66212

PROTON RADIATION TOLERANT 4 PIN LCC OPTOCOUPLER WITH 850 nm LED

03/21/06

Features:

- Hermetically Sealed
- Designed to be proton radiation tolerant
- High Current Transfer Ratio - 200% minimum
- 1000Vdc electrical input to output isolation

Applications:

- Ground loop isolation
- Level shifting
- Line receiver
- Switching power supplies
- Motor control

DESCRIPTION

The ***66212*** optocoupler consists of an 850 nm GaAlAs LED optically coupled to a phototransistor detector all mounted in a hermetic 4 pin LCC package. This configuration has proven to be highly tolerant to proton radiation. The 850 nm LED has proven to be more tolerant of operating temperatures over 100°C than the more commonly used 660nm LED.

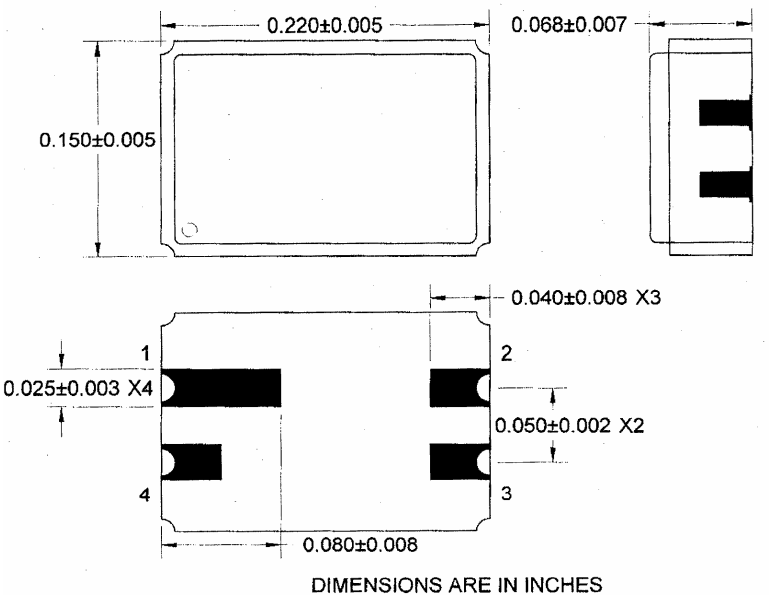
ABSOLUTE MAXIMUM RATINGS

Input Diode Forward DC Current	50mA
Input Power Dissipation (see Note 1)	360mW
Reverse Input Voltage	2V
Collector-Emitter Voltage	50V
Continuous Collector Current	50mA
Continuous Transistor Power Dissipation (see Note 2)	300mW
Storage Temperature	-65°C to +150°C
Operating Free-Air Temperature Range	-55°C to +125°C
Lead Solder Temperature (1/16" (1.6mm) from case for 5 seconds)	260°C

Notes:

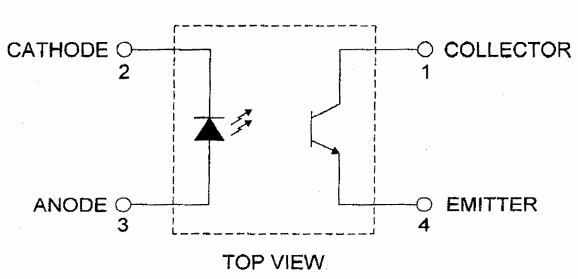
1. Derate linearly from 25°C to 125°C @ 3.6 mW/°C
2. Derate linearly from 25°C to 125°C @ 3.0 mW/°C

Package Dimensions



DIMENSIONS ARE IN INCHES

Schematic Diagram



TOP VIEW

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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 = 2V
Input Diode Static Forward Voltage	V_F	0.80		1.5	V	I_F = 10mA

OUTPUT TRANSISTOR CHARACTERISTICS

T_A = 25°C unless otherwise noted

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40			V	I_C = 1mA, I_F = 0
Collector-Emitter Dark Current	I_{CEO}			100	nA	V_{CE} = 20V, I_F = 0

COUPLED CHARACTERISTICS

T_A = 25°C unless otherwise noted

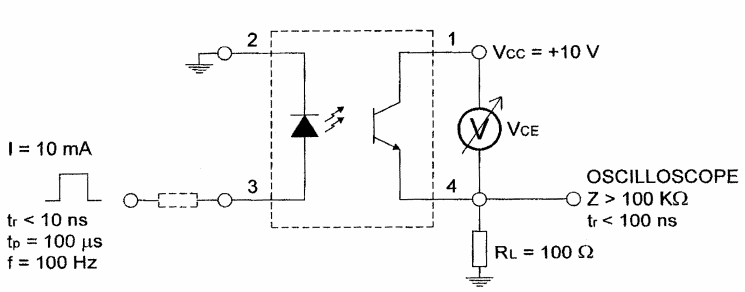
PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
On State Collector Current	$I_{C(ON1)}$	2.0			mA	V_{CE} = 1V, I_F = 1.0 mA
On State Collector Current	$I_{C(ON2)}$	40			mA	V_{CE} = 5V, I_F = 10.0 mA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.22	V	I_C = 10.0 mA, I_F = 20.0 mA
Emitter Collector Breakdown Voltage	$V_{BR\ ECO}$	5			V	I_E = 100 µA, I_F = 0 mA
Input-Output Isolation Voltage DC (Note 3)	V_{IN-OUT}	1000			V	T=5 sec
Rise Time (see Switching Time Test Circuit)	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

Note 3: Measurement with inputs shorted together and outputs shorted together

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	125	°C

Switching Time Circuit



ORDERING INFORMATION:

PART NUMBER	DESCRIPTION
66212-001	Commercial
66212-101	Screened