66095 MINIATURE LCC OPTOCOUPLER

Mii
OPTOELECTRONIC PRODUCTS DIVISION

Features:

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

Applications:

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

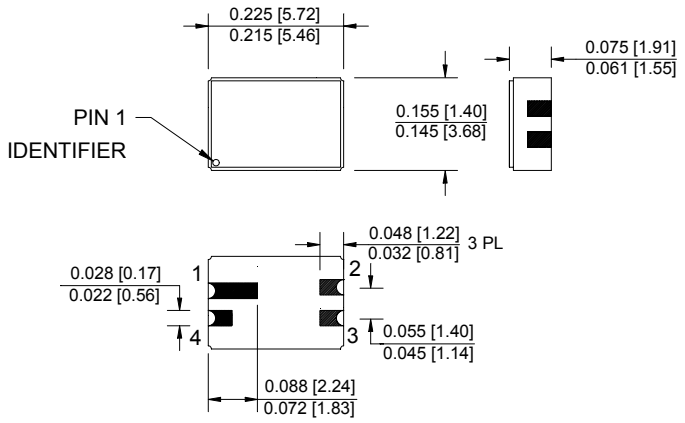
DESCRIPTION

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

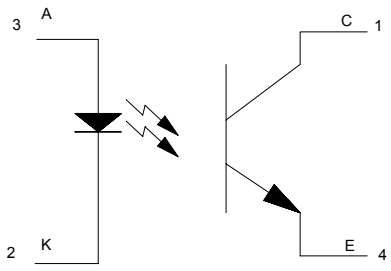
Input-to-Output Voltage ..... ± 1 KV
Collector-Emitter Voltage ..... 40 V
(This value applies with the input-diode current equal to zero)
Input Diode Reverse Voltage ..... 2 V
Input Diode Continuous Forward Current at (or below) 65°C Free-Air Temperature ..... 40 mA
(Derate linearly to 125°C free-air temperature at the rate of 0.67 mA/°C)
Continuous Collector Current ..... 50 mA
Peak Diode Current…..(This Value applies for tw ≤ 1μs, PRR < 300 pps) 1A
Continuous Transistor Power Dissipation at (or below) 25°C Free-Air Temperature 300mW
(Derate linearly to 125°C free-air temperature at the rate of 3 mW/°C)
Operating and Storage Free-Air Temperature Range ..... -55°C to +125°C
Lead Temperature 1.6mm (1/16 inch) from Case for 10 seconds ..... 245°C

Package Dimensions



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

Schematic Diagram



ELECTRICAL CHARACTERISTICS

T_A = 25°C unless otherwise specified.

PARAMETER		SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Input Diode Static Reverse Current		I_R			100	µA	V_R = 2V	
Input Diode Static Forward Voltage	-55°C	V_F	1.3	1.5	1.7	V		
	+25°C		1.3	1.5	1.7	V	I_F = 10mA	
	+100°C		1.3	1.5	1.7	V		

OUTPUT TRANSISTOR

T_A = 25°C unless otherwise specified.

Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	40			V	I_C = 1mA, I_F = 0	

COUPLED CHARACTERISTICS

T_A = 25°C unless otherwise specified.

On State Collector Current	-XX1		0.5		-			
T_a = +25°C	-XX2	$I_{C(ON)}$	1		5	mA	V_{CE} = 5V, I_F = 1mA	
	-XX3		2		10			
On State Collector Current	-XX1		0.7					
T_a = -55°C	-XX2	$I_{C(ON)}$	1.4			mA	V_{CE} = 5V, I_F = 2mA	
	-XX3		2.8					
On State Collector Current	-XX1		0.5					
T_a = +100°C	-XX2	$I_{C(ON)}$	1.0			mA	V_{CE} = 5V, I_F = 2mA	2
	-XX3		2.0					
Off State Collector Current		$I_{C(OFF)}$			100	nA	V_{CE} = 20V, I_F = 0mA	
Off State Collector Current, T_a = 100°C		$I_{C(OFF)}$			100	µA	V_{CE} = 20V, I_F = 0mA	
Collector-Emitter Saturation Voltage	-X01	$V_{CE(SAT)}$			0.3	V	I_F = 2mA, I_C = 0.5mA	
	-X02	$V_{CE(SAT)}$			0.3	V	I_F = 2mA, I_C = 1mA	
	-X03	$V_{CE(SAT)}$			0.3	V	I_F = 2mA, I_C = 2mA	
Input to Output Resistance		R_{IO}	10^{11}			Ω	V_{IN-OUT} = 1kV	1
Input to Output Capacitance		C_{IO}		2.5	5	pF	F = 1MHz, V_{IN-OUT} = 0	1
Rise Time (Phototransistor Operation)	-XX1	t_r		10	20			
or	-XX2	or		10	25	µs	V_{CC} = 10V, I_C = 5mA,	
Fall Time	-XX3	t_f		10	25		R_L = 100Ω	

NOTES:

1. These parameters are measured between all phototransistor leads shorted together and with both input diode leads shorted together.
2. This parameter must be measured using pulse techniques. t_w = 100 µs, duty cycle ≤1%.

RECOMMENDED OPERATING CONDITIONS:

PARAMETER	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level	I_{FL}	0	100	µA
Input Current, High Level	I_{FH}	1	2	mA
Supply Voltage	V_{CC}	5.0	20	V
Operating Temperature	T_A	-55	125	°C