

66212**PROTON RADIATION TOLERANT 4 PIN LCC
OPTOCOUPLER WITH 850 nm LED****OPTOELECTRONIC PRODUCTS
DIVISION**

03/02/2011

Features:

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

Applications:

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

DESCRIPTION

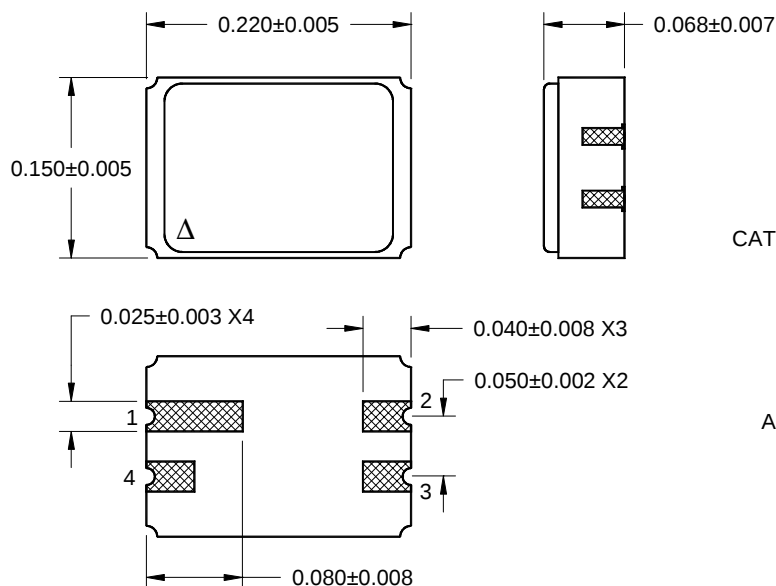
The **66212** optocoupler consists of an 850 nm GaAlAs LED optically coupled to a phototransistor detector all mounted in a hermetic 4 pin LCC package. This configuration has proven to be highly tolerant to proton radiation. The 850 nm LED has proven to be more tolerant of operating temperatures over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

ABSOLUTE MAXIMUM RATINGS

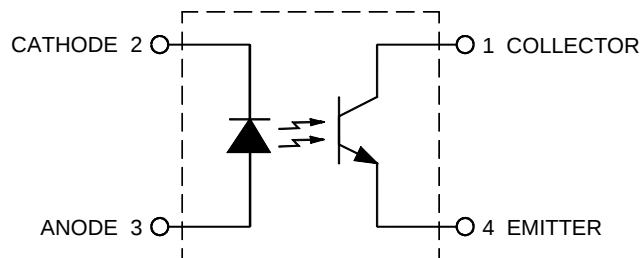
Input Diode Forward DC Current.....	50 mA
Input Power Dissipation (see Note 1).....	360 mW
Reverse Input Voltage	2 V
Collector-Emitter Voltage	50 V
Continuous Collector Current	50 mA
Continuous Transistor Power Dissipation (see Note 2)	300 mW
Storage Temperature.....	-65°C to +150°C
Operating Free-Air 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

ALL DIMENSIONS ARE IN INCHES

Schematic Diagram

66212

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PROTON RADIATION TOLERANT 4 PIN LCC OPTOCOUPLER WITH 850 nm LED

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	0.80		1.5	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-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40			V	$I_C = 1\text{ mA}$, $I_F = 0$
Collector-Emitter Dark Current	I_{CEO}			100	nA	$V_{CE} = 20\text{ V}$, $I_F = 0$

COUPLED CHARACTERISTICS

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

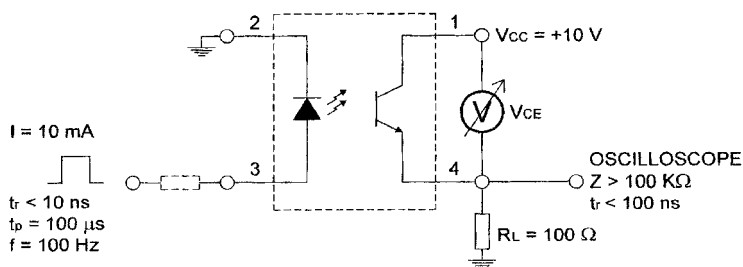
PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
On State Collector Current	$I_{C(ON1)}$	2.0			mA	$V_{CE} = 1\text{ V}$, $I_F = 1.0\text{ mA}$
On State Collector Current	$I_{C(ON2)}$	40			mA	$V_{CE} = 5\text{ V}$, $I_F = 10.0\text{ mA}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.22	V	$I_C = 10.0\text{ mA}$, $I_F = 20.0\text{ mA}$
Emitter Collector Breakdown Voltage	$V_{BR ECO}$	5			V	$I_E = 100\text{ }\mu\text{A}$, $I_F = 0\text{ mA}$
Input-Output Isolation Voltage DC (Note 3)	V_{IN-OUT}	1000			V	$T=5\text{ sec}$
Rise Time (see Switching Time Test Circuit)	t_r			20	μs	$V_{CC} = 10\text{ V}$, $I_F = 10\text{ mA}$, $R_L = 100\text{ }\Omega$
Fall Time	t_f			20	μs	$V_{CC} = 10\text{ V}$, $I_F = 10\text{ mA}$, $R_L = 100\text{ }\Omega$

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	$^\circ\text{C}$

Switching Time Circuit



ORDERING INFORMATION:

PART NUMBER	DESCRIPTION
66212-001	Commercial
66212-101	Commercial with Group A
66212-103	Screened to TX Level
66212-105	Screened to TXV Level
66212-300	Screened to Space Level