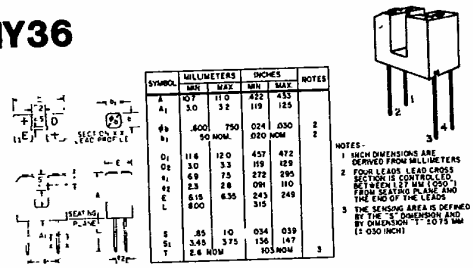
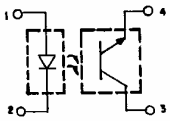
Photon Coupled Interrupter Module CNY36

The GE Solid State 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 transistor from an "ON" into an "OFF" state.





FEATURES:

- Low cost, plastic module
- Non-contact switching
- Fast switching speeds
- Solid state reliability
- I/O compatible with integrated circuits

absolute maximum ratings: (25°C) (unless otherwise specified)

Storage and Operating Temperature -55° to 85°C. Lead Soldering Time (at 260°C) 10 seconds.

INFRARED EMITTING DIODE		
Power Dissipation	*100	milliwatts
Forward Current (Continuous)	60	milliamps
Forward Current (peak, 100μs, 1% duty cycle)	1	amp
Reverse Voltage	3	volts

*Derate 1.67mW/°C above 25°C ambient

PHOTO-TRANSISTOR		
Power Dissipation	**150	milliwatts
Collector Current (Continuous)	100	milliamps
V_{CEO}	30	volts
V_{ECO}	5	volts

**Derate 2.5mW/°C above 25°C ambient

individual electrical characteristics (25°C)

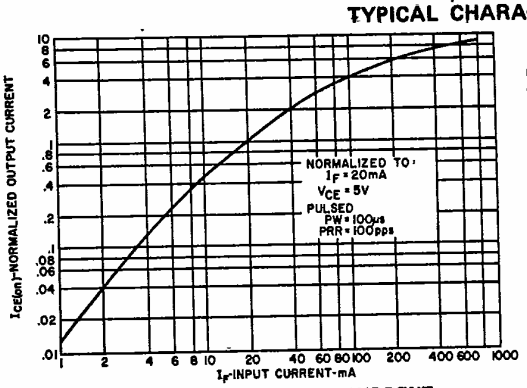
INFRARED EMITTING DIODE	TYP.	MAX.	UNITS
Forward Voltage (I_F = 10 mA)	1.2	1.7	volts
Reverse Current (V_R = 2V)	–	10	μamps
Capacitance (V = O, f = 1 Mhz)	150	–	pf

PHOTO-TRANSISTOR	MIN.	MAX.	UNITS
Breakdown Voltage $V_{(BR)CEO}$ (I_C = 10 mA)	30	–	volts
Breakdown Voltage $V_{(BR)ECO}$ (I_E = 100μA)	5	–	volts
Collector Dark Current I_{CEO} (V_{CE} = 10V, I_F = O, H=O)	–	100	nA

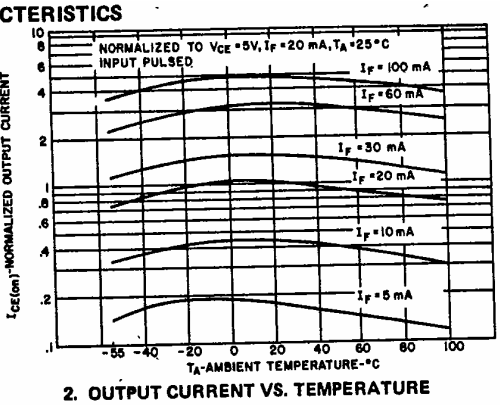
coupled electrical characteristics (25°C)

	MIN.	TYP.	MAX.	UNITS
Output Current (I_F = 20mA, V_{CE} = 10V)	200	400	–	μamps
Saturation Voltage (I_F = 20mA, I_C = 25μA)	–	0.2	0.4	volts
Switching Speeds (V_{CE} = 10V, I_C = 2mA, R_L = 100Ω)				
On Time ($t_d + t_r$)	–	5	–	μsec
Off Time ($t_s + t_f$)	–	5	–	μsec

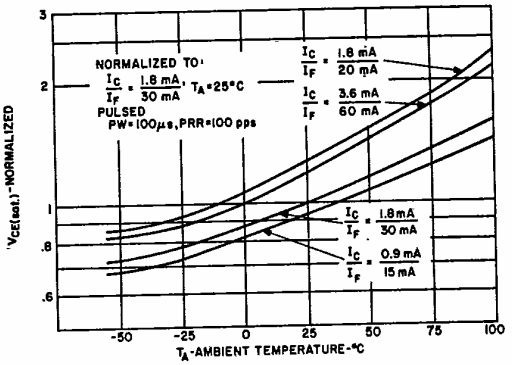
TYPICAL CHARACTERISTICS



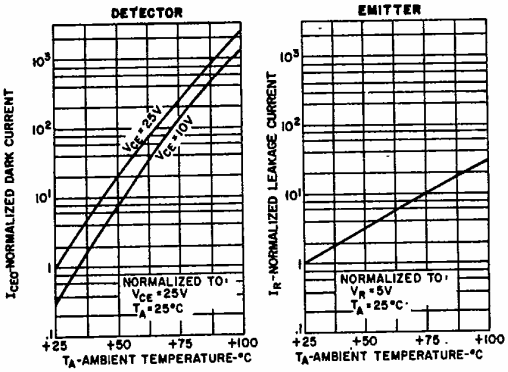
1. OUTPUT CURRENT VS. INPUT CURRENT



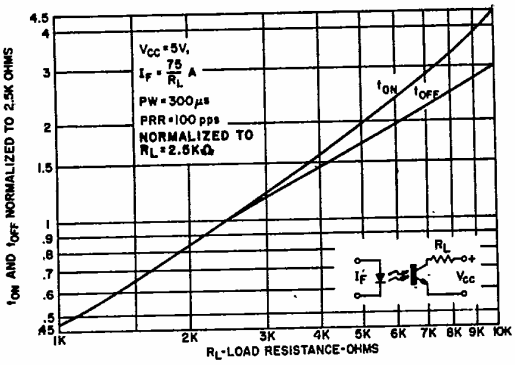
2. OUTPUT CURRENT VS. TEMPERATURE



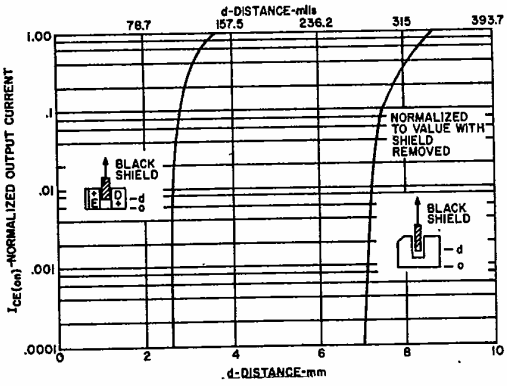
3. $V_{CE(sat)}$ VS. TEMPERATURE



4. LEAKAGE CURRENTS VS. TEMPERATURE



5. SWITCHING SPEED VS. R_L



6. OUTPUT CURRENT VS. DISTANCE