

66158**SINGLE CHANNEL OPTOCOUPLER**

05/26/2009

Features:

- High Reliability
- Base lead eliminated for improved noise immunity
- Rugged package
- Stability over wide temperature
- +500V electrical isolation

Applications:

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

DESCRIPTION

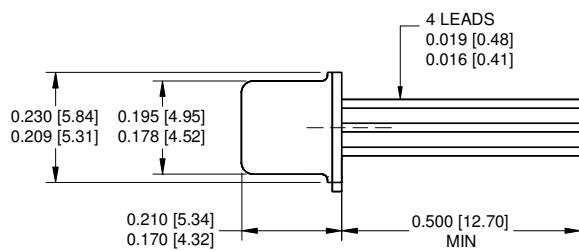
The **66158** contains a gallium arsenide infrared LED optically coupled to a silicon planar phototransistor. The optocoupler is built on a TO-46 header. The anode of the LED is electrically connected to the case. This optocoupler is capable of transmitting signals between two galvanic sources. The potential difference between transmitter and receiver should not go over the maximum isolation voltage. The internal base connection has been eliminated for improved noise immunity.

ABSOLUTE MAXIMUM RATINGS

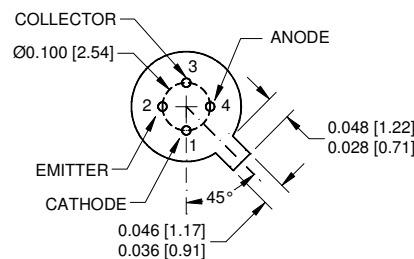
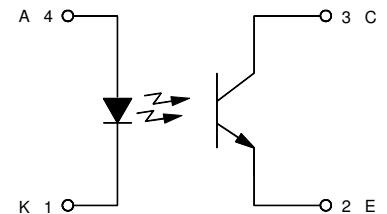
Input to Output Isolation Voltage (Note 3)	500 V
Emitter-Collector Voltage	5 V
Collector-Emitter Voltage	50 V
Reverse Input Voltage	7 V
Input Diode Continuous Forward Current (Note 1)	50 mA
Peak Forward Input Current (value applies for $t_w \leq 1\mu s$, PRR < 300 pps)	500 mA
Continuous Collector Current	50 mA
Continuous Transistor Power Dissipation (Note 2)	230 mW
Storage Temperature	-65°C to +150°C
Operating Free-Air Temperature Range	-55°C to +125°C
Lead Solder Temperature (10 seconds, 1/16" from case)	260°C

Notes:

1. Derate linearly to 125°C free-air temperature at the rate of 0.5 mA/°C above 25°C.
2. Derate linearly to 125°C free-air temperature at the rate of 2.3 mW/°C above 25°C.
3. Measured with input diode leads shorted together and output leads shorted together.

Package Dimensions

ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

**Schematic Diagram**

NOTE: ANODE ELECTRICALLY CONNECTED TO CASE.

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ELECTRICAL CHARACTERISTICS

T_A = 25°C unless otherwise specified.

SINGLE CHANNEL OPTOCOUPLER

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode Static Reverse Current	I _R			1	μA	V _R = 3 V
Input Diode Static Forward Voltage	V _F			1.2	V	I _F = 2 mA
Input Diode Static Forward Voltage	V _F			1.5	V	I _F = 50 mA
Reverse Breakdown Voltage	B _{VR}	7			V	I _R = 100 μA

OUTPUT TRANSISTOR

T_A = 25°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	50			V	I _C = 1 mA, I _B = 0, I _F = 0
Emitter-Collector Breakdown Voltage	V _{(BR)ECO}	7			V	I _C = 10 μA, I _E = 10 μA, I _F = 0
Collector-Emitter Dark Current	I _{CEO1}			50	nA	V _{CE} = 50 V, I _F = 0 mA
	I _{CEO2}			10	nA	V _{CE} = 5 V, I _F = 0 mA

COUPLED CHARACTERISTICS

T_A = 25°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
On State Collector Current	I _{C(ON)1}	4			mA	V _{CE} = 5 V, I _F = 10 mA
On State Collector Current	I _{C(ON)2}	3		20	mA	V _{CE} = 0.4 V, I _F = 10 mA
On State Collector Current -55°C	I _{C(ON)3}	2			mA	V _{CE} = 5 V, I _F = 10 mA
Collector-Emitter Saturation Voltage	V _{CE(SAT)}			0.4	V	I _F = 50 mA, I _C = 10 mA
Isolation Resistance	R _{ISO}	10 ⁹			Ω	V _{IN-OUT} = 500 V
Input to Output Capacitance	C _{IO}			2.5	pF	f = 1 MHz
Delay Time	t _d			4	μs	V _{CE} = 5 V, I _F = 2 mA, R _L = 100 Ω
Storage Time	t _s			0.5	μs	V _{CE} = 5 V, I _F = 2 mA, R _L = 100 Ω
Rise Time	t _r			5	μs	V _{CE} = 5 V, I _F = 2 mA, R _L = 100 Ω
Fall Time	t _f			5	μs	V _{CE} = 5 V, I _F = 2 mA, R _L = 100 Ω

RECOMMENDED OPERATING CONDITIONS:

PARAMETER	SYMBOL	MIN	MAX	UNITS
Input Current, Low Level	I _{FL}	0	1	μA
Input Current, High Level	I _{FH}	2	10	mA
Supply Voltage	V _{CE}	5	50	V
Operating Temperature	T _A	-55	125	°C

SELECTION GUIDE

PART NUMBER	PART DESCRIPTION
66158-001	Commercial
66158-101	Screened