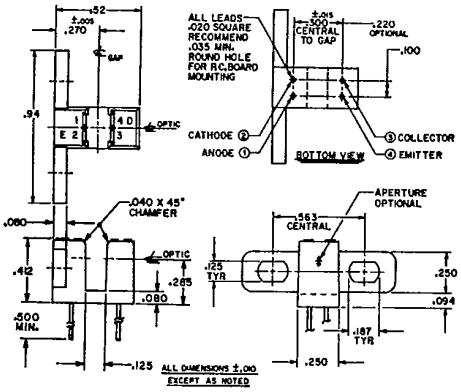
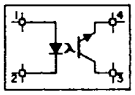
T-41-73

Optical Switches

CLI800W
CLI810W
CLI820W
CLI830W
CLI835W





GENERAL DESCRIPTION — This optical switch couples a gallium arsenide infrared emitting diode and a silicon phototransistor for a range of guaranteed minimum sensor currents. The CLI835W has a .010"[1] aperture over the sensor for precise position detector applications. The unique mechanical configurationn facilitates convenient mounting of the units to a vertical surface.

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.
Note: 1 .005 inch optional

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	CLI-800W Min.	CLI-800W Max.	CLI-810W Min.	CLI-810W Max.	CLI-820W Min.	CLI-820W Max.	CLI-830W Min.	CLI-830W Max.	CLI-835W Min.	CLI-835W 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				.2 Typ.		.5 Typ.		1.0 Typ.			ma
		I_F=20ma, V_{CE}=5V	0.4		1.0		2.0		4.0		0.4		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

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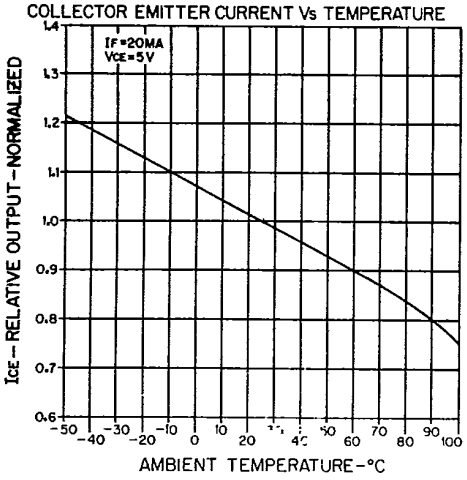
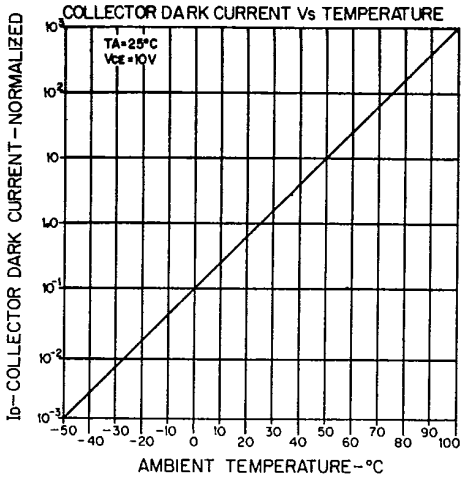
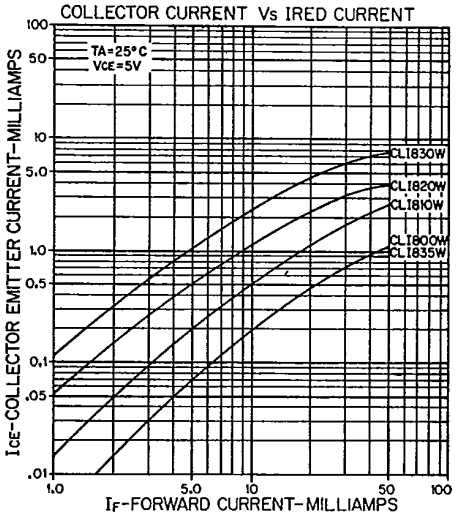
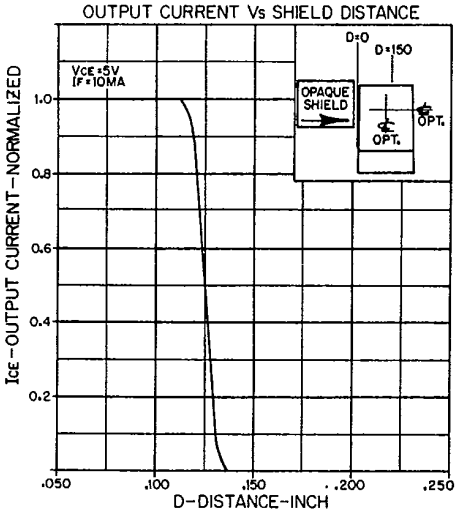
COLLECTOR EMITTER CURRENT Vs TEMPERATURE



COLLECTOR DARK CURRENT Vs TEMPERATURE



COLLECTOR CURRENT Vs IRED CURRENT



OUTPUT CURRENT Vs SHIELD DISTANCE