

66099-4XX

**HIGH VOLTAGE
RADIATION TOLERANT OPTOCOUPLER**

Mii

**OPTOELECTRONIC PRODUCTS
DIVISION**

Rev A 9/25/02

Features:

- Designed to meet or exceed MIL-PRF-19500 radiation requirements
- High Current Transfer Ratio - 200% typical
- 1kVdc electrical input to output isolation
- Base lead provided for conventional transistor biasing
- 150 V Breakdown voltage

Applications:

- Eliminate ground loops
- Level shifting
- Line receiver
- Switching power supplies
- Motor control

DESCRIPTION

The **66099-4XX** optocoupler consists of a 660 nm GaAlAs LED optically coupled to a high voltage photodiode driving a high voltage transistor mounted in a hermetic TO-5 package. This configuration has proven to be highly tolerant to both proton and total dose radiation.

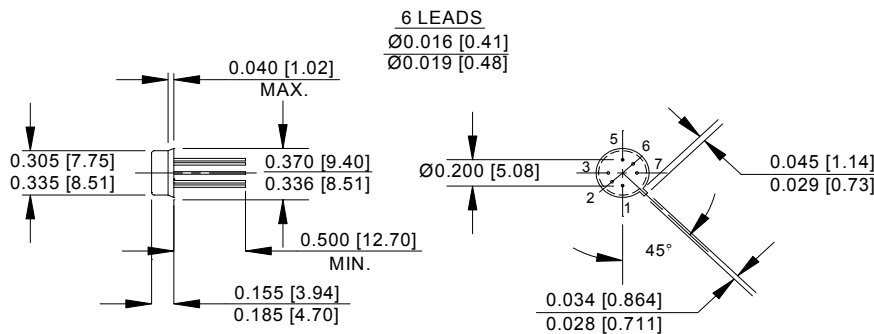
ABSOLUTE MAXIMUM RATINGS

Storage Temperature.....	-65°C to +150°C
Operating Free-Air Temperature.....	-55°C to +100°C
Lead Solder Temperature (1/16" (1.6mm) from case for 5 seconds).....	240°C
Input Diode Forward DC Current.....	40mA
Input Power Dissipation (see Note 1).....	80mW
Reverse Input Voltage.....	3V
Collector-Base Voltage.....	150V
Collector-Emitter Voltage.....	150V
Emitter-Base Voltage.....	6V
Continuous Collector Current.....	300mA
Continuous Transistor Power Dissipation (see Note 2).....	300mW

Notes:

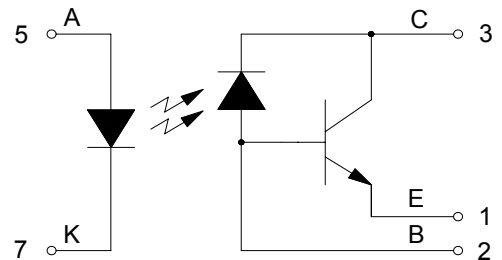
1. Derate linearly 0.80 mW/°C above 25°C.
2. Derate linearly 3.0 mW/°C above 25°C.

Package Dimensions



NOTE: ALL LINEAR DIMENSIONS ARE IN INCHES (MILLIMETERS)

Schematic Diagram



66099-4XX

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Rev A 9/25/02

ELECTRICAL CHARACTERISTICS

T_A = 25°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode Static Reverse Current	I _R			100	μA	V _R = 2V
Input Diode Static Forward Voltage	V _F	0.8		2	V	I _F = 10mA

OUTPUT TRANSISTOR CHARACTERISTICS

T_A = 25°C unless otherwise noted

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Collector-Base Breakdown Voltage	V _{(BR)CBO}	150			V	I _C = 100μA, I _B = 0, I _F = 0
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	150			V	I _C = 1mA, I _B = 0, I _F = 0
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	4			V	I _C = 0mA, I _E = 100μA, I _F = 0
Collector-Emitter Cutoff Current	I _{CEO}			100	nA	V _{CE} = 20V

COUPLED CHARACTERISTICS

T_A = 25°C unless otherwise noted

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Current Transfer Ratio	CTR	100			%	V _{CE} = 1V, I _F = 10mA
Collector-Emitter Saturation Voltage	V _{CE(SAT)}			0.3	V	I _F = 20mA, I _C = 10mA
Input-Output Isolation Current	I _{ISO}			100	nA	V _{I-O} = 1000V
Rise Time	t _r			20	μs	V _{CE} = 10V, I _F = 10mA, R _L = 100Ω
Fall Time	t _f			20	μs	V _{CE} = 10V, I _F = 10mA, R _L = 100Ω

RECOMMENDED OPERATING CONDITIONS:

PARAMETER	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level	I _{FL}	0	10	μA
Input Current, High Level	I _{FH}	1	20	mA
Operating Temperature	T _A	-55	100	°C

ORDERING INFORMATION:

PART NUMBER	DESCRIPTION
66099-401	Radiation Tolerant, High Voltage Optocoupler, Commercial
66099-415	Radiation Tolerant, High Voltage Optocoupler, Screened