

66296

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



08/14/2015

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

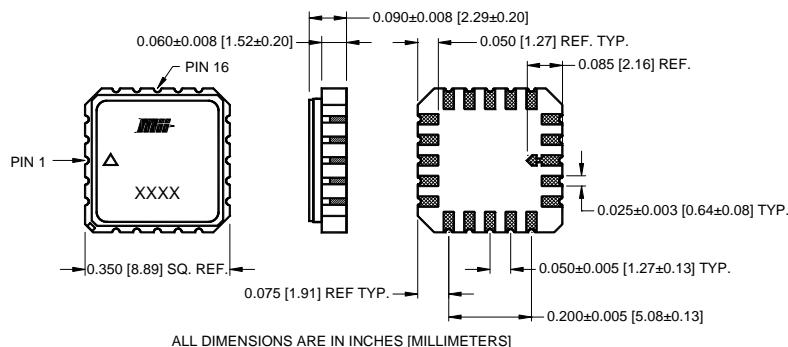
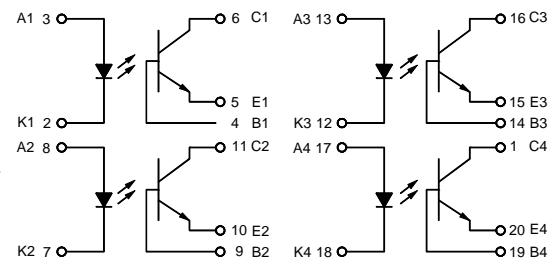
The Mii **66296** is a quad optocoupler, consisting of four 850 nm GaAlAs LEDs that have proven to be highly tolerant to proton radiation and four silicon phototransistors mounted and coupled in a miniature surface mount hermetic leadless chip carrier. Each unit contains four channels. These solid state 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**Schematic Diagram**

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Micropac reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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ELECTRICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Input Diode Static Reverse Current	I_R			8	μA	$V_R = 6\text{ V}$	2
Input Diode Forward Voltage -55°C +25°C +100°C	V_F	0.8 0.8 0.8		1.8 1.6 1.4	V	$I_F = 10\text{ mA}$	2

OUTPUT TRANSISTOR $T_A = 25^\circ\text{C}$ unless otherwise specified.

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

COUPLED CHARACTERISTICS $T_A = 25^\circ\text{C}$ unless otherwise specified.

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

NOTES:

- These parameters are measured between all phototransistor leads shorted together and with both input diode leads shorted together.
- 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

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