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

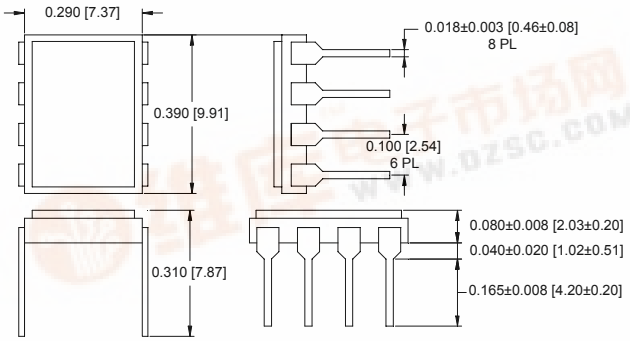
DESCRIPTION

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

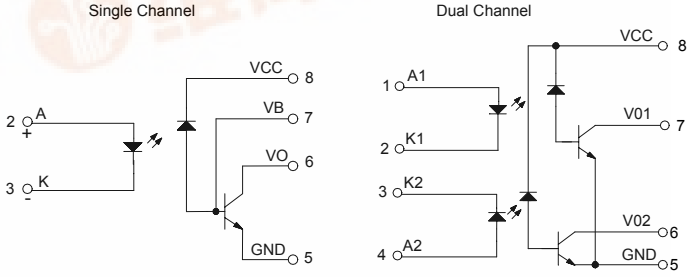
Storage Temperature..... -65°C to +150°C
Operating Free-Air Temperature Range ..... -55°C to +125°C
Lead Solder Temperature.....260°C for 10s (1.6mm below seating plane)
Peak Forward Input Current .....40mA (1ms duration)
Average Forward Input Current 20mA
Input Power Dissipation 36mW
Reverse Input Voltage (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 CHARACTERISTICS

T_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	$V_{I—0}$ = 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 CHARACTERISTICS

T_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-0}		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:

1. Each channel.
2. CURRENT TRANSFER RATIO is defined as the ratio of output collector current, I_O, to the forward LED input current, I_F, times 100%.
3. Measured between each input pair shorted together.
4. Measured between input pins shorted together and the output pins for that channel shorted together.
5. 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).
6. 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