66126

SINGLE/DUAL CHANNEL, HERMETICALLY SEALED OPTOCOUPLER, SIMILAR TO 4N55

OPTOELECTRONIC PRODUCTS DIVISION

08/31/2009

Features:

- 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 photo detectors. These unique optocouplers provide high switching speeds while providing high isolation (1500V min) over the full military temperature range (-55° to +125°C). The 66126 is available in standard and screened versions or tested to customer specifications.

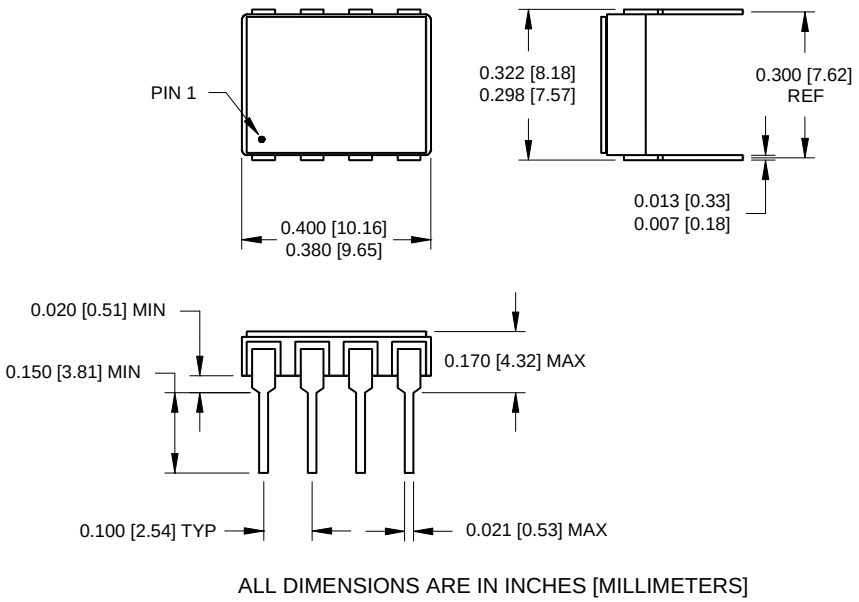
ABSOLUTE MAXIMUM RATINGS

Peak Forward Input Current	40 mA (1ms duration)
Average Forward Input Current	20 mA
Input Power Dissipation (each channel) (Note 1)	36 mW
Reverse Input Voltage (each channel)	5 V
Supply voltage - V_{CC} (each channel) (1 minute)	7 V
Output Current - I_O (each channel)	25 mA
Output Power Dissipation (each channel). (Note 2)	50 mW
Output Voltage - V_O (each channel)	7 V
Base Current (Single Channel)	5 mA
Storage Temperature	-65°C to +150°C
Operating Free-Air Temperature Range	-55°C to +125°C
Lead Solder Temperature (10 seconds, 1/16" below seating plane)	260°C

Notes:

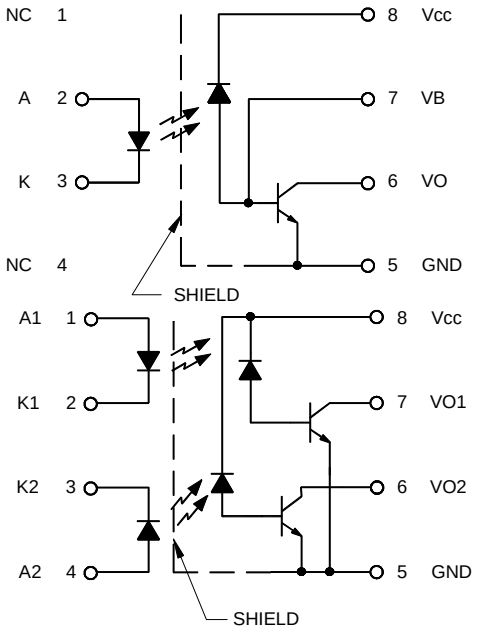
1. Derate at 0.36 mW/°C above 25°C.
2. Derate at 0.5 mW/°C above 25°C.

Package Dimensions



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

Schematic Diagrams



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 = 16 mA, V_O = 0.4 V , V_{CC} = 4.5 V	1, 2
Output Leakage Current	I_{OH1}		70	250	µA	I_F = 250 µA, V_{CC} = V_O =18 V I_F (other channel) = 20 mA	1
Logic High Output Current	I_{OH}		20	100	µA	I_F = 250 µA, V_{CC} = V_O =18 V I_F (other channel) = 20 mA	1
High Level Output Current	I_{CCH}		0.2	10	µA	I_F = 0, V_{CC} = 18 V I_F (other channel) = 20 mA	1
Low Level Supply Current	I_{CCL}		35	200	µA	I_{F1} = I_{F2} = 20 mA, V_{CC} = 18 V	1
Input Forward Voltage	V_F		1.5	1.8	V	I_F = 20 mA	1
Input Reverse Breakdown Voltage	BV_R	3			V	I_R = 10 µA	1
Input-Output Insulation Leakage Current	$I_{I—O}$			1.0	µA	$V_{I—0}$ = 1500 Vdc, Relative Humidity = 45% t_A = 25°C, t = 5 s	4
Propagation Delay Time To High Output Level	t_{PLH}		2	6	µs	I_F = 16 mA, V_{CC} = 5 V, R_L = 8.2 kΩ C_L = 50 pF	1
Propagation Delay Time To Low Output Level	t_{PHL}		0.4	2	µs	I_F = 16 mA, V_{CC} = 5 V, R_L = 8.2 kΩ C_L = 50 pF	1

TYPICAL CHARACTERISTICS

T_a = 25°C, V_{CC} = 5 V Each Channel

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Input Capacitance	C_{IN}	60	120		pF	V_F = 0, f = 1 MHz	1
Capacitance (Input-Output)	C_{I-O}		1.5		pF	f = 1MHz, V_F = 0	1, 4
Capacitance (Input-Input) (Dual)	C_{I-I}		0.55		pF	f = 1 MHz	3
Input Diode Temperature Coefficient	$\frac{\Delta V_F}{\Delta T_A}$		-1.8		mV/°C	I_F = 18 mA	1
Resistance (Input-Output)	R_{I-0}		10^{12}		Ω	$V_{I—O}$ = 500 Vdc	1
Input-Input Insulation Leakage Current (Dual)	I_{I-I}		1		pA	Relative Humidity = 45% V_{I-I} = 500 Vdc, t = 5 s	3
Common Mode Transient immunity at High Output Level	CM_H	500	1000		V/µs	V_{CM} = 50 V $_{P-P}$, R_L = 8.2 kΩ, I_F = 0 mA	1, 5
Common Mode Transient Immunity at Low Output Level	CM_L	500	1000		V/µs	V_{CM} = 50 V $_{P-P}$, R_L = 8.2 kΩ, I_F = 16 mA	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 shorted together.
5. CM_H is the maximum tolerable common mode transient to assure that the output will remain in a high logic state (i.e. V_O > 2.0 V).
6. CM_L is the maximum tolerable common mode transient to assure that the output will remain in a low logic state (i.e. V_O < 0.8 V).

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
Input Current, High Level	I_{FH}	2.0	20	mA

SELECTION GUIDE

PART NUMBER	PART DESCRIPTION
66126-001	Single Channel, Mil Temperature (-55° to +125°C)
66126-011	Single Channel, Commercial
66126-101	Single Channel, Screened
66126-002	Dual Channel, Mil Temperature (-55° to +125°C)
66126-012	Dual Channel, Commercial
66126-102	Dual Channel, Screened