

66024

4N55 DUAL CHANNEL, HERMETICALLY SEALED OPTOCOUPLER

Mii
OPTOELECTRONIC PRODUCTS
DIVISION

Features:

- DSCC Approved 5962-8767901EX
- 1500 Vdc isolation test voltage
- TTL and CMOS compatible
- 2MHz bandwidth typical
- Faraday shield to provide high common mode rejection

Applications:

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

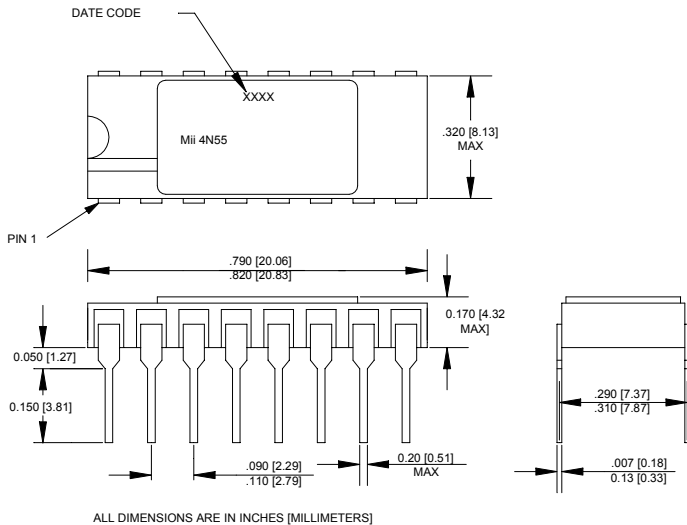
DESCRIPTION

The **66024** optocoupler contains two completely isolated optocouplers in a hermetically sealed dual in-line package. Each channel provides high switching speeds while providing high isolation (1500V min) over the full military temperature range (-55° to +125°C). The 66024 is available in standard and MIL-PRF-38534 screened versions or tested to customer specifications.

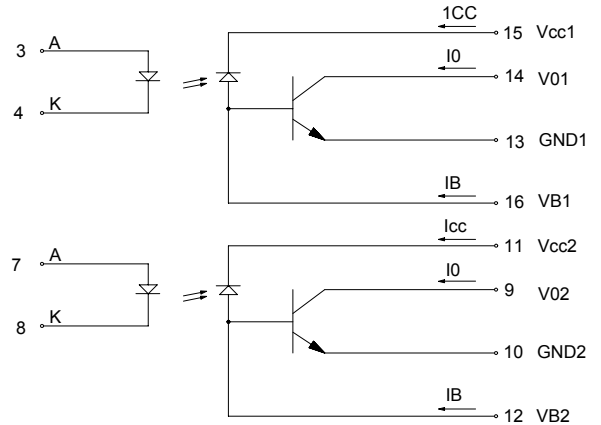
ABSOLUTE MAXIMUM RATINGS

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	40mW
Reverse Input Voltage (each channel)	5V
Supply voltage - V _{CC} (each channel)	20V
Output Current - I _O (each channel)	20mA
Output Power Dissipation (each channel)..(derate linearly at a rate of 1.4mW/°C above 100°C	50mW
Output Voltage - V _O (each channel)	20V
Base Current (each channel).....	5mA

Package Dimensions



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 = 0, 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	ΔV _F ΔT _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} = 10V 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} = 10V 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
66024-000	Dual Channel Optocoupler with 100% device screening
66024-001	DSCC Dwg 5962-8767901EX Dual Channel Optocoupler
66024-002	Dual Channel, Optocoupler tested over full military temperature range (-55° to +125°C)
66024-003	Dual Channel, commercial (0° to 70°C)