

66099-4XX HIGH VOLTAGE RADIATION TOLERANT OPTOCOUPLER	Mii OPTOELECTRONIC PRODUCTS DIVISION
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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

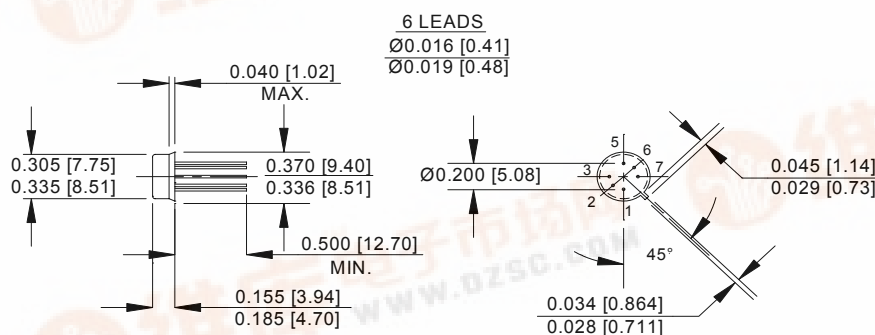
The **66099-4XX** optocoupler consists of a 660 nm GaAlAs LED optically coupled to a high voltage photodiode driving a high voltage transistor mounted in a hermetic TO-5 package. This configuration has proven to be highly tolerant to both proton and total dose radiation.

ABSOLUTE MAXIMUM RATINGS

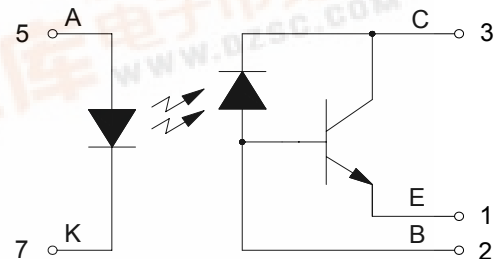
Storage Temperature.....	-65°C to +150°C
Operating Free-Air Temperature Range.....	-55°C to +100°C
Lead Solder Temperature (1/16" (1.6mm) from case for 5 seconds).....	240°C
Input Diode Forward DC Current.....	40mA
Input Power Dissipation (see Note 1).....	80mW
Reverse Input Voltage.....	3V
Collector-Base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

NOTE: ALL LINEAR DIMENSIONS ARE IN INCHES (MILLIMETERS)



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HIGH VOLTAGE RADIATION TOLERANT OPTOCOUPLER

ELECTRICAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode Static Reverse Current	I_R			100	μA	$V_R = 2\text{V}$
Input Diode Static Forward Voltage	V_F	0.8		2	V	$I_F = 10\text{mA}$

OUTPUT TRANSISTOR CHARACTERISTICS

$T_A = 25^\circ\text{C}$ unless otherwise noted

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	150			V	$I_C = 100\mu\text{A}$, $I_B = 0$, $I_F = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	150			V	$I_C = 1\text{mA}$, $I_B = 0$, $I_F = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	4			V	$I_C = 0\text{mA}$, $I_E = 100\mu\text{A}$, $I_F = 0$
Collector-Emitter Cutoff Current	I_{CEO}			100	nA	$V_{CE} = 20\text{V}$

COUPLED CHARACTERISTICS

$T_A = 25^\circ\text{C}$ unless otherwise noted

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Current Transfer Ratio	CTR	100			%	$V_{CE} = 1\text{V}$, $I_F = 10\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.3	V	$I_F = 20\text{mA}$, $I_C = 10\text{mA}$
Input-Output Isolation Current	I_{ISO}			100	nA	$V_{I-O} = 1000\text{V}$
Rise Time	t_r			20	μs	$V_{CE} = 10\text{V}$, $I_F = 10\text{mA}$, $R_L = 100\Omega$
Fall Time	t_f			20	μs	$V_{CE} = 10\text{V}$, $I_F = 10\text{mA}$, $R_L = 100\Omega$

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	$^\circ\text{C}$

ORDERING INFORMATION:

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