66192 GULL WING RADIATION TOLERANT HERMETICALLY SEALED, SINGLE CHANNEL OPTOCOUPLER (Electrical Equivalent To 66099)

MICROPAC
OPTOELECTRONIC PRODUCTS DIVISION

09/23/03

Features:

- Current transfer ratio: 150% typical
- 1000 Vdc isolation test voltage
- Base lead provided for conventional transistor biasing
- Low power consumption
- 150V BV_{CEO}
- Radiation tolerant

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 ***66192*** has the same components and layout as the 66099 devices in a 10 pin, hermetically sealed gull wing package.

ABSOLUTE MAXIMUM RATINGS (t_a =25°C unless otherwise noted)

- **Input Diode.**

Continuous Forward Input Current (Note 4) 40mA
Reverse Input Voltage 3V
Input Power Dissipation (Note 2) 80mW

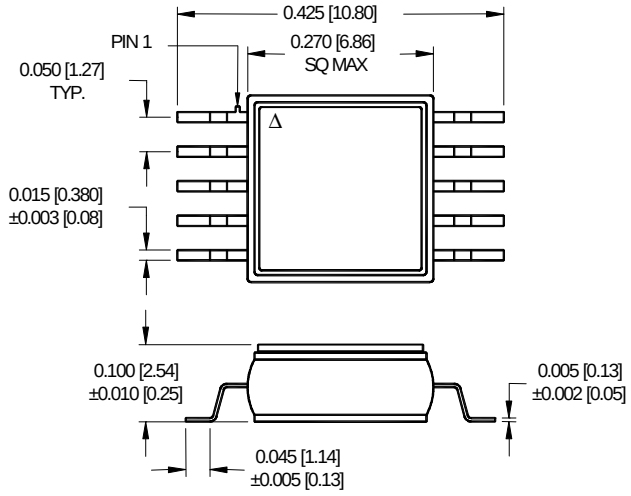
- **Output Photodetector**

Continuous Collector Current 50mA
Collector-Emitter Voltage 150V
Emitter-Collector Voltage 4V
Collector-Base Voltage 150V
Power Dissipation (Note 3) 300mW
Input to Output Isolation Voltage (Note 1) 1kVdc
Storage Temperature ..... -65°C to +125°C
Operating Free-Air Temperature Range ..... -55°C to +100°C
Lead Solder Temperature (10 seconds, 1/16" from case) ..... 240°C

Notes:

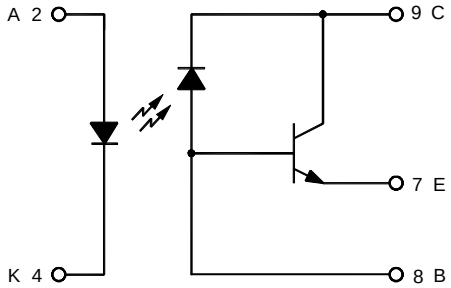
1. Measured with input diode leads shorted together and output leads shorted together.
2. Derate linearly 1.06 mW/°C above 25°C.
3. Derate linearly 4.0 mW/°C above 25°C.
4. Derate linearly 0.53 mW/°C above 25°C.

Package Dimensions



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

Schematic Diagram



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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 = 3V
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_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_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_{CC} = 10V, I_F = 10mA, R_L = 100Ω
Fall Time	t_f			20	µs	V_{CC} = 10V, I_F = 10mA, R_L = 100Ω

RECOMMENDED OPERATING CONDITIONS:

PARAMETERS	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level	I_{FL}	0	100	µA
Input Current, High Level	I_{FH}	10	20	mA
Supply Voltage	V_{CC}	5.0	100	V
Operating Temperature	T_A	-55	+100	°C

SELECTION GUIDE

PART NUMBER	PART DESCRIPTION
66192-000	Screened
66192-002	Military operating range (-55° to +100°C)
66192-003	Commercial
66192-004	Extended temperature range (-40° to +85°C)