

66063

**SINGLE-CHANNEL, VERY HIGH SPEED,
LEADLESS CHIP CARRIER OPTOCOPLER**



**OPTOELECTRONIC PRODUCTS
DIVISION**

Features:

- Electrically similar to 6N134
- Hermetically sealed 24 Pin LCC
- Very high speed
- 5MHz bandwidth typical
- Performance guaranteed over -55°C to +125°C ambient temperature range
- Standard and high reliability screened parts available
- TTL compatible input and output
- High common mode rejection
- 1000 Vdc isolation test voltage
- Leadless chip carrier package
- Faraday shield provides high common mode rejection

DESCRIPTION

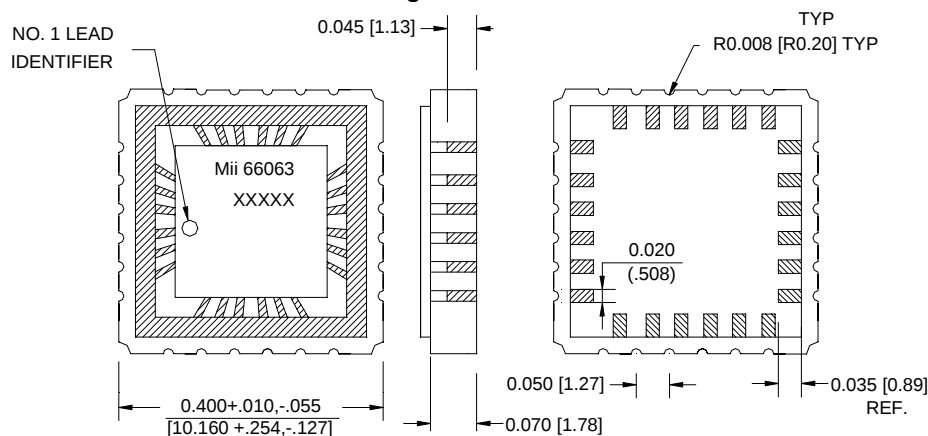
The **66063** single channel optocoupler consists of an LED optically coupled to a high speed, high gain inverting detector gate. Maximum isolation can be achieved while providing TTL output capable of switching with propagation delays of 55ns typical. The 66063 is a 24 pin hermetically sealed leadless chip carrier and is available in standard and screened versions or tested to customer specifications.

ABSOLUTE MAXIMUM RATINGS

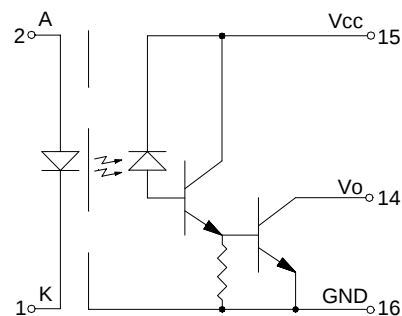
(No derating required up to 125°C)

Storage temperature	-65°C to +150°C
Operating temperature	-55°C to +125°C
Lead solder temperature	260°C for 10 sec.
Peak forward input current	40 mA (<1ms duration)
Average forward input current	20mA
Input power dissipation	35 mW
Reverse input voltage - V_R	5V
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 uF BYPASS
CAPACITOR MUST BE
CONNECTED BETWEEN
PINS 15 AND 10

ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

66063 SINGLE-CHANNEL, VERY HIGH SPEED, LEADLESS CHIP CARRIER OPTOCOUPLER, *Continued*

ELECTRICAL CHARACTERISTICS

OVER RECOMMENDED TEMPERATURE ($T_A = -55^\circ\text{C}$ to $+125^\circ\text{C}$) unless otherwise specified

