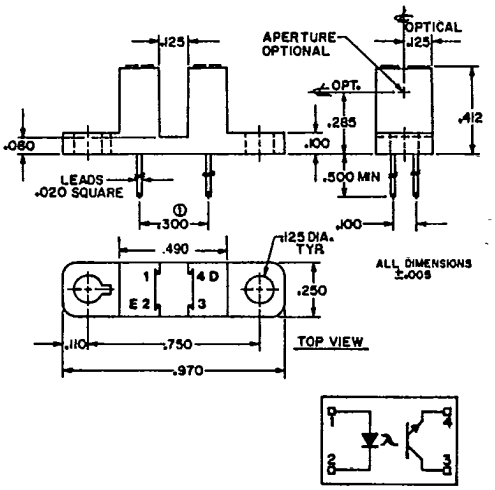
T-41-73

CLI800
CLI810
CLI820
CLI830
CLI835

Optical Switches

GENERAL DESCRIPTIONS — This optical switch series couples a gallium arsenide infrared emitting diode and a silicon phototransistor sensor. This series offers the lowest cost switches in the Clairex line. All still have guaranteed minimum sensor currents and a maximum voltage of 30 volts. The CLI-835 has a .010"² 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.



Available without mounting tabs – add suffix "m".

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.

Notes:
1 .220 inch optional
2 .005 inch optional
} Call Factory

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

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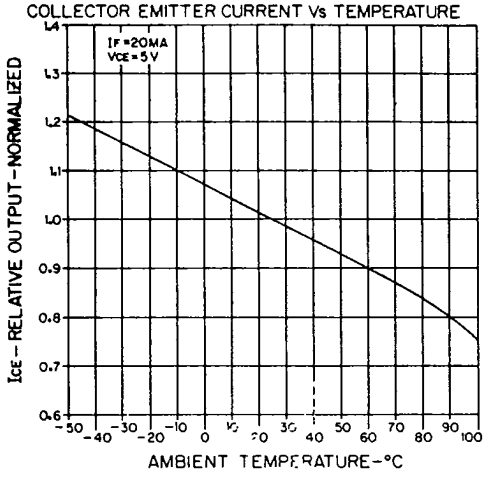
ELECTRICAL CHARACTERISTICS 25°C Free Air

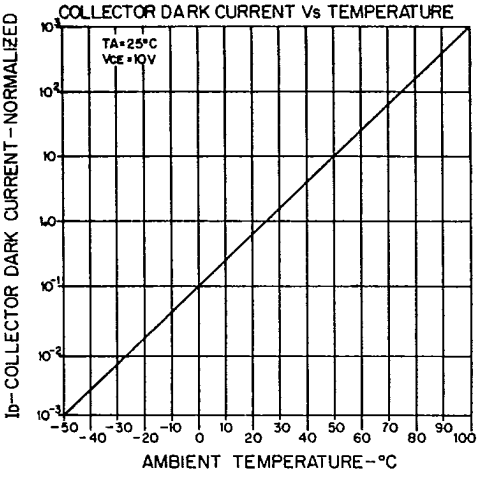
Symbol	Characteristics	Test Conditions	CLI800 Min. Max.	CLI810 Min. Max.	CLI820 Min. Max.	CLI830 Min. Max.	CLI835 Min. Max.	Units
EMITTER								
V_R	Reverse Voltage	I_R=10μa	4.0	4.0	4.0	4.0	4.0	volts
V_F	Forward Voltage	I_F=16ma	1.5	1.5	1.5	1.5	1.5	volts
SENSOR								
BV_{CEO}	Collector to Emitter Breakdown Voltage	I_C=100μa	30	30	30	30	30	volts
I_D	Leakage Current	V_{CE}=10V,	100	100	100	100	100	na
C_{CE}	Capacitance	V_{CE}=5V f=1MHZ	5	5	5	5	5	pf
COUPLED								
I_{CE}	Sensor Current	I_F=5ma, V_{CE}=5V	0.4	.2 Typ.	.5 Typ.	1.0 Typ.	0.4	ma
		I_F=20ma, V_{CE}=5V	1.0	2.0	4.0			ma
$V_{CE(SAT)}$	Collector to Emitter Saturation Voltage	—						volts
		I_F=30ma, I_C=.25ma	0.4	0.4	0.4	0.4	0.4	volts
T_R, T_F	Rise, Fall Time	I_C=2ma, V_{CC}=5V R_L=100 ohms	5 Typ.	5 Typ.	5 Typ.	5 Typ.	5 Typ.	μsec

Special electrical or mechanical characteristics always available - consult factory

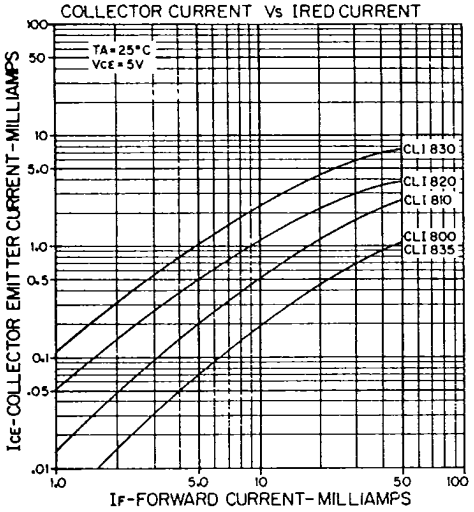
COLLECTOR EMITTER CURRENT Vs TEMPERATURE



COLLECTOR DARK CURRENT Vs TEMPERATURE



COLLECTOR CURRENT Vs IRED CURRENT



OUTPUT CURRENT Vs SHIELD DISTANCE