

**66095****MINIATURE LCC OPTOCOUPLER**

08/14/2008

**Features:**

- Electrically similar to 4N47, 4N48, or 4N49
- Standard and screened versions available
- Hermetically sealed 4 pin LCC
- High-voltage electrical isolation...1 kV rating

**Applications:**

- High density surface mount circuits
- Ground loop isolation
- Feedback controls
- General purpose switching circuits

**DESCRIPTION**

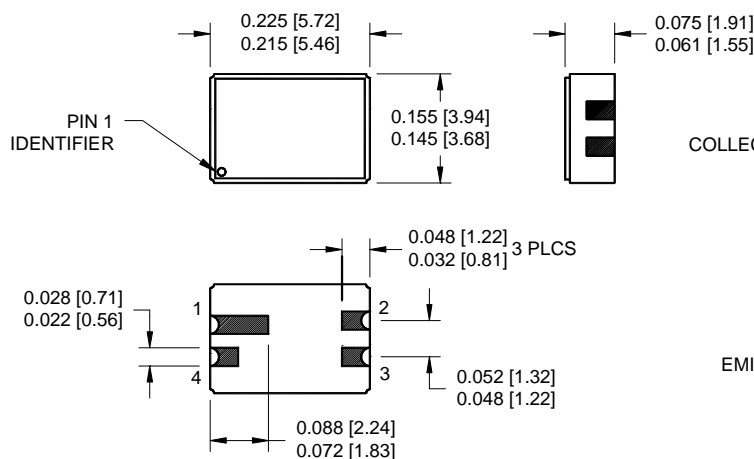
The **66095** series optocouplers consist of an infrared LED and a silicon phototransistor in a 4 pin hermetically sealed leadless chip carrier. The 66095 is electrically similar to the 4N47, 4N48, or 4N49 series optocouplers, and is available in standard and screened versions. The 66095 miniature LCC is ideal for surface mount applications where board space is limited.

**ABSOLUTE MAXIMUM RATINGS**

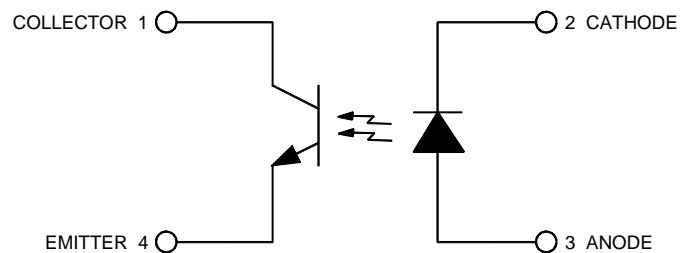
Input-to-Output Voltage .....	± 1 kV
Collector-Emitter Voltage.....	40 V
Input Diode Reverse Voltage.....	2 V
Input Diode Continuous Forward Current at (or below) 65°C Free-Air Temperature Note 1.....	40 mA
Continuous Collector Current .....	50 mA
Peak Diode Current.....( $t_w \leq 1\mu s$ , PRR < 300 pps).....	1A
Continuous Transistor Power Dissipation at (or below) 25°C Free-Air Temperature Note 2.....	300 mW
Operating and Storage Free-Air Temperature Range .....	-55°C to +125°C
Lead Temperature (10 seconds max) .....	245°C

Note 1: Derate linearly to 125°C free-air temperature at the rate of 0.67 mA/°C

Note 2: Derate linearly to 125°C free-air temperature at the rate of 3 mW/°C

**Package Dimensions**

ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

**Schematic Diagram**

# 66095

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## ELECTRICAL CHARACTERISTICS

T<sub>A</sub> = 25°C unless otherwise specified.

