66270

GULL WING PROTON RADIATION TOLERANT HERMETICALLY SEALED, DUAL CHANNEL OPTOCOUPLER

OPTOELECTRONIC PRODUCTS DIVISION

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.

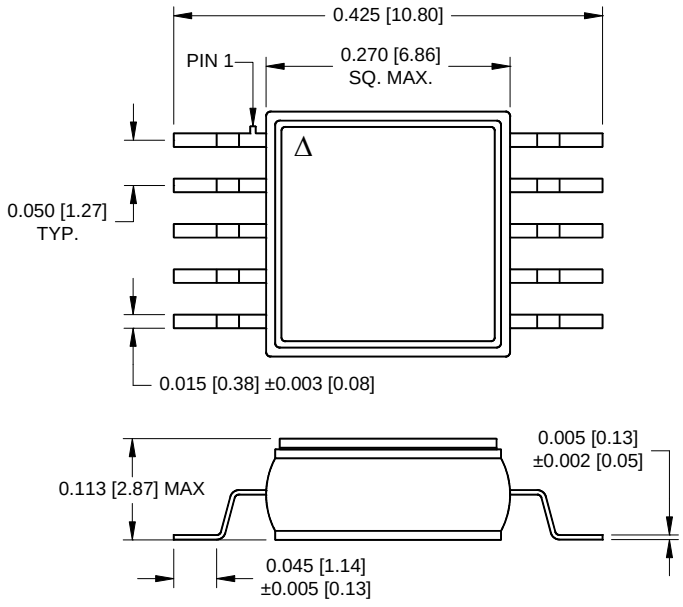
ABSOLUTE MAXIMUM RATINGS (t_A =25°C unless otherwise noted)

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:

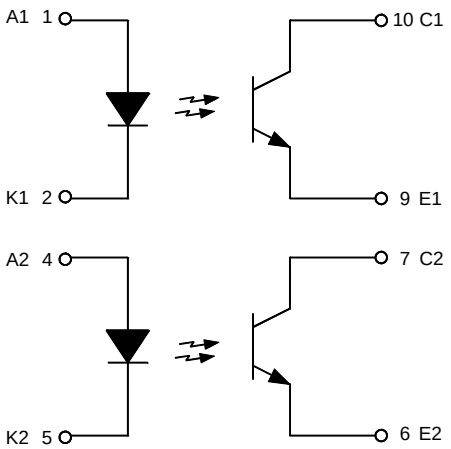
1. Measured with input diode leads shorted together and output leads shorted together.
2. Derate linearly to 125°C at 0.80 mW/°C above 25°C.
3. Derate linearly to 125°C at 3.0 mW/°C above 25°C.
4. Derate linearly to 125°C at 0.67 mA/°C above 25°C.

Package Dimensions



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

Schematic Diagram



ELECTRICAL CHARACTERISTICS (per channel)

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 = 2 V
Input Diode Static Forward Voltage	V_F	0.8		1.5	V	I_F = 10 mA

OUTPUT TRANSISTOR CHARACTERISTICS (per channel)

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 = 1 mA, I_B = 0, I_F = 0
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5			V	I_C = 0 mA, I_E = 100 µA, I_F = 0
Collector-Emitter Cutoff Current	I_{CEO}			100	nA	V_{CE} = 20 V

COUPLED CHARACTERISTICS

T_A = 25°C unless otherwise noted

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Current Transfer Ratio	CTR	100			%	V_{CE} = 5 V, I_F = 1 mA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.3	V	I_F = 2.0 mA, I_C = 1.0 mA
Input-Output Isolation Current	I_{ISO}			100	nA	V_{I-O} = 1000 V
Rise Time	t_r			20	µs	V_{CC} = 10 V, I_F = 10 mA, R_L = 100 Ω
Fall Time	t_f			20	µs	V_{CC} = 10 V, I_F = 10 mA, R_L = 100 Ω

RECOMMENDED OPERATING CONDITIONS:

PARAMETERS	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level	I_{FL}	0	100	µA
Input Current, High Level	I_{FH}	1	20	mA
Supply Voltage	V_{CC}	5.0	20	V
Operating Temperature	T_A	-55	+100	°C

SELECTION GUIDE

PART NUMBER	PART DESCRIPTION
66270-001	Commercial
66270-101	Screened to JTX level
66270-301	Screened to space level