

CLI840 CLI850 CLI860 CLI870

Optical Switches

GENERAL DESCRIPTIONS — This optical switch series couples a gallium arsenide infrared emitting diode and a silicon darlington phototransistor, for high sensor currents. Maximum sensor voltage of 30 volts allows high sensitivity with lower cost than high voltage designs. The CLI870 has a .010" aperture over the sensor for precise position detection applications. The wide gap of .125" between emitter and sensor easily allows signal interruption by a moving target.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperature:

Storage — 55°C to +150°C

Operating Jct. Temperature +100°C

EMITTER (GaAs Diode)

Power Dissipation:

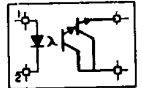
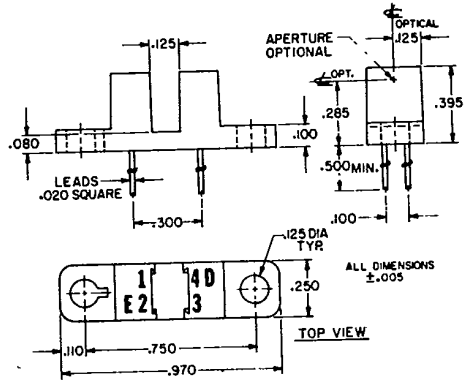
At 25°C Amb., Pd=100mw, derate 1.33mw/°C

Maximum Voltage:

V_R Reverse Voltage=4.0 volts

Maximum Current:

I_F D.C. Forward Current=60ma cont.



Available without mounting tabs.

DETECTOR

Power Dissipation:

At 25°C amb., Pd=150mw, derate 2.0mw/°C

Maximum Voltages:

V_{CEO}=30V, V_{ECO}=5V

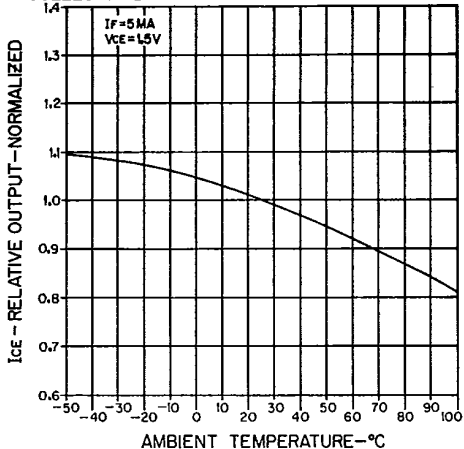
Maximum Current:

I_C Collector Current 100ma pulsed

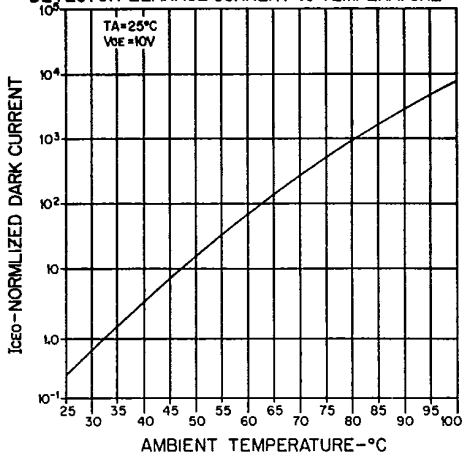
ELECTRICAL CHARACTERISTICS 25°C Free Air

Symbol	Characteristics	Test Conditions	CLI840 Min. Max.	CLI850 Min. Max.	CLI860 Min. Max.	CLI870 Min. Max.	Units
EMITTER	V _R Reverse Voltage	I _R =10μa	4.0	4.0	4.0	4.0	volts
	V _F Forward Voltage	I _F =16ma	1.5	1.5	1.5	1.5	volts
SENSOR	BV _{CEO} Collector to Emitter Breakdown Voltage	I _C =100μa	30	30	30	30	volts
I _D	Leakage Current	V _{CE} =10V,	250	250	250	250	μa
		V _{CE} =5V, f=1MHZ	8	8	8	8	pf
COUPLED	I _{CE} Sensor Current	I _F =5ma, V _{CE} =1.5V	2.5	5.0	10.0		ma
		I _F =10ma, V _{CE} =1.5V	10 Typ.	17 Typ.	30 Typ.	1.0	ma
V _{CE(SAT)}	Collector to Emitter Saturation Voltage	I _F =10ma, I _C =1.5ma I _F =20ma, I _C =1.5ma	1.2	1.2	1.2	1.2	volts
T _R , T _F	Rise, Fall Time	I _C =2ma, V _{CC} =5V R _L =100 ohms	150 Typ.	150 Typ.	150 Typ.	150 Typ.	μsec

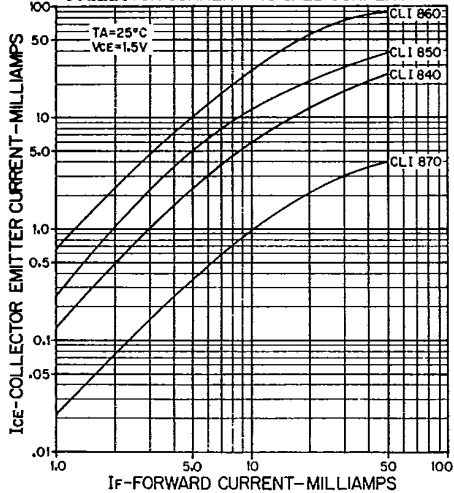
COLLECTOR EMITTER CURRENT Vs TEMPERATURE



DETECTOR LEAKAGE CURRENT Vs TEMPERATURE



COLLECTOR CURRENT Vs IRED CURRENT



OUTPUT CURRENT Vs SHIELD DISTANCE

