

**66133**    **3N261**  
               **3N262**  
               **3N263**

**SINGLE CHANNEL OPTOCOUPLERS**  
**(REPLACEMENT FOR TIL 120)**

**Mii**  
**OPTOELECTRONIC PRODUCTS**  
**DIVISION**

REVISION A 9/15/00

**Features:**

- Electrically similar to 4N47, 4N48, 4N49
- Base lead eliminated for improved noise immunity
- Rugged package
- +1kV electrical isolation
- Stability over wide temperature range

**Applications:**

- Eliminate ground loops
- Level shifting
- Line receiver
- Switching power supplies
- Motor control

**DESCRIPTION**

The **66133** single channel optocoupler consists of a Gallium Arsenide infrared LED and a high gain N-P-N silicon phototransistor packaged in a hermetically sealed metal case. The **3N261**, **3N262** and **3N263**'s can be tested to customer specifications, as well as to MIL-PRF-19500 using Micropac's extensive in-house test facilities.

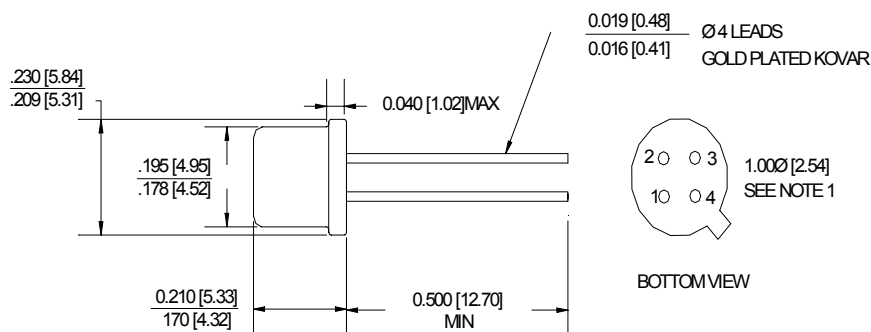
**ABSOLUTE MAXIMUM RATINGS**

Input to Output Voltage .....	1kV
Emitter-Collector Voltage .....	7V
Collector-Emitter Voltage ( $V_{CEO}$ , $I_F = 0$ ) .....	40V
Reverse Input Voltage .....	2V
Input Diode Continuous Forward Current at (or below) 65°C Free-Air Temperature (see note 1) .....	40mA
Peak Forward Input Current (Value applies for $t_w \leq 1\mu s$ , PRR < 300 pps) .....	1A
Continuous Collector Current .....	20mA
Continuous Transistor Power Dissipation at (or below) 25°C Free-Air Temperature (see Note 2) .....	275mW
Storage Temperature .....	-65°C to +150°C
Operating Free-Air Temperature Range .....	-55°C to +100°C
Lead Solder Temperature (10 seconds max.) .....	240°C

**Notes:**

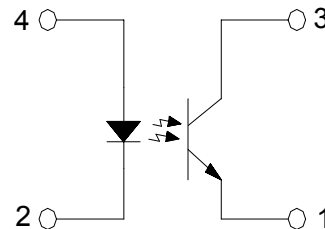
1. Derate linearly to 100°C free-air temperature at the rate of 1.14 mA/°C above 65°C.
2. Derate linearly to 100°C free-air temperature at the rate of 7.8 mW/°C above 65°C.

**Package Dimensions**



NOTE 1: THIS DIMENSION IS CONTROLLED AT THE HOUSING SURFACE.  
 DIMENSIONS ARE IN INCHES [MILLIMETERS]

**Schematic Diagram**



THE COLLECTOR IS IN ELECTRICAL CONTACT WITH THE CASE

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**ELECTRICAL CHARACTERISTICS**

T<sub>A</sub> = 25°C

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode Static Reverse Current	I <sub>R</sub>			100	μA	V <sub>R</sub> = 2V
				100		
				100		
Input Diode Static Forward Voltage	V <sub>F</sub>	0.8		1.5	V	I <sub>F</sub> = 10mA
		0.8		1.5		
		0.8		1.5		

**OUTPUT TRANSISTOR**

T<sub>A</sub> = 25°C

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	40			V	I <sub>C</sub> = 1mA, I <sub>F</sub> = 0
Emitter-Collector Breakdown Voltage	V <sub>(BR)ECO</sub>	7			V	I <sub>E</sub> = 100μA, I <sub>F</sub> = 0
Collector Dark Current	I <sub>D</sub>			100	nA	V <sub>CE</sub> = 20V, I <sub>F</sub> = 0mA

**COUPLED CHARACTERISTICS**

T<sub>A</sub> = 25°C

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
On State Collector Current	I <sub>C(ON)</sub>	0.5			mA	V <sub>CE</sub> = 5V, I <sub>F</sub> = 1mA
On State Collector Current	I <sub>C(ON)</sub>	1			mA	V <sub>CE</sub> = 5V, I <sub>F</sub> = 1mA
On State Collector Current	I <sub>C(ON)</sub>	2			mA	V <sub>CE</sub> = 5V, I <sub>F</sub> = 1mA
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>			0.3	V	I <sub>F</sub> = 2mA, I <sub>C</sub> = 0.5mA
	V <sub>CE(SAT)</sub>			0.3	V	I <sub>F</sub> = 2mA, I <sub>C</sub> = 1mA
	V <sub>CE(SAT)</sub>			0.3	V	I <sub>F</sub> = 2mA, I <sub>C</sub> = 2mA
Rise Time	t <sub>r</sub>		10	20	μs	V <sub>CC</sub> = 10V, I <sub>F</sub> = 5mA, R <sub>L</sub> = 100Ω
	t <sub>r</sub>		10	20	μs	
	t <sub>r</sub>		15	25	μs	
Fall Time	t <sub>f</sub>		10	20	μs	V <sub>CC</sub> = 10V, I <sub>F</sub> = 5mA, R <sub>L</sub> = 100Ω
	t <sub>f</sub>		10	20	μs	
	t <sub>f</sub>		15	25	μs	

**RECOMMENDED OPERATING CONDITIONS:**

PARAMETER	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level	I <sub>FL</sub>	0	1	μA
Input Current, High Level	I <sub>FH</sub>	10	20	mA
Supply Voltage	V <sub>CE</sub>	5	10	V

**SELECTION GUIDE**

PART NUMBER	PART DESCRIPTION
66133-001	3N261, Single Channel Optocoupler, Commercial
66133-002	3N262, Single Channel Optocoupler, Commercial
66133-003	3N263, Single Channel Optocoupler, Commercial
66133-101	3N261, Single Channel Optocoupler with JTX screening
66133-102	3N262, Single Channel Optocoupler with JTX screening
66133-103	3N263, Single Channel Optocoupler with JTX screening