66079	**OPTICALLY COUPLED DIGITAL FILTER**	**Mii** **OPTOELECTRONIC PRODUCTS DIVISION**

Features:

- DSCC Approved 916761HXX
- 10 MBd typical
- Meets Tempest EMI/RFI emanation criteria
- TTL compatible input and output
- RFI Rejection 80dB to 1GHz
- Faraday shield to provide high common mode rejection

Applications:

- Military and space
- Secure communication systems
- Isolated receiver input
- Microprocessor system interface
- Digital isolation for A/D, D/A converters

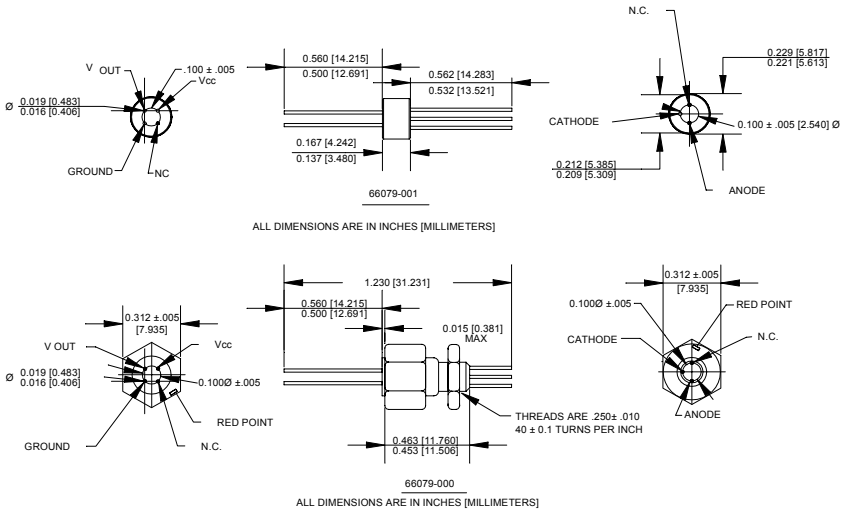
DESCRIPTION

The ***66079*** Optically Coupled Digital Filter consists of an LED optically coupled to a high speed, high gain inverting detector gate. Maximum isolation can be achieved while providing a TTL output capable of switching with propagation delays of 55nS typical. The 66079 is a hermetically sealed package which is threaded in order to provide convenient bulkhead mounting and is available in standard and screened versions or tested to customer specifications. The 66079-001 is a hermetically sealed package which can be soldered or press-fit mounted and is also available in standard and MIL-PRF-38534 screened versions or tested to customer specifications.

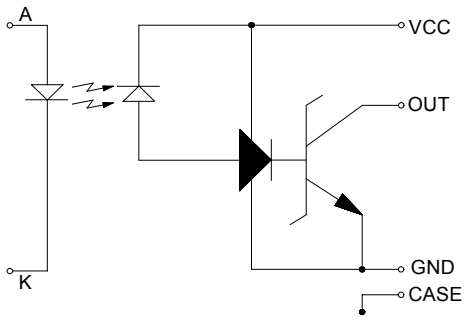
ABSOLUTE MAXIMUM RATINGS

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)
Forward Input Current Continuous 20mA
Supply voltage - V_{CC} ..... 7V(1 minute maximum)
Output Current - I_O 25mA
Output Power Dissipation 40mW
Output Voltage - V_O 7V
Total Power Dissipation 175mW

Package Dimensions



Schematic Diagram



NOTE:
A.01 TO 0.1 μF BYPASS CAPACITOR MUST BE CONNECTED BETWEEN Vcc AND GROUND.

ELECTRICAL CHARACTERISTICS T_a = -55°C to +125°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
High Level Output Current	I_{OH}		5	250	µA	V_{CC} = 5.5V, V_O = 5.5V, I_F = 250µA	
Low Level Output Voltage	V_{OL}		0.5	0.6	V	V_{CC} = 5.5V, I_F = 10mA I_{OL} (Sinking) = 10mA	
High Level Supply Current	I_{CCH}		10	20	mA	V_{CC} = 5.5V, I_F = 0 (Both Channels)	
Low Level Supply Current	I_{CCL}		20	30	mA	V_{CC} = 5.5V, I_F = 20mA (Both Channels)	
Input Forward Voltage	V_F		1.5	1.75	V	I_F = 20mA	
Input Reverse Breakdown Voltage	BV_R	5			V	I_R = 10µA	
Input-Output Insulation Leakage Current	$I_{I—O}$			1.0	µA	$V_{I—0}$ = 1500Vdc, Relative Humidity = 45% T_a = 25°C, t = 5s	
Propagation Delay Time To High Output Level	t_{PLH}		65	100	ns	R_L = 510Ω, C_L = 15pF. I_f = 13mA, t_a = 25°C	
Propagation Delay Time To Low Output Level	t_{PHL}		55	100	ns	R_L = 510Ω, C_L = 15pF I_f = 13mA, t_a = 25°C	

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			V_F = 0, f = MHz	
Input to Case Capacitance	C_{IC}		2	5	pF	V_F = 0, f = MHz	
Input Diode Temperature Coefficient	$\frac{\Delta V_F}{}$		-1.9		mV/°C	I_F = 20mA	
Capacitance (Input-Output)	C_{I-O}		1	3	pF	f = 1MHz	
Output Rise-Fall Time (10-90%)	t_f, t_f		35		ns	R_L = 510Ω, C_L = 50pF I_F = 13mA	
Common Mode Transient Immunity at High Output Level	CM_H	1000	10000		V/µs	V_{CM} = 10V (peak), V_O (min) = 2V, R_L = 510Ω, I_F = OmA	1
Common Mode Transient Immunity at Low Output Level	CM_L	1000	10000		V/µs	V_{CM} = 10V (peak), V_O (max) = 0.8V, R_L = 510Ω, I_F = 1OmA	2

NOTES:

1. CM_h is the max. tolerable common mode transient to assure that the output will remain in a high logic state (i.e. V_O >2.0V).
2. CM_l is the max. tolerable common mode transient to assure that the output will remain in a low logic state (i.e. V_O< 0.8V).

RECOMMENDED OPERATING CONDITIONS:

PARAMETER	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level Each Channel	I_{FL}	0	250	µA
Input Current, High Level Each Channel	I_{FH}	12.5	20	mA
Supply Voltage	V_C	4.5	5.5	V
Fan Out (TTL Load) Each Channel	N		6	
Operating Temperature	T_A	-55	125	°C

SELECTION GUIDE

PART NUMBER	PART DESCRIPTION
66079-000	With housing, with 100% screening
66079-000C	DSCC Drawing # 5962-916761HXX , with housing
66079-001	Without housing, with 100% screening
66079-001C	DSCC Drawing #5962-916760HXX (without housing)
66079-002	With housing, commercial mil-temp (-55°C to +125°C)
66079-003	Without housing, commercial mil-temp (-55°C to +125°C)
66079-004	Without housing, commercial extended temp (-40°C to +80°C)
66079-004H	With housing, commercial extended temp (-40°C to +80°C)
66079-005	Without housing, commercial temp (0°C to +70°C)
66079-005H	With housing, commercial temp (0°C to +70°C)