66158	**SINGLE CHANNEL OPTOCOUPLER**	**OPTOELECTRONIC PRODUCTS DIVISION**

09/09/03

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 collector of the phototransistor 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.

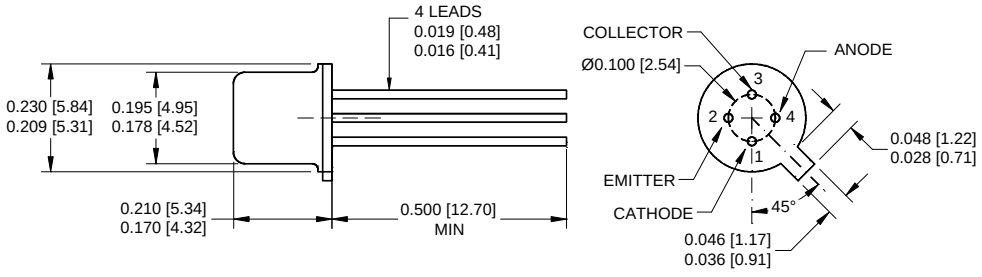
ABSOLUTE MAXIMUM RATINGS

Input to Output Isolation Voltage (Note 3)	500V
Emitter-Collector Voltage	5V
Collector-Emitter Voltage	50V
Reverse Input Voltage	7V
Input Diode Continuous Forward Current (Note 1)	50mA
Peak Forward Input Current (value applies for tw $\leq$ 1µs, PRR < 300 pps)	500mA
Continuous Collector Current	50mA
Continuous Transistor Power Dissipation (Note 2)	230mW
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:

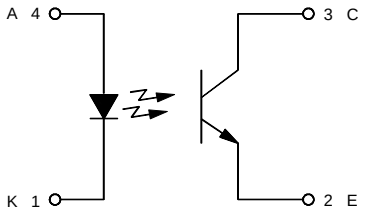
1. Derate linearly to 125°C free-air temperature at the rate of 0.5 mA/°C above 25°C.
2. Derate linearly to 125°C free-air temperature at the rate of 2.3 mW/°C above 25°C.
3. Measured with input diode leads shorted together and output leads shorted together.

Package Dimensions



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

Schematic Diagram



NOTE: ANODE ELECTRICALLY CONNECTED TO CASE.

ELECTRICAL CHARACTERISTICS

T_A = 25°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode Static Reverse Current	I_R			1	µA	V_R = 3V
Input Diode Static Forward Voltage	V_F			1.2	V	I_F = 2mA
Input Diode Static Forward Voltage	V_F			1.5	V	I_F = 50mA
Reverse Breakdown Voltage	B_{VR}	7			V	I_R = 100µA

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 = 1mA, I_B = 0, I_F = 0
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	7			V	I_C = 10µA, I_E = 10µA, I_F = 0
Collector-Emitter Dark Current	I_{CEO1}			50	nA	V_{CE} = 50V, I_F = 0mA
	I_{CEO2}			10	nA	V_{CE} = 5V, I_F = 0mA

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} = 5V, I_F = 10mA
On State Collector Current	$I_{C(ON)\ 2}$	3		20	mA	V_{CE} = 0.4V, I_F = 10mA
On State Collector Current -55°C	$I_{C(ON)\ 3}$	2			mA	V_{CE} = 5V, I_F = 10mA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.4	V	I_F = 50mA, I_C = 10mA
Isolation Resistance	R_{ISO}	10^9			Ω	V_{IN-OUT} = 500V
Input to Output Capacitance	C_{IO}			2.5	pF	f = 1MHz
Delay Time	t_d			4	µs	V_{CE} = 5V, I_F = 2mA, R_L = 100Ω
Storage Time	t_s			0.5	µs	V_{CE} = 5V, I_F = 2mA, R_L = 100Ω
Rise Time	t_r			5	µs	V_{CE} = 5V, I_F = 2mA, R_L = 100Ω
Fall Time	t_f			5	µs	V_{CE} = 5V, I_F = 2mA, R_L = 100Ω

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