

**66270**

**GULL WING PROTON RADIATION TOLERANT  
HERMETICALLY SEALED, DUAL CHANNEL OPTOCOUPLER**



09/17/2012

**Features:**

- Current transfer ratio: 100% typical
- 1000 Vdc isolation test voltage
- Dual channel
- Low power consumption
- Proton radiation tolerant

**Applications:**

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

**DESCRIPTION**

The **66270** optocoupler consists of two 850 nm GaAlAs LEDs optically coupled to two silicon phototransistors mounted in a hermetic 10 pin gull wing package. Test studies have shown this LED to be even more radiation tolerant than the 660 nm LED typically used in radiation tolerant applications.

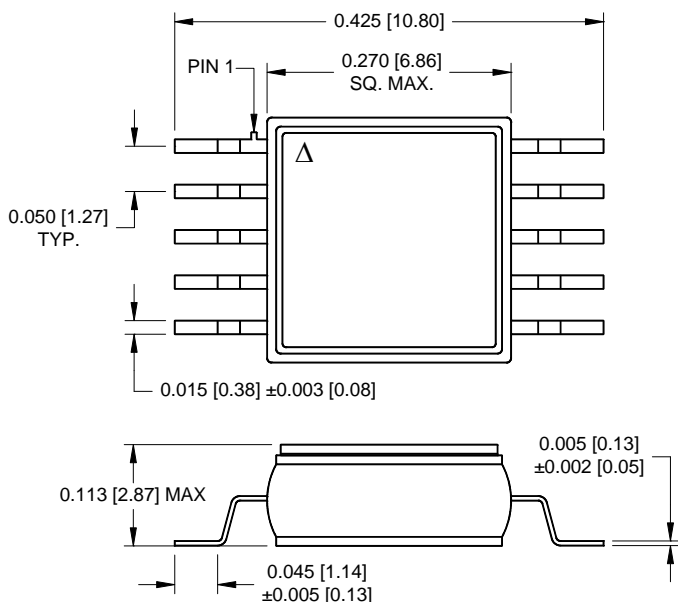
**ABSOLUTE MAXIMUM RATINGS** ( $t_A = 25^\circ\text{C}$  unless otherwise noted)

Input to Output Isolation Voltage (Note 1) .....	1 kVdc
Continuous Forward Input Current (Note 4) .....	40 mA
Reverse Input Voltage .....	3 V
Input Power Dissipation (Note 2) .....	80 mW
Continuous Collector Current .....	50 mA
Collector-Emitter Voltage .....	60 V
Emitter-Collector Voltage .....	7 V
Power Dissipation (Note 3) .....	300 mW
Storage Temperature .....	-65°C to +125°C
Operating Free-Air Temperature Range .....	-55°C to +125°C
Lead Solder Temperature (10 seconds) .....	240°C

**Notes:**

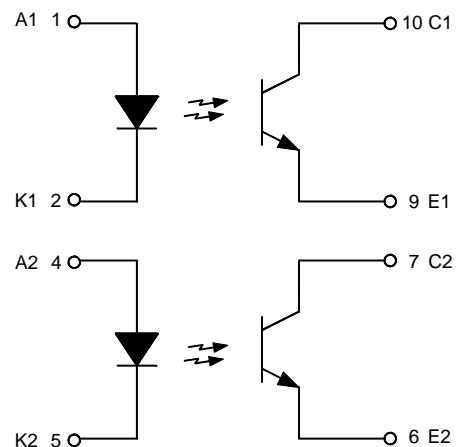
1. Measured with input diode leads shorted together and output leads shorted together.
2. Derate linearly to 125°C at 0.80 mW/°C above 25°C.
3. Derate linearly to 125°C at 3.0 mW/°C above 25°C.
4. Derate linearly to 125°C at 0.67 mA/°C above 25°C.

**Package Dimensions**



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

**Schematic Diagram**



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**ELECTRICAL CHARACTERISTICS** (per channel) $T_A = 25^\circ\text{C}$  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		1.5	V	$I_F = 10\text{ mA}$

**OUTPUT TRANSISTOR CHARACTERISTICS** (per channel) $T_A = 25^\circ\text{C}$  unless otherwise noted

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40			V	$I_C = 1\text{ mA}, I_B = 0, I_F = 0$
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5			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			%	$V_{CE} = 5\text{ V}, I_F = 1\text{ mA}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.3	V	$I_F = 2.0\text{ mA}, I_C = 1.0\text{ mA}$
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	$I_{FH}$	1	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
66270-001	Commercial
66270-101	Screened to JTX level
66270-301	Screened to space level