

**66291**

**GLOB TOP TRANSISTOR OUTPUT GULL WING  
DUAL CHANNEL OPTOCOUPLERS**



07/18/2006

**Features:**

- Low Input Current
- Glob Top Plastic Package
- SMT mounting Gull Wing Package
- Proton Radiation tolerant
- +1500V electrical isolation

**Applications:**

- Eliminate ground loops
- Level shifting
- Line receiver
- Switching circuits
- Monitor and Detection circuits

**DESCRIPTION**

The **66291** contains 2 proton tolerant LEDs optically coupled to 2 silicon planar phototransistors. The optocoupler is in a surface mount Glob Top molded plastic Gull Wing package with 0.050" lead spacing. The package eliminates the need for thru-hole mounting and is well suited for high density applications.

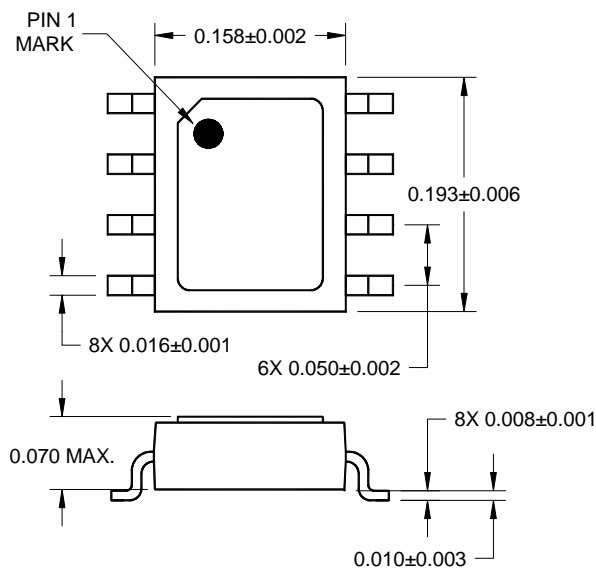
**ABSOLUTE MAXIMUM RATINGS**

Input to Output Voltage .....	1500 V
Emitter-Collector Voltage .....	7 V
Collector-Emitter Voltage (Value applies to emitter-base open-circuited & the input-diode equal to zero) .....	30 V
Reverse Input Voltage .....	6 V
Input Diode Continuous Forward Current at (or below) 65°C Free-Air Temperature (see note 1) .....	60 mA
Peak Forward Input Current (Value applies for $t_w \leq 1\mu s$ , PRR < 300 pps) .....	1 A
Continuous Collector Current .....	150 mA
Continuous Transistor Power Dissipation at (or below) 25°C Free-Air Temperature (see Note 2) .....	150 mW
Storage Temperature .....	-40°C to +125°C
Operating Free-Air Temperature Range.....	-40°C to +100°C
Lead Solder Temperature (10 seconds max.) .....	240°C

**Notes:**

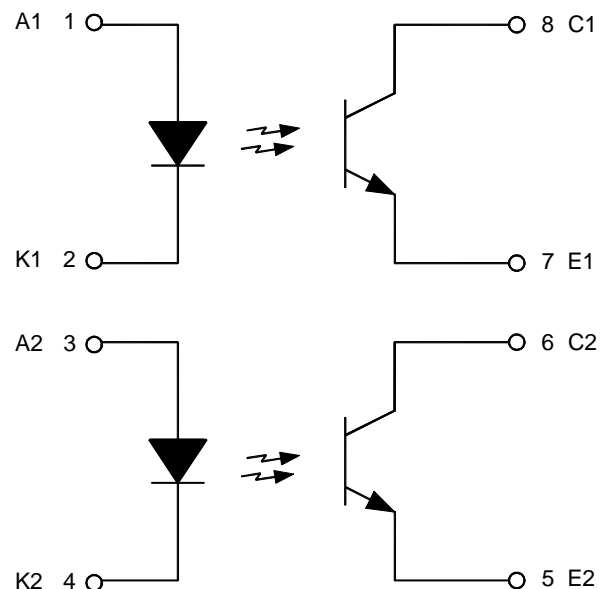
1. Derate linearly above +65°C free-air temperature at the rate of 1.15 mA/°C.
2. Derate linearly above +25°C free-air temperature at the rate of 1.76 mW/°C.

**Package Dimensions**



GULLWING 8 LEAD PACKAGE  
ALL DIMENSIONS ARE IN INCHES

**Schematic Diagram**



**ELECTRICAL CHARACTERISTICS**

T<sub>A</sub> = 25°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode Static Reverse Current	I <sub>R</sub>			100	μA	V <sub>R</sub> = 6V
Input Diode Static Forward Voltage	V <sub>F</sub>			1.3	V	I <sub>F</sub> = 1.0mA
Reverse Breakdown Voltage	B <sub>VR</sub>	5			V	I <sub>R</sub> = 10μA
Peak Wavelength	λ <sub>p</sub>		850		nm	I <sub>F</sub> = 1.0mA
Input Diode Capacitance	C <sub>IN</sub>		18		PF	V = 0V, f = 1MHz

**OUTPUT TRANSISTOR**

T<sub>A</sub> = 25°C unless otherwise specified.

