66342

PROTON RADIATION TOLERANT
FOUR CHANNEL, HERMETIC 16 PIN DUAL-IN-LINE, OPTICALLY COUPLED ISOLATOR

OPTOELECTRONIC PRODUCTS DIVISION

06/09/2011

Features:
- Proton Radiation Tolerant
- High Reliability
- Stability over wide temperature range
- +1 kVdc electrical isolation
- Screening available

Applications:
- Eliminate ground loops
- Level shifting
- Line receiver
- Switching power supplies
- Motor control

DESCRIPTION

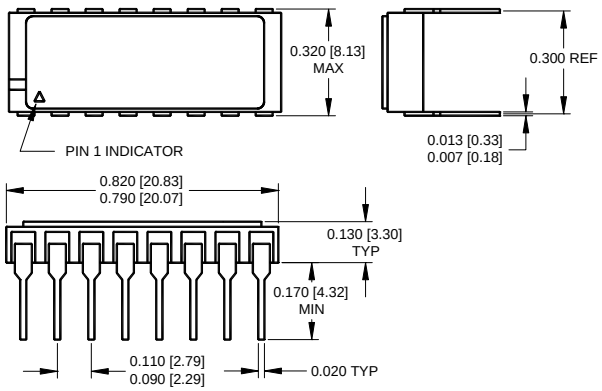
The Mii ***66342*** optically coupled isolator consists of four 850 nm GaAlAs LEDs and four silicon phototransistors mounted and coupled in a 16 pin dual-in-line package. Test studies have shown this LED to be even more radiation tolerant than the 660 nm LED typically used in radiation tolerant applications. Each unit contains four channels. These solid state couplers are ideal for designs where board space and device weight are important design considerations.

ABSOLUTE MAXIMUM RATINGS

Input-to-output Voltage (Note 1)	±1 kV
Collector-Emitter Voltage	60 V
Emitter-Collector Voltage	7 V
Input Diode Reverse Voltage	3 V
Input Diode Continuous Forward Current at (or below) 25℃ Free-Air Temperature (Note 2)	40 mA
Input Diode Power Dissipation	60 mW
Continuous Collector Current	50 mA
Continuous Transistor Power Dissipation at (or below) 25℃ Free-Air Temperature (Note 3)	300 mW
Storage Temperature	-65℃ to +150℃
Operating Free-Air Temperature Range	-55℃ to +125℃
Lead Solder Temperature (10 seconds, 1/16" from case)	240℃

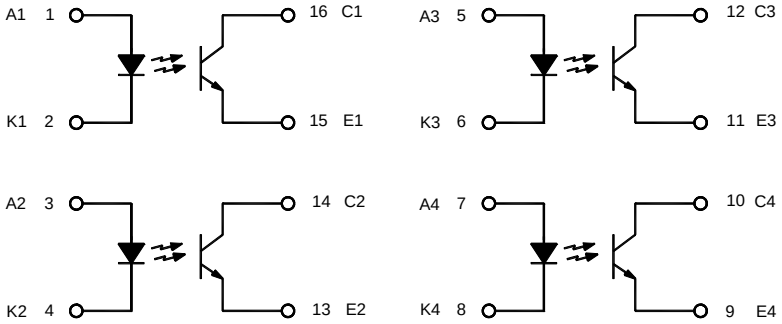
Notes:
1. Measured with Inputs shorted together and outputs shorted together.
2. Derate linearly to 125℃ free-air temperature at the rate of 0.40 mA/℃ above 65℃.
3. Derate linearly to 125℃ free-air temperature at the rate of 3 mW/℃.

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	NOTE
Input Diode Static Reverse Current	I_R			100	µA	V_R = 2 V	1
Input Diode Forward Voltage -55°C +25°C +125°C	V_F	1.0 0.8 0.7		2.2 2.0 1.9	V	I_F = 10 mA	

OUTPUT TRANSISTOR

T_A = 25°C unless otherwise specified.

Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40			V	I_C = 1 mA, I_F = 0	
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	7			V	I_E = 100 µA, I_F = 0	

COUPLED CHARACTERISTICS

T_A = 25°C unless otherwise specified.

On State Collector Current T_a = +25°C	$I_{C(ON)}$	1.0			mA	V_{CE} = 5 V, I_F = 1 mA	
On State Collector Current T_a = -55°C	$I_{C(ON)}$	1.4			mA	V_{CE} = 5 V, I_F = 2 mA	
On State Collector Current T_a = +125°C	$I_{C(ON)}$	1.0			mA	V_{CE} = 5 V, I_F = 2 mA	
Off State Collector Current	$I_{C(OFF)}$			100	nA	V_{CE} = 20 V, I_F = 0 mA	1
Off State Collector Current, T_a = +125°C	$I_{C(OFF)}$			100	µA	V_{CE} = 20 V, I_F = 0 mA	1
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.3	V	I_F = 2 mA, I_C = 1 mA	
Input - Output Current	I_{IO}			100	µA	I_{IO} = 1.2 kV	
Input to Output Resistance	R_{IO}	10^{11}			Ω	V_{IO} = 1 kV	2
Input to Output Capacitance	C_{IO}			5	pF	F = 1 MHz, V_{IO} = 0	
Rise Time or Fall Time	t_r or t_f		10	20	µs	V_{CC} = 10 V, I_F = 5 mA, R_L = 100Ω	

NOTES:

1. Parameter applies to all part numbers.
2. These parameters are measured between all phototransistor leads shorted together and with all input diode leads shorted together.

SELECTION GUIDE

PART NUMBER	PART DESCRIPTION
66342-001	Commercial
66342-101	Screened to JANTX Level
66342-105	Screened to JANTXV Level
66342-300	Screened to JANS Level