PARAMETER	SYMBOL	MIN	TYP**	MAX	UNITS	TEST CONDITIONS	NOTE
High Level Output Current	I_{OH}		5	250	μA	$V_{CC} = 5.5\text{V}$, $V_O = 5.5\text{V}$, $I_F = 250\text{ }\mu\text{A}$	
Low Level Output Voltage	V_{OL}		0.5	0.6	V	$V_{CC} = 5.5\text{V}$, $I_F = 10\text{mA}$, $I_{OL}(\text{Sinking}) = 10\text{mA}$	6
High Level Supply Current	I_{CCH}		18	28	mA	$V_{CC} = 5.5\text{V}$, $I_F = 0$ (Both Channels)	
Low Level Supply Current	I_{CCL}		26	36	mA	$V_{CC} = 5.5\text{V}$, $I_F = 20\text{mA}$ (Both Channels)	
Input Forward Voltage	V_F		1.5	1.75	V	$I_F = 20\text{mA}$, $T_A = 25^\circ\text{C}$	
Input Reverse Breakdown Voltage	BV_R	5			V	$I_R = 10\text{ }\mu\text{A}$, $T_A = 25^\circ\text{C}$	
Input-Output Insulation Leakage Current	I_{I-O}			1.0	μA	$V_{I-O} = 1000\text{Vdc}$, Relative Humidity = 45% $T_A = 25^\circ\text{C}$, $t = 5\text{s}$.	1
Propagation Delay Time To High Output Level	t_{PLH}		65	100	ns	$R_L = 510\Omega$, $C_L = 15\text{pF}$, $I_F = 13\text{mA}$, $T_A = 25^\circ\text{C}$	2, 6
Propagation Delay Time To Low Output Level	t_{PHL}		55	100	ns	$R_L = 510\Omega$, $C_L = 15\text{pF}$, $I_F = 13\text{mA}$, $T_A = 25^\circ\text{C}$	3, 6

**All typical values are at $V_{CC} = 5\text{V}$, $T_A = 25^\circ\text{C}$

TYPICAL CHARACTERISTICS

AT $T_A = 25^\circ\text{C}$, $V_{CC} = 5\text{V}$

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Input Capacitance	C_{IN}		60		pF	$V_F = 0$, $f = 1\text{MHz}$	
Input Diode Temperature Coefficient	$\frac{\Delta V_F}{\Delta T_A}$		-1.9		mV/ $^\circ\text{C}$	$I_F = 20\text{mA}$	
Resistance (Input-Output)	R_{I-O}		10^{12}		Ω	$V_{I-O} = 500\text{V}$	1
Capacitance (Input-Output)	C_{I-O}		1.7		pF	$f = 1\text{MHz}$	1
Output Rise-Fall Time (10-90%)	t_r, t_f		35		ns	$R_L = 510\Omega$, $C_L = 15\text{pF}$, $I_F = 13\text{mA}$	6
Common Mode Transient Immunity at High Output	CM_H	1000	10000		V/ μs	$V_{CM} = 10\text{V}$ (peak) V_O (min.) = 2V, $R_L = 510\Omega$, $I_F = 0\text{mA}$	4
Common Mode Transient Immunity at Low Output	CM_L	1000	10000		V/ μs	$V_{CM} = 10\text{V}$ (peak) V_O (max.) = 0.8V, $R_L = 510\Omega$, $I_F = 10\text{mA}$	5

NOTES:

1. Measured between pins 1 and 2 shorted together, and pins 10, 14 and 15 shorted together.
2. The t_{PHL} propagation delay is measured from the 6.5mA point on the trailing edge of the input pulse to the 1.5V point on the trailing edge of the output pulse.
3. The t_{PLH} propagation delay is measured from the 6.5mA point on the leading edge of the input pulse to the 1.5V point on the leading edge of the output pulse.
4. CM_H is the max. tolerable common mode transient to assure that the output will remain in a high logic state (i.e. $V_O > 2.0\text{V}$).
5. CM_L is the max. tolerable common mode transient to assure that the output will remain in a low logic state (i.e. $V_O < 0.8\text{V}$).
6. It is essential that a bypass capacitor (.01 to 0.1 μF , ceramic) be connected from pin 10 to pin 15.

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_{CC}	4.5	5.5	V
Fan Out (TTL Load) Each Channel	N		6	
Operating Temperature	T_A	-55	+125	$^\circ\text{C}$