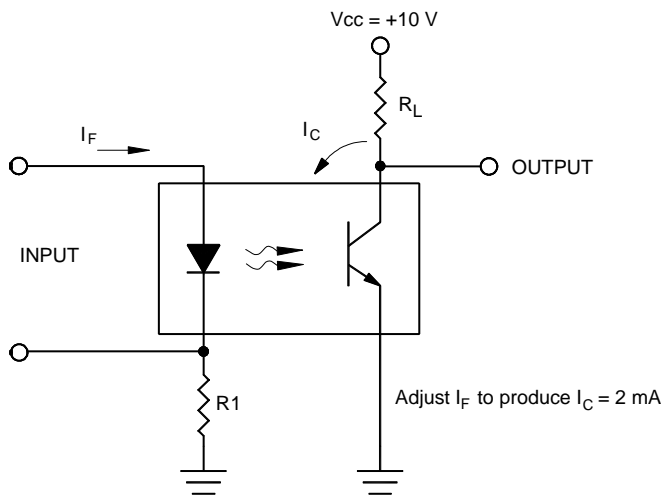
PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	30			V	I <sub>C</sub> = 1mA, I <sub>B</sub> = 0, I <sub>F</sub> = 0
Emitter-Collector Breakdown Voltage	V <sub>(BR)ECO</sub>	7			V	I <sub>C</sub> = 10μA
Collector-Emitter Dark Current	I <sub>CEO1</sub>			50	nA	V <sub>CE</sub> = 10V, I <sub>F</sub> = 0mA
Collector-Emitter Dark Current +100°C	I <sub>CEO2</sub>			1	μA	V <sub>CE</sub> = 10V, T <sub>A</sub> = +100°C

**COUPLED CHARACTERISTICS**

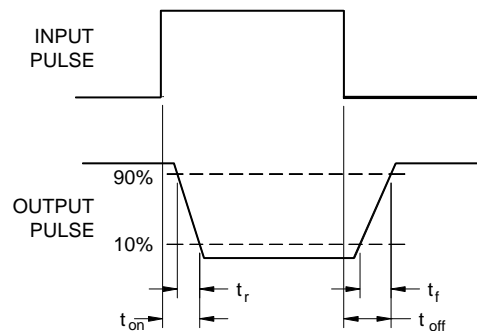
T<sub>A</sub> = 25°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
On State Collector Current	I <sub>C(ON)</sub>	1			mA	V <sub>CE</sub> = 5V, I <sub>F</sub> = 1.0mA
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>			0.4	V	I <sub>F</sub> = 1.0mA, I <sub>C</sub> = 100μA
Isolation Resistance	R <sub>ISO</sub>	10 <sup>11</sup>			Ω	V <sub>IN-OUT</sub> = 1500V
Input to Output Capacitance	C <sub>IO</sub>		0.2		pF	V <sub>IN-OUT</sub> = 0V f = 1MHz
Turn-on Time	T <sub>on</sub>		7.0		μs	V <sub>CE</sub> = 5V, I <sub>F</sub> = 2mA, R <sub>L</sub> = 100Ω
Turn-off Time	T <sub>off</sub>		5.5		μs	V <sub>CE</sub> = 5V, I <sub>F</sub> = 2mA, R <sub>L</sub> = 100Ω
Rise Time	t <sub>r</sub>		3.0		μs	V <sub>CE</sub> = 10V, I <sub>F</sub> = 2mA, R <sub>L</sub> = 100Ω
Fall Time	t <sub>f</sub>		4.5		μs	V <sub>CE</sub> = 10V, I <sub>F</sub> = 2mA, R <sub>L</sub> = 100Ω

**TEST CIRCUIT**



**WAVE FORMS**



**Switching Time Test Circuit and Waveforms**

**66291**

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**GLOB TOP TRANSISTOR OUTPUT GULL WING DUAL CHANNEL OPTOCOUPLER****RECOMMENDED OPERATING CONDITIONS:**

PARAMETER	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level	I <sub>FL</sub>	0	1	μA
Input Current, High Level	I <sub>FH</sub>	1	20	mA
Supply Voltage	V <sub>CE</sub>	5	30	V
Operating Temperature	T <sub>A</sub>	-40	100	°C

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**SELECTION GUIDE**

PART NUMBER	PART DESCRIPTION
66291-001	Dual Channel optocoupler, commercial
66291-101	Dual Channel optocoupler -55 to +100°C Screened