## MINIATURE LCC OPTOCOUPLER

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Input Diode Static Reverse Current	I <sub>R</sub>			100	nA	V <sub>R</sub> = 2 V	
Input Diode Static Forward Voltage	V <sub>F</sub>	1.0	1.4	1.7	V	I <sub>F</sub> = 10 mA	
		0.8		1.5	V		
		0.7		1.3	V		

### OUTPUT TRANSISTOR T<sub>A</sub> = 25°C unless otherwise specified.

Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	40			V	I <sub>C</sub> = 1 mA, I <sub>B</sub> = 0, I <sub>F</sub> = 0	
Emitter-Collector Breakdown Voltage	V <sub>(BR)ECO</sub>	7			V	I <sub>B</sub> = 0, I <sub>E</sub> = 100 μA, I <sub>F</sub> = 0	

### COUPLED CHARACTERISTICS T<sub>A</sub> = 25°C unless otherwise specified.

On State Collector Current	-X01	0.5		-		V <sub>CE</sub> = 5 V, I <sub>B</sub> = 0, I <sub>F</sub> = 1 mA	
T <sub>a</sub> = +25°C	-X02	1.0		5	mA		
	-X03	2.0		10			
On State Collector Current	-X01	0.7			mA	V <sub>CE</sub> = 5 V, I <sub>B</sub> = 0, I <sub>F</sub> = 2 mA	
T <sub>a</sub> = -55°C	-X02	1.4					
	-X03	2.8					
On State Collector Current	-X01	0.5			mA	V <sub>CE</sub> = 5 V, I <sub>B</sub> = 0, I <sub>F</sub> = 2 mA	2
T <sub>a</sub> = +100°C	-X02	1.0					
	-X03	2.0					
Off State Collector Current				100	nA	V <sub>CE</sub> = 20 V, I <sub>B</sub> = 0, I <sub>F</sub> = 0 mA	
Off State Collector Current, + 100°C				100	μA	V <sub>CE</sub> = 20 V, I <sub>B</sub> = 0, I <sub>F</sub> = 0 mA	
Collector-Emitter Saturation Voltage	-X01			0.3	V	I <sub>F</sub> = 2 mA, I <sub>B</sub> = 0, I <sub>C</sub> = 0.5 mA	
	-X02			0.3	V	I <sub>F</sub> = 2 mA, I <sub>B</sub> = 0, I <sub>C</sub> = 1 mA	
	-X03			0.3	V	I <sub>F</sub> = 2 mA, I <sub>B</sub> = 0, I <sub>C</sub> = 2 mA	
Input to Output Resistance	R <sub>IO</sub>	10 <sup>11</sup>			Ω	V <sub>IN-OUT</sub> = 1 kV	1
Input to Output Capacitance	C <sub>IO</sub>			5	pF	F = 1 MHz, V <sub>IN-OUT</sub> = 1 kV	1
Rise Time (Phototransistor Operation)	-X01	t <sub>r</sub>		20	μs	V <sub>CC</sub> = 10 V, I <sub>F</sub> = 10 mA, R <sub>L</sub> = 100 Ω	
or	-X02	or		25			
Fall Time	-X03	t <sub>f</sub>		25			

#### NOTES:

- These parameters are measured between all phototransistor leads shorted together and with both input diode leads shorted together.
- This parameter must be measured using pulse techniques. t<sub>w</sub> = 100 μs, duty cycle ≤ 1%.

### RECOMMENDED OPERATING CONDITIONS:

PARAMETER	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level	I <sub>FL</sub>	0	100	μA
Input Current, High Level	I <sub>FH</sub>	2	10	mA
Supply Voltage	V <sub>CC</sub>	5	35	V
Operating Temperature	T <sub>A</sub>	-55	125	°C

### SELECTION GUIDE

PART NUMBER	PART DESCRIPTION
66095-001	4N47 Optocoupler Commercial
66095-002	4N48 Optocoupler, Commercial
66095-003	4N49 Optocoupler, Commercial
66095-101	4N47 Optocoupler, Screened
66095-102	4N48 Optocoupler, Screened
66095-103	4N49 Optocoupler, Screened