

Digital Output

CLA90
CLA90AAHigh Voltage
Axial Lead Isolators

GENERAL DESCRIPTION — The Clairex Electronics CLA90 series isolator features axial lead construction for high isolation voltage of 10KV D.C. minimum. The construction of the isolator provides an internal minimum distance of 5mm between the emitter case and detector case. Both the infrared LED emitter and the integrated circuit photodetector are hermetically sealed units. The integrated circuit photodetector consists of a photodiode sensor, operational amplifier and a Schmitt trigger driving an open collector NPN transistor allowing for maximum application flexibility. An internal voltage regulator allows a 4-15 volt supply range. With the addition of a pull up resistor of the IC output can be made TTL compatible.

ABSOLUTE MAXIMUM RATINGS

Maximum Storage and Operating
Temperature — 40°C to 70°C

EMITTER

Power Dissipation

At 25°C ambient = 150mw

Continuous Forward Current = 40mA

Derate 2mw/°C

DETECTOR

Power Dissipation

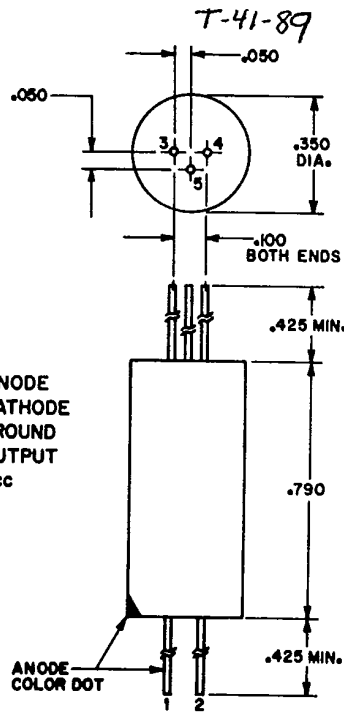
At 25°C = 300mw

Derate 2mw/°C

Maximum Voltages

V_{cc} = 15 volts at 25°C

Maximum Output Current = 50mA at 25°C



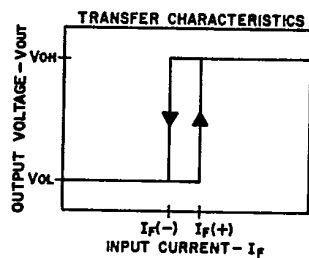
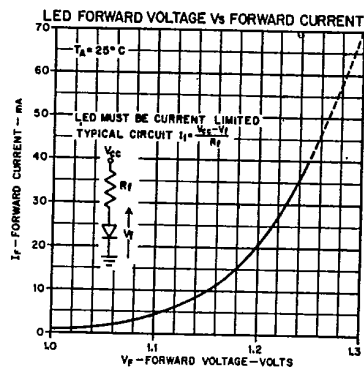
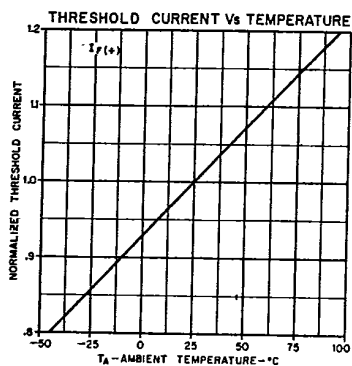
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U.L. RECOGNIZED COMPONENT

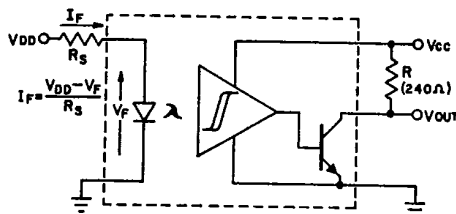
ELECTRICAL CHARACTERISTICS (25°C Free Air unless otherwise specified)

Symbol	Characteristic	Test Conditions	Min.	CLA90 Max.	Min.	CLA90AA Max.	Units
Emitter V _I V _R	Forward Voltage	I _F = 10 ma		1.5		1.5	Volts
	Reverse Voltage	I _R = 10 μa	3		3		Volts
Detector V _{cc}	Supply Voltage		4	15	4	15	Volts
Coupled							
I _{cc}	Isolation Voltage	V _{cc} = 15V, I _F = 5ma	10,000	25	10,000	25	Volts DC
	Supply Current	V _{cc} = 4V, I _F = 5ma		10		10	MA
VOL	Low Level Output Voltage	V _{cc} = 5V, IOL = 15ma R _L = 360 Ω		.4		.4	Volts
VOH	High Level Output Voltage	R _p = 360 Ω, I _F = 5ma	4.0		4.0		Volts
IF +	LED Positive Going Threshold	V _{cc} = 5 Volts		1		5	MA
tr/f	Voltage Output Rise/Fall Time	V _{cc} = 5 Volts	500 TYP		500 TYP		nsec
tdLH	Propagation Delay Low to High	I _F = 5ma T = 1 msec	4 TYP	6	4 TYP	6	μsec
tdHL	Propagation Delay High to Low	R _p = 360 Ω	50 TYP	70	50 TYP	70	μsec

T-41-89



CIRCUIT DIAGRAM



RESPONSE TIMES

