

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:

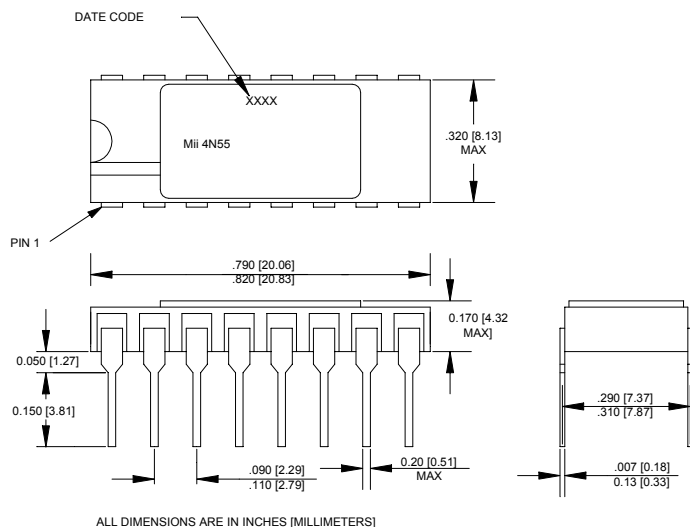
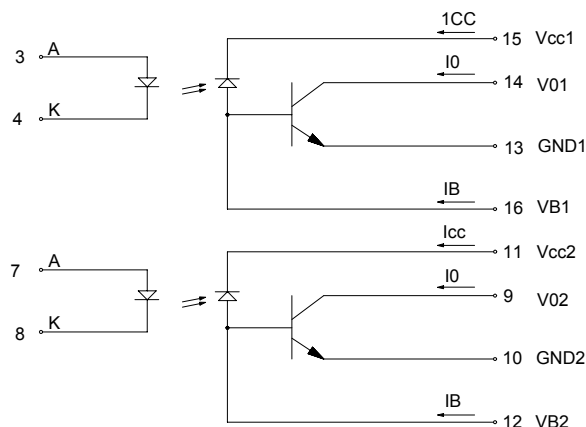
- Military and space
- Voltage level shifting
- Isolated receiver input
- Communication systems
- Medical systems

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 CHARACTERISTICS $T_a = -55^{\circ}\text{C}$ to 125°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Current Transfer Ratio	CTR	9	20		%	$I_F = 16\text{mA}$, $V_O = 0.4\text{V}$, $V_{CC} = 4.5\text{V}$	1, 2
Output Leakage Current	I_{OH1}		70	250	μA	$I_F = 250\mu\text{A}$, $V_{CC} = V_O = 18\text{V}$ I_F (other channel) = 20mA	1
Logic High Output Current	I_{OH}		20	100	μA	$I_F = 0$, $V_{CC} = V_O = 18\text{V}$ I_F (other channel) = 20mA	1
High Level Output Current	I_{CCH}		0.2	10	μA	$I_F = 0$, $V_{CC} = 18\text{V}$ I_F (other channel) = 20mA	1
Low Level Supply Current	I_{CCL}		35	200	μA	$I_{F1} = I_{F2} = 20\text{mA}$, $V_{CC} = 18\text{V}$	1
Input Forward Voltage	V_F		1.5	1.8	V	$I_F = 20\text{mA}$	1
Input Reverse Breakdown Voltage	BV_R	3			V	$I_R = 10\mu\text{A}$	1
Input-Output Insulation Leakage Current	I_{I-O}			1.0	μA	$V_{I-O} = 1500\text{Vdc}$, Relative Humidity = 45% $t_A = 25^{\circ}\text{C}$, $t = 5\text{s}$	3
Propagation Delay Time To High Output Level	t_{PLH}		2	6	μs	$I_F = 16\text{mA}$, $V_{CC} = 5\text{V}$, $R_L = 8.2\text{k}\Omega$ $C_L = 50\text{pF}$	1
Propagation Delay Time To Low Output Level	t_{PHL}		0.4	2	μs	$I_F = 16\text{mA}$, $V_{CC} = 5\text{V}$, $R_L = 8.2\text{k}\Omega$ $C_L = 50\text{pF}$	1

TYPICAL CHARACTERISTICS $T_a = 25^{\circ}\text{C}$, $V_{CC} = 5\text{V}$ Each Channel

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Input Capacitance	C_{IN}		120		pF	$V_F = 0$, $f = \text{MHz}$	1
Capacitance (Input-Output)	C_{I-O}		1.5		pF	$f = 1\text{MHz}$, $V_F = 0$	1, 4
Capacitance (Input-Input)	C_{I-I}		0.55		pF	$f = 1\text{MHz}$	
Input Diode Temperature Coefficient	ΔV_F ΔT_A		-1.9		$\text{mV}/^{\circ}\text{C}$	$I_F = 18\text{mA}$	1
Resistance (Input-Output)	R_{I-O}		10^{12}		Ω	$V_{I-O} = 500\text{Vdc}$	1
Input-Input Insulation Leakage Current	I_{I-I}		1		pA	Relative Humidity = 45% $V_{I-I} = 500\text{Vdc}$, $t = 5\text{s}$	3
Common Mode Transient immunity at High Output Level	CM_H	500	1000		$\text{V}/\mu\text{s}$	$V_{CM} = 10\text{V P-P}$, $R_L = 8.2\text{k}\Omega$, $I_F = 0\text{mA}$	1, 5
Common Mode Transient Immunity at Low Output Level	CM_L	500	1000		$\text{V}/\mu\text{s}$	$V_{CM} = 10\text{V P-P}$, $R_L = 8.2\text{k}\Omega$, $I_F = 16\text{mA}$	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. $V_O > @.0\text{V}$).
- CM_L is the maximum tolerable common mode transient to assure that the output will remain in a low logic state (ie. $V_O < 0.8\text{V}$).

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

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)
