

**66179**

**GULL WING HERMETICALLY SEALED,  
SINGLE CHANNEL OPTOCOUPLER  
(Electrical Equivalent To 66099)**



01/23/2007

**Features:**

- Current transfer ratio: 150% typical
- 1000 Vdc isolation test voltage
- Base lead provided for conventional transistor biasing
- Low power consumption
- High radiation immunity

**Applications:**

- Military and Space
- High reliability systems
- Voltage Level Shifting
- Isolated Receiver Input
- Communication systems

**DESCRIPTION**

Radiation tests performed on the 66099 optocoupler have shown that the electrical performance of the device after irradiation is an order of magnitude better than the 4N49 optocouplers. The **66179** has the same components and layout in a 10 pin, hermetically sealed gull wing package. Figures 1 and 2 from the 66099 data sheet illustrate the radiation performance of the device.

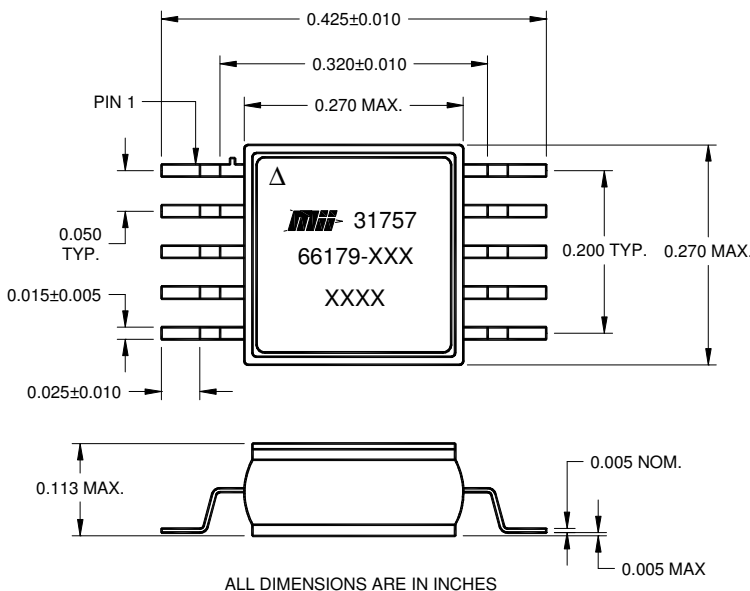
**ABSOLUTE MAXIMUM RATINGS** ( $t_a = 25^\circ\text{C}$  unless otherwise noted)

Input to Output Isolation Voltage (Note 1) .....	1 kVdc
Peak Forward Input Current .....	40 mA
Reverse Input Voltage .....	2 V
Input Power Dissipation (Note 2) .....	80 mW
Continuous Collector Current .....	50 mA
Collector-Emitter Voltage .....	40 V
Emitter-Base Voltage .....	4 V
Collector-Base Voltage .....	40 V
Power Dissipation (Note 3) .....	300 mW
Storage Temperature .....	-65°C to +125°C
Operating Free-Air Temperature .....	-55°C to +100°C
Lead Solder Temperature (5 seconds, 1/16" from case) .....	240°C

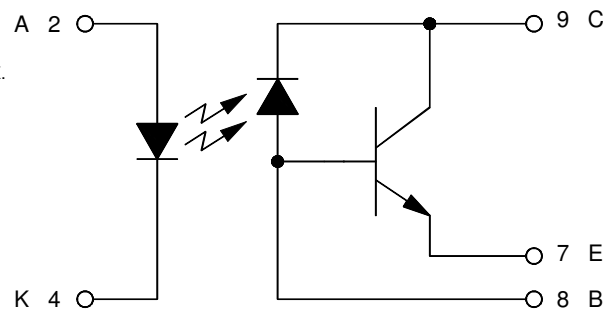
**Notes:**

1. Measured with input diode leads shorted together and output leads shorted together.
2. Derate linearly 1.06 mW/°C above 25°C.
3. Derate linearly 4.0 mW/°C above 25°C.

**Package Dimensions**



**Schematic Diagram**



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(Electrical Equivalent To 66099)

**ELECTRICAL CHARACTERISTICS**  
**INPUT DIODE CHARACTERISTICS**

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode Static Reverse Current	I <sub>R</sub>			1	μA	V <sub>R</sub> = 3 V
Input Diode Static Forward Voltage	V <sub>F</sub>	0.8		2	V	I <sub>F</sub> = 10 mA

**OUTPUT TRANSISTOR CHARACTERISTICS**

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	40			V	I <sub>C</sub> = 100 μA, I <sub>F</sub> = 0
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-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	4			V	I <sub>C</sub> = 0 mA, I <sub>E</sub> = 100 μA, I <sub>F</sub> = 0
Collector-Emitter Cutoff Current	I <sub>CEO</sub>			100	nA	V <sub>CE</sub> = 20 V

**COUPLED CHARACTERISTICS**

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Current Transfer Ratio	CTR	100			%	V <sub>CE</sub> = 1 V, I <sub>F</sub> = 10 mA
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>			0.3	V	I <sub>F</sub> = 20 mA, I <sub>C</sub> = 10 mA
Input-Output Isolation Current	I <sub>ISO</sub>			100	nA	V <sub>I-O</sub> = 1000 V
Rise Time	t <sub>r</sub>			20	μs	V <sub>CC</sub> = 10 V, I <sub>F</sub> = 10 mA, R <sub>L</sub> = 100 Ω
Fall Time	t <sub>f</sub>			20	μs	V <sub>CC</sub> = 10 V, I <sub>F</sub> = 10 mA, R <sub>L</sub> = 100 Ω

**RECOMMENDED OPERATING CONDITIONS:**

PARAMETERS	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level	I <sub>FL</sub>	0	100	μA
Input Current, High Level	I <sub>FH</sub>	10	20	mA
Supply Voltage	V <sub>CC</sub>	5.0	20	V
Operating Temperature	T <sub>A</sub>	-55	+100	°C

**SELECTION GUIDE**

PART NUMBER	PART DESCRIPTION
66179-000	Mil-temp (-55° to +100°C) with 100% device screening
66179-002	Military operating range (-55° to +100°C)
66179-003	Commercial (0° to 70°C)
66179-004	Extended temperature range (-40° to +85°C)