

66126**SINGLE/DUAL CHANNEL, HERMETICALLY SEALED
OPTOCOUPLER, SIMILAR TO 4N55****Mii**
OPTOELECTRONIC PRODUCTS
DIVISION**Features:**

- DSCC Approved 8767902PX (Dual) and 9085401HPX (Single)
- 1500 Vdc isolation test voltage
- TTL and CMOS compatible
- 2 MHz bandwidth typical
- Faraday shield to provide high common mode rejection

Applications:

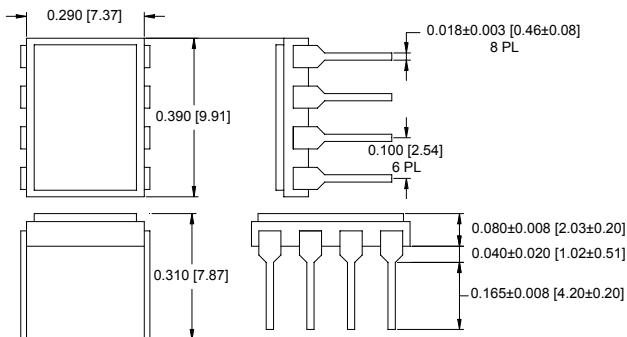
- Military and space
- Voltage level shifting
- Isolated receiver input
- Communication systems
- Medical systems

DESCRIPTION

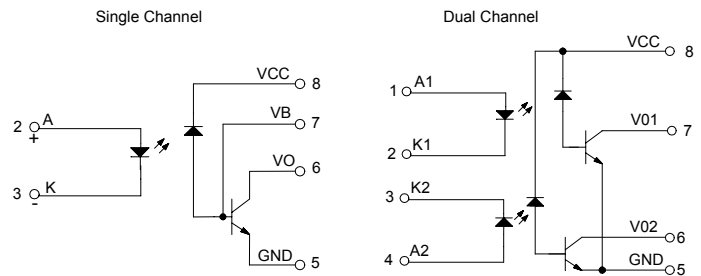
The **66126** single/dual channel optocouplers utilize infrared LEDs optically coupled to high gain photon detectors. These unique optocouplers provide high switching speeds while providing high isolation (1500Vmin) over the full military temperature range (-55° to +125°C). The 66126 is available in standard and MIL-PRF-38534 screened versions or tested to customer specifications.

ABSOLUTE MAXIMUM RATINGS

| | |
|--|---|
| Storage Temperature..... | -65°C to +150°C |
| Operating Free-Air Temperature Range | -55°C to +125°C |
| Lead Solder Temperature..... | 260°C for 10s (1.6mm below seating plane) |
| Peak Forward Input Current | 40mA (1ms duration) |
| Average Forward Input Current | 20mA |
| Input Power Dissipation | 36mW |
| Reverse Input Voltage (each channel) | 5V |
| Supply voltage - V_{CC} (each channel) | 7V (1 minute maximum) |
| Current - I_O (each channel) | 25mA |
| Output Power Dissipation (each channel)..(derate linearly at a rate of 1.4mW/°C above 100°C) | 50mW |
| Output Voltage - V_O (each channel) | 7V |
| Base Current (each channel) | 5mA |

Package Dimensions

ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

Schematic Diagram

ELECTRICAL CHARACTERISTICST_a = -55°C to 125°C unless otherwise specified.

