66288 HIGH GAIN GULL WING OPTOCOUPLER

MICROPAC
OPTOELECTRONIC PRODUCTS DIVISION

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Features:

- High Reliability
- Hermetic Ceramic package
- SMT mounting / SOIC-8
- Proton Radiation tolerant
- +1000V electrical isolation

Applications:

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

DESCRIPTION

The ***66288*** contains a proton tolerant LED optically coupled to a corresponding high gain photon detector. This unique single channel Optocoupler provides high CTR and low leakage currents over the specified temperature range. The 66288 is in a hermetically sealed Gull wing ceramic package. Separate pins for the photodiode and output stage enable TTL compatible saturation voltages with high speed operation.

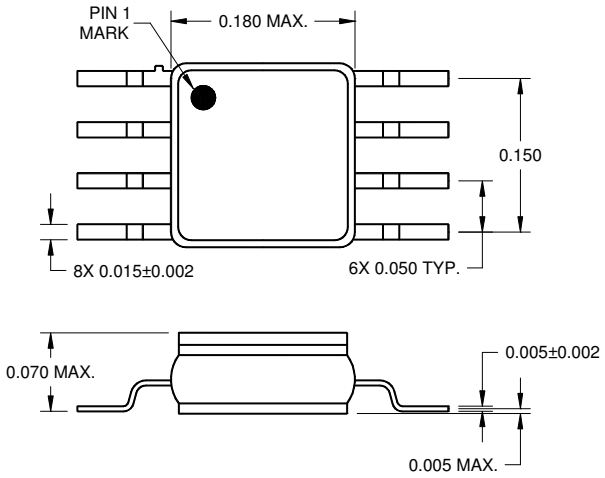
ABSOLUTE MAXIMUM RATINGS

Input to Output Voltage	1000 V
Supply Voltage Vcc (see Note 1)	0.5 to 20 V
Output Voltage Vo (see Note 1)	0.5 to 20 V
Reverse Input Voltage	3 V
Input Diode Continuous Forward Current at (or below) 65°C Free-Air Temperature (see note 1)	60 mA
Peak Forward Input Current (1 ms duration)	100 mA
Output Current	60 mA
Output Power Dissipation at (or below) 25°C Free-Air Temperature (see Note 2)	150 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. Derate I_F at 0.05 mA/°C above 25°C
2. Derate at 2.0 mW/ °C above +25°C free-air temperature

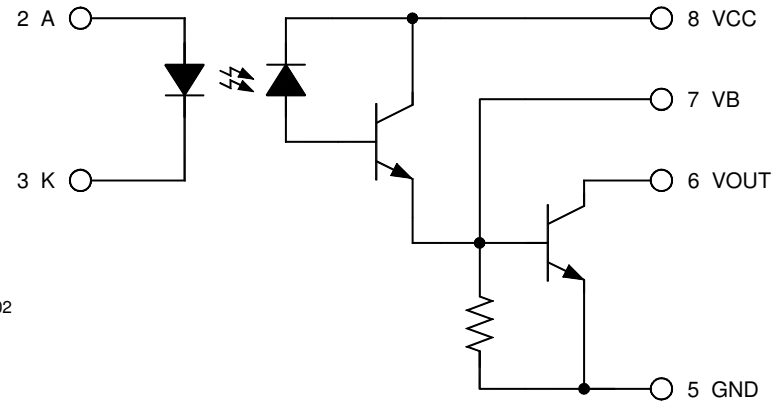
Package Dimensions



GULLWING 8 LEAD PACKAGE

ALL DIMENSIONS ARE IN INCHES

Schematic Diagram



ELECTRICAL CHARACTERISTICS

T_A =-55°C to 125°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Current Transfer Ratio see (1)	CTR	300	1600		%	I_F= 1.6 mA, Vo= .4 V, Vcc=4.5 V
Logic Low Output Voltage	V_{OL}		0.1 0.2	0.4 0.4	V V	I_F=1.6mA, I_{OL}=1.5mA, Vcc= 4.5 V I_F=5.0 mA, I_{OL}=10 mA, Vcc= 4.5 V
Logic High Output Current	I_{OH}		0.005	250	µA	I_F = 2 µA, Vo = Vcc = 18 V
High Level Output Current	I_{CCH}		0.010	40	µA	I_F = 0 mA, Vcc = 18 V
Low Level Supply Current	I_{CCL}			1.5	mA	I_F = 0 mA, Vcc = 18 V
Input Forward Voltage	V_F		1.4	1.8	V	I_F = 1.6 mA
Input Reverse Breakdown Voltage	BV_R	3			V	I_R = 10 µA
Input-Output Insulation Leakage Current	I_{I-O}			1.0	µA	V_{I-O} = 1000 Vdc, Relative Humidity = 45%, T_A = 25°C, t = 5 s
Propagation Delay Time to High Output Level	t_{PLH}		5 4	60 30	µs µs	I_F = 1.6 mA, R_L = 4.7 kΩ, Vcc = 5.0 V I_F = 5 mA, R_L = 680 kΩ, Vcc = 5.0 V
Propagation Delay Time to Low Output Level	t_{PHL}		8 2	100 10	µs µs	I_F = 1.6 mA, R_L = 4.7kΩ, Vcc = 5.0 V I_F = 5 mA, R_L = 680 kΩ, Vcc = 5.0 V
Input Capacitance	C_{IN}			60	pf	V_F = 0 V, f = 1.0 MHz
Capacitance Input-Output	C_{I-O}			1.5	pf	f = 1.0 MHz , T_A = 25°C
Resistance (Input-Output)	R_{I-O}		10^{-12}		Ω	V_{I-O}= 500 V, T_A = 25°C
Common Mode Transient Immunity at High Output Level	CM_H		1K		V/µs	V_{CM} = Vpp, Vcc=5.0 V, R_L = 1.5 kΩ, I_F = 0 mA
Common Mode Transient Immunity at Low Output Level	CM_L		1K		V/µs	V_{CM} = Vpp, Vcc=5.0 V, R_L = 1.5 kΩ, I_F = 1.6 mA

(1) DC current transfer ratio is defined as the ratio of output collector current I_o to the forward LED input current I_F times 100%

RECOMMENDED OPERATING CONDITIONS:

PARAMETER	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level	I_{FL}	0	1	µA
Input Current, High Level	I_{FH}	1.0	20	mA
Supply Voltage	V_{CE}	5	20	V
Operating Temperature	T_A	-55	125	°C

SELECTION GUIDE

PART NUMBER	PART DESCRIPTION
66288-001	Commercial
66288-101	Screened