66088 SINGLE/DUAL, HIGH SPEED OPTOCOUPLER	**Mii** OPTOELECTRONIC PRODUCTS DIVISION

Features:	**Applications:**
• Electrically similar to 4N55 • 1500 Vdc isolation test voltage • Low power consumption • 2 MHz bandwidth typical • Low output saturation voltage	• Digital logic ground isolation • Microprocessor system interface • Isolated receiver input • Communication systems • Medical systems

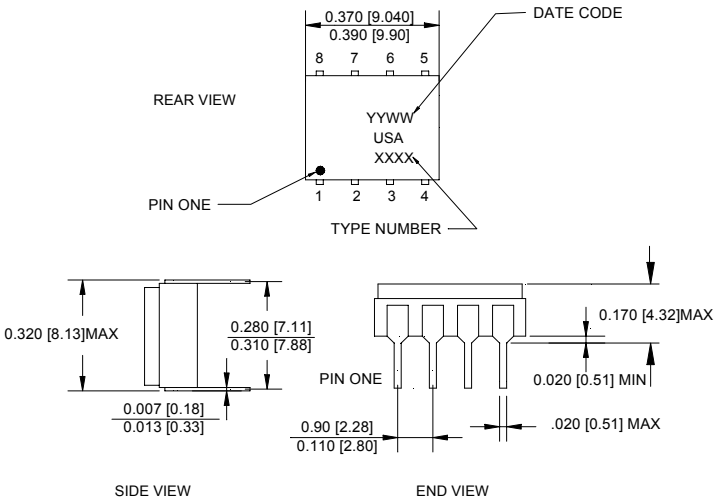
DESCRIPTION

The ***66088*** single/dual optocouplers utilize infrared LEDs optically coupled to high gain photon detectors. These unique optocouplers provide high CTR and low leakage current. The 66088 optocouplers are available in military temperature range and military temperature with 100% device screening. The devices are built in an 8 pin hermetic, side-brazed package and provide high input to output isolation (1500Vdc minimum).

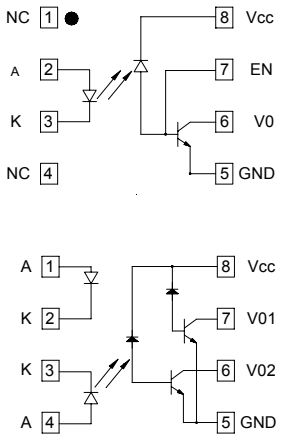
ABSOLUTE MAXIMUM RATINGS

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 (per channel) ..... 40mA (1ms duration)
Average Forward Input Current (per channel) .....(see Note 2) 20mA
Reverse Input Voltage (each channel) 5V
Supply Voltage - V_{CC} . (each channel) .....(see Note 1) ..... -0.5 to 20V Output
Output Current - I_O (each channel) 8mA
Output Power Dissipation (each channel)…(derate linearly at a rate of 1.4mW/ºC above 100ºC) 50mW
Output Voltage - V_O (each channel).…..(see Note 1) ..... -0.5 to 20V

Package Dimensions



Schematic Diagram



NOTE: ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

Notes:

1. The lowest total I_{OH} over temperature is developed by keeping V_{CC} as low as possible, but greater than 2V. The negative voltage at the detector side should be applied to PIN 5.
2. Derate I_F at 0.1 mA/ºC above 25°C.

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	24		%	I_F = 16mA, V_O = 0.4V, V_{CC} = 4.5V	1,2
Logic Low Output Voltage	V_{OL}		0.1	0.4	V	I_F = 16mA, I_{OL} = 2.4mA, V_{CC} = 4.5V	
Logic High Output Current	I_{OH}		20	100	µA	I_F = 0, V_{CC} = V_O = 15V I_F (other channel) = 16mA	1
High Level Output Current	I_{CCH}		0.1	20	µA	I_F = V_{CC} = 15V I_F (other channel) = 0mA	1
Low Level Supply Current	I_{CCL}			2	mA	I_{F1} = 16mA, V_{CC} = 15V I_F (other channel) = 16mA	1
Input Forward Voltage	V_F		1.5	1.8	V	I_F = 16mA	1
Input Reverse Breakdown Voltage	BV_R	5			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}		.08	1.6	µs	I_F = 16mA, V_{CC} = 5V, R_L = 1.9kΩ	1
Propagation Delay Time To Low Output Level	t_{PHL}		.08	1.6	µs	I_F = 16mA, V_{CC} = 5V, R_L = 1.9kΩ	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}		60		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-Output)	C_{I-I}		0.55		pF	f = 1MHz	
Input Diode Temperature Coefficient	$\frac{\Delta V_F}{\Delta T_A}$		-1.8		mV/°C	I_F = 16mA	1
Resistance (Input-Output)	R_{I-0}		10^{12}		Ω	$V_{I—0}$ = 500Vdc	1
Input-Input Insulation Leakage Current	I_{I-I}		0.5		nA	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 = 1.9kΩ, I_F = OmA	1, 5
Common Mode Transient Immunity at Low Output Level	CM_L	500	1000		V/µs	V_{CM} = 10V $_{P-P}$, R_L = 1.9kΩ, 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. $V_O > 2.0V$).
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 (each channel)	I_{FL}	0	2	µA
Input Current, High Level (each channel)	I_{FH}	16	20	mA
Supply Voltage	V_{CC}	2.0	18	V