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNITS | TEST CONDITIONS | NOTE |
|---|------------------|-----|-----|-----|-------|---|------|
| Current Transfer Ratio | CTR | 9 | 20 | | % | I _F = 16mA, V _O = 0.4V, V _{CC} = 4.5V | 1, 2 |
| Output Leakage Current | I _{OH1} | | 70 | 250 | μA | I _F = 250μA, V _{CC} = V _O = 18V I _F (other channel) = 20mA | 1 |
| Logic High Output Current | I _{OH} | | 20 | 100 | μA | I _F = 250μA, V _{CC} = V _O = 18V I _F (other channel) = 20mA | 1 |
| High Level Output Current | I _{CCH} | | 0.2 | 10 | μA | I _F = 0, V _{CC} = 18V I _F (other channel) = 20mA | 1 |
| Low Level Supply Current | I _{CCL} | | 35 | 200 | μA | I _{F1} = I _{F2} = 20mA, V _{CC} = 18V | 1 |
| Input Forward Voltage | V _F | | 1.5 | 1.8 | V | I _F = 20mA | 1 |
| Input Reverse Breakdown Voltage | BV _R | 3 | | | V | I _R = 10μA | 1 |
| Input-Output Insulation Leakage Current | I _{I-O} | | | 1.0 | μA | V _{I-O} = 1500Vdc, Relative Humidity = 45% t _A = 25°C, t = 5s | 3 |
| Propagation Delay Time To High Output Level | t _{PLH} | | 2 | 6 | μs | I _F = 16mA, V _{CC} = 5V, R _L = 8.2kΩ C _L = 50pF | 1 |
| Propagation Delay Time To Low Output Level | t _{PHL} | | 0.4 | 2 | μs | I _F = 16mA, V _{CC} = 5V, R _L = 8.2kΩ C _L = 50pF | 1 |

TYPICAL CHARACTERISTICST_a = 25°C, V_{CC} = 5V Each Channel

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNITS | TEST CONDITIONS | NOTE |
|---|---------------------------------|-----|------------------|-----|-------|---|------|
| Input Capacitance | C _{IN} | | 120 | | pF | V _F = 0, f = MHz | 1 |
| Capacitance (Input-Output) | C _{I-O} | | 1.5 | | pF | f = 1MHz, V _F = 0 | 1, 4 |
| Capacitance (Input-Input) | C _{I-I} | | 0.55 | | pF | f = 1MHz | |
| Input Diode Temperature Coefficient | $\frac{\Delta V_F}{\Delta T_A}$ | | -1.9 | | mV/°C | I _F = 18mA | 1 |
| Resistance (Input-Output) | R _{I-O} | | 10 ¹² | | Ω | V _{I-O} = 500Vdc | 1 |
| Input-Input Insulation Leakage Current | I _{I-I} | | 1 | | pA | Relative Humidity = 45% V _{I-I} = 500Vdc, t = 5s | 3 |
| Common Mode Transient immunity at High Output Level | CM _H | 500 | 1000 | | V/μs | V _{CM} = 50V P-P, R _L = 8.2kΩ, I _F = 0mA | 1, 5 |
| Common Mode Transient Immunity at Low Output Level | CM _L | 500 | 1000 | | V/μs | V _{CM} = 50V P-P, R _L = 8.2kΩ, I _F = 16mA | 1, 6 |

NOTES:

- Each channel.
- CURRENT TRANSFER RATIO is defined as the ratio of output collector current, I_O, to the forward LED input current, I_F, times 100%.
- Measured between each input pair shorted together.
- Measured between input pins shorted together and the output pins for that channel shorted together.
- CM_H is the maximum tolerable common mode transient to assure that the output will remain in a high logic state (ie. V_O > @ .0V).
- CM_L is the maximum tolerable common mode transient to assure that the output will remain in a low logic state (ie. V_O < 0.8V).

RECOMMENDED OPERATING CONDITIONS:

| PARAMETER | SYMBOL | MIN | MAX | UNITS |
|--------------------------|-----------------|-----|-----|-------|
| Input Current, Low Level | I _{FL} | 0 | 2 | μA |
| Supply Voltage | V _{CC} | 2.0 | 18 | V |

SELECTION GUIDE

| PART NUMBER | PART DESCRIPTION |
|-------------|---|
| 66126-001 | Single Channel optocoupler tested over full military temperature range (-55° to +125°C) |
| 66126-011 | Single Channel optocoupler, Commercial (0° to 70°C) |
| 66126-105 | DSCC Dwg 5962-9085401HPX Single Channel Optocoupler |
| 66126-002 | Dual Channel optocoupler tested over full military temperature range (-55° to +125°C) |
| 66126-012 | Dual Channel optocoupler, Commercial (0° to 70°C) |
| 66126-103 | DSCC Dwg 5962-8767902PX Dual Channel Optocoupler |