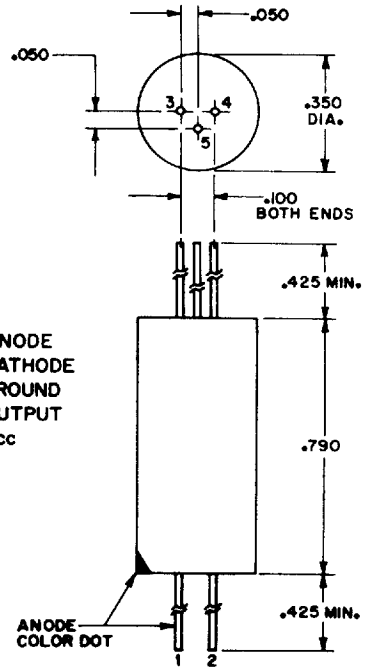
Digital Output

CLA90
CLA90AA

High 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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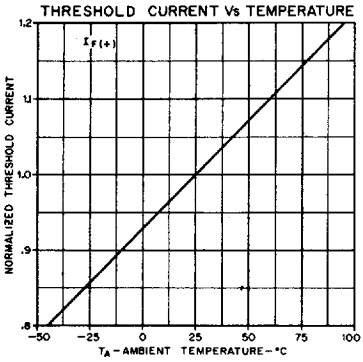
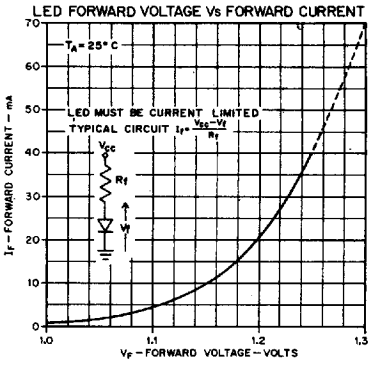
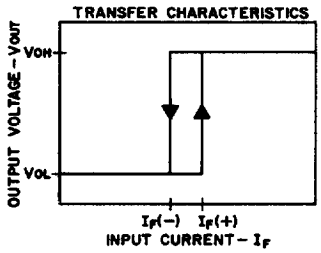
U.L. RECOGNIZED COMPONENT

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

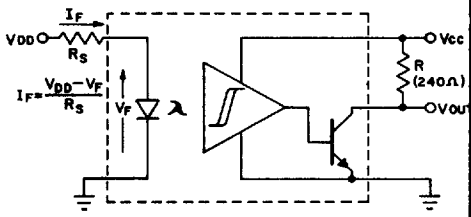
Symbol	Characteristic	Test Conditions	CLA90 Min.	CLA90 Max.	CLA90AA Min.	CLA90AA Max.	Units
Emitter							
Vf	Forward Voltage	IF = 10 ma		1.5		1.5	Volts
VR	Reverse Voltage	IR = 10 μa	3		3		Volts
Dectector							
V_{CC}	Supply Voltage		4	15	4	15	Volts
Coupled							
	Isolation Voltage		10,000		10,000		Volts DC
I_{CC}	Supply Current	V_{CC} = 15V, IF = 5ma		25		25	MA
		V_{CC} = 4V, IF = 5ma		10		10	MA
VOL	Low Level Output Voltage	Vcc = 5V, IOL = 15ma R_L = 360 Ω		.4		.4	Volts
VOH	High Level Output Voltage	Rp = 360 Ω, IF = 5ma	4.0		4.0		Volts
IF +	LED Positive Going Threshold	Vcc = 5 Volts		1		5	MA
tr/tf	Voltage Output Rise/Fall Time	Vcc = 5 Volts	500 TYP		500 TYP		nsec
tdLH	Propagation Delay Low to High	IF = 5ma T = 1 msec	4 TYP	6	4 TYP	6	μsec
tdHL	High to Low	Rp = 360 Ω	50 TYP	70	50 TYP	70	μsec







CIRCUIT DIAGRAM



RESPONSE TIMES