

**66179**

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

**Mii**  
OPTOELECTRONIC PRODUCTS  
DIVISION

REVISION B 10/30/02

**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.

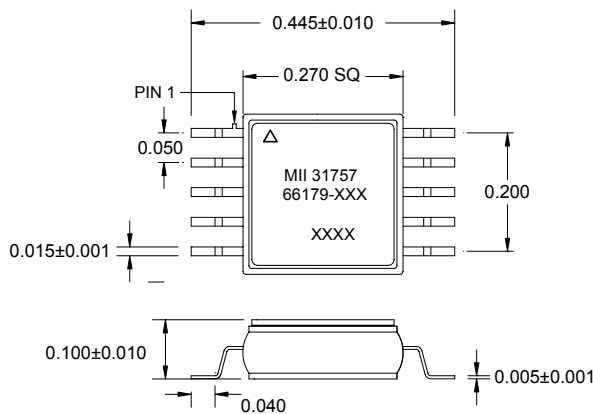
**ABSOLUTE MAXIMUM RATINGS** ( $t_a = 25^\circ\text{C}$  unless otherwise noted)

Storage Temperature.....	-65°C to +125°C
Operating Free-Air Temperature Range .....	-55°C to +100°C
Lead Solder Temperature (1/16in (1.6mm) from case for 5 seconds) .....	240°C
Input to Output Isolation Voltage.....(see Note 1) .....	1kVdc
Peak Forward Input Current .....	40mA
Reverse Input Voltage .....	2V
Input Power Dissipation .....	80mW (2)
Continuous Collector Current .....	50mA
Collector-Emitter Voltage.....	40V
Emitter-Collector Voltage.....	4V
Collector-Base Voltage .....	40V
Power Dissipation.....(see Note 3) .....	300mW

**Notes:**

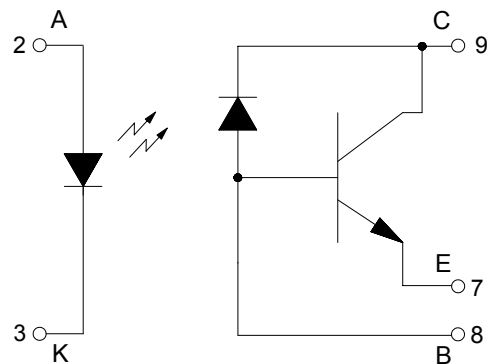
1. Measured with input diode leads shorted together and output leads shorted together.
2. Derate linearly 0.80mW/°C above 25°C.
3. Derate linearly 1.07mW/°C above 25°C.

**Package Dimensions**



NOTE:  
ALL TOLERANCES ARE +/- .005 UNLESS SPECIFIED.  
ALL DIMENSIONS ARE IN INCHES

**Schematic Diagram**



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**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	$\mu\text{A}$	$V_R = 2\text{V}$
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	$V_{(BR)CBO}$	40			V	$I_C = 100\mu\text{A}, I_F = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40			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	$\mu\text{s}$	$V_{CC} = 10\text{V}, I_F = 10\text{mA}, R_L = 100\Omega$
Fall Time	$t_f$			20	$\mu\text{s}$	$V_{CC} = 10\text{V}, I_F = 10\text{mA}, R_L = 100\Omega$

**RECOMMENDED OPERATING CONDITIONS:**

PARAMETERS	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level	$I_{FL}$	0	100	$\mu\text{A}$
Input Current, High Level	$I_{FH}$	10	20	mA
Supply Voltage	$V_{CC}$	5.0	20	V
Operating Temperature	$T_A$	-55	+100	$^\circ\text{C}$

**SELECTION GUIDE**

PART NUMBER	PART DESCRIPTION
66179-000	Single Channel optocoupler, mil-temp (-55° to +100°C) with 100% device screening
66179-002	Single Channel optocoupler, military operating range (-55° to +100°C)
66179-003	Single Channel optocoupler, commercial (0° to 70°C)
66179-004	Single Channel optocoupler, extended temperature range (-40° to +85°C)