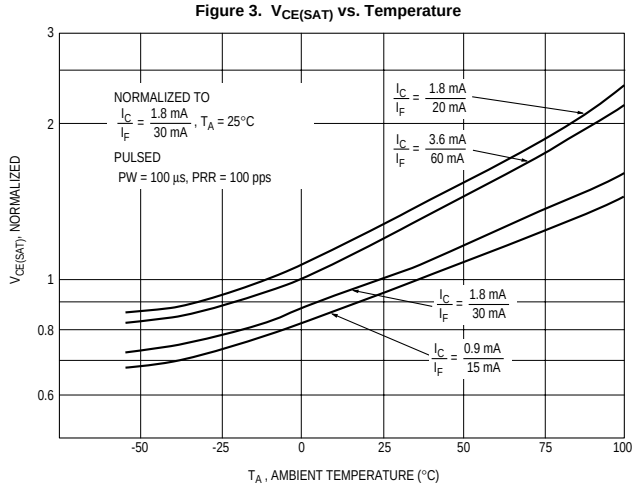


Figure 4. Leakage Current vs. Temperature

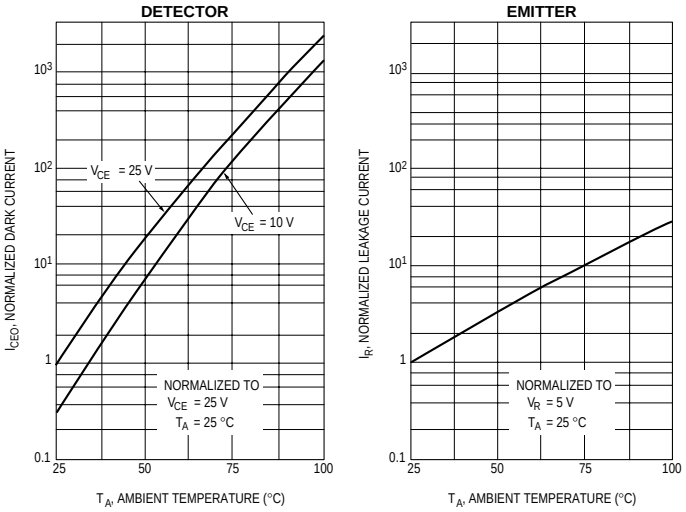


Figure 5. Switching Speed vs. R_L

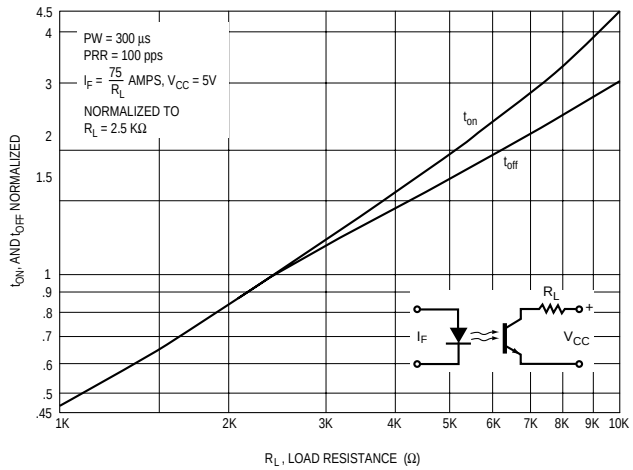
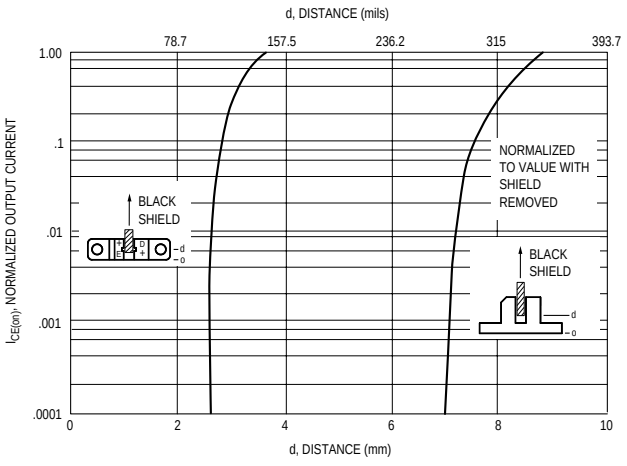


Figure 6. Output Current vs. Distance



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