66296

PROTON RADIATION TOLERANT
QUAD CHANNEL, 20 PIN LCC,
TRANSISTOR OUTPUT OPTOCOUPLER

02/08/2013

Features:

- 850 nm Proton Radiation Tolerant LEDs
- High Reliability
- Base lead provided for conventional transistor biasing
- +1 kVdc electrical isolation
- Screening available

Applications:

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

DESCRIPTION

The Mii ***66296*** is a quad optocoupler, consisting of four 850 nm GaAlAs LEDs that have proven to be highly tolerant to proton radiation and four silicon phototransistors mounted and coupled in a miniature surface mount hermetic leadless chip carrier. Each unit contains four channels. These solid state couplers are ideal for designs where board space and device weight are important design considerations.

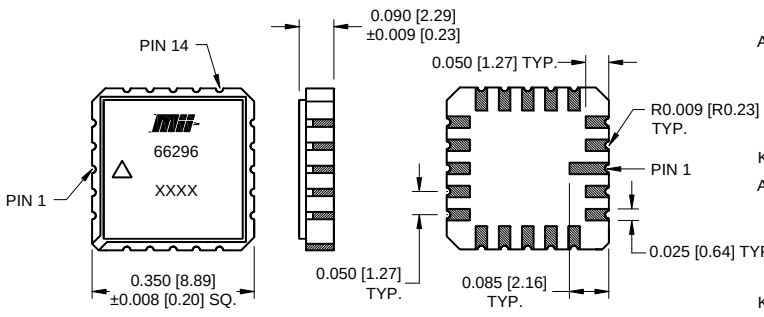
ABSOLUTE MAXIMUM RATINGS

Input-to-output Voltage (Note 1)	±1 kV
Collector-Base Voltage	45 V
Collector-Emitter Voltage	40 V
Emitter-Base Voltage	7 V
Input Diode Reverse Voltage	3 V
Input Diode Continuous Forward Current	50 mA
Input Diode Power Dissipation (Note 2)	80 mW
Continuous Collector Current	50 mA
Continuous Transistor Power Dissipation (Note 3)	300 mW
Storage Temperature	-65°C to +150°C
Operating Free-Air Temperature Range	-55°C to +125°C
Lead Solder Temperature (10 seconds max.)	240°C

Notes:

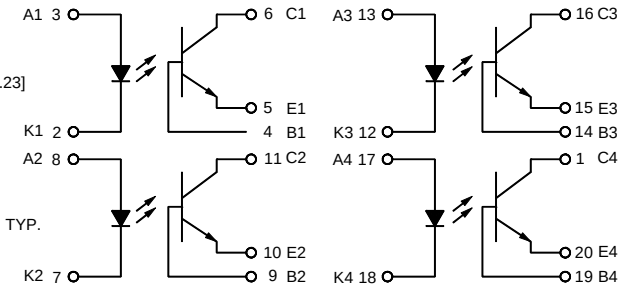
1. Measured with Inputs shorted together and outputs shorted together.
2. Derate linearly at the rate of 0.67 mW/°C above 65°C case.
3. Derate linearly at the rate of 2.3 mW/°C above 65°C case.

Package Dimensions



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

Schematic Diagram



MICROPAC INDUSTRIES, INC. OPTOELECTRONIC PRODUCTS DIVISION • 725 E.Walnut St., Garland, TX 75040 • (972)272-3571 • Fax (972)487-6918
www.micropac.com E-MAIL: OPTOSALES @ MICROPAC.COM

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			8	µA	V_R = 6 V	2
Input Diode Forward Voltage	-55°C	V_F	0.8		1.8	V	I_F = 10 mA	2
	+25°C		0.8		1.6			
	+100°C		0.8		1.4			

OUTPUT TRANSISTOR

T_A = 25°C unless otherwise specified.

Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	45			V	I_C = 100 µA, I_E = 0, I_F = 0	2
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40			V	I_C = 1 mA, I_B = 0, I_F = 0	2
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	7			V	I_C = 0 mA, I_E = 100 µA, I_F = 0	2

COUPLED CHARACTERISTICS

T_A = 25°C unless otherwise specified.

On State Collector Current T_a = +25°C	$I_{C(ON)}$	2.0			mA	V_{CE} = 5 V, I_B = 0, I_F = 1mA	2
On State Collector Current T_a = -55°C	$I_{C(ON)}$	2.0			mA	V_{CE} = 5 V, I_B = 0, I_F = 2 mA	2
On State Collector Current T_a = +100°C	$I_{C(ON)}$	2.0			mA	V_{CE} = 5 V, I_B = 0, I_F = 2 mA	2
Off State Collector Current	$I_{C(OFF)}$			100	nA	V_{CE} = 20 V, I_B = 0, I_F = 0 mA	2
Off State Collector Current, T_a = +100°C	$I_{C(OFF)}$			100	µA	V_{CE} = 20 V, I_B = 0, I_F = 0 mA	2
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.3	V	I_F = 2 mA, I_C = 2 mA, I_B = 0	2
Input to Output Current	I_{IO}			1.0	µA	V_{IN-OUT} = 1 kV	1
Input to Output Capacitance	C_{IO}			5	pF	F = 1 MHz, V_{IN-OUT} = 0	1
Rise Time or Fall Time	t_r or t_f		10	20	µs	V_{CC} = 10 V, I_F = 5 mA, R_L = 100Ω	2

NOTES:

1. These parameters are measured between all phototransistor leads shorted together and with both input diode leads shorted together.
2. Parameters apply to all four channels.

SELECTION GUIDE

PART NUMBER	PART DESCRIPTION
66296-001	Commercial
66296-101	Commercial with Group A
66296-103	Screened to TX Level
66296-105	Screened to TXV Level
66296-301	Screened to Space Level