66348 15 kV HIGH VOLTAGE, 6N134 TYPE HIGH SPEED ISOLATOR

OPTOELECTRONIC PRODUCTS DIVISION

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Features:

- 2 Mbd Transfer Rate
- 15 kVdc Isolation
- TTL compatible input and output
- Creepage Path: 0.965” min

Applications:

- High Voltage Isolation
- Voltage Level Shifting
- Grid Current Modulator
- Switching between power supplies
- Medical systems

DESCRIPTION

The ***66348*** high voltage isolator consists of an 850 nm LED optically coupled to a high speed, high gain inverting detector gate. The isolator output is TTL capable with switching propagation delays of 55 ns typical. The high voltage isolator has an operating free-air temperature range of -40℃ to +100℃ . The isolator is encased in a high temperature outer PPS housing.

ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Isolation Voltage (Input to Output) (Note 2)..... 15 kVdc
Operating Free-Air Temperature Range .....-40°C to +100°C
Storage Temperature.....-40°C to +100°C
Lead Solder Temperature (10 second, 1.6mm from case) (Note 1)..... 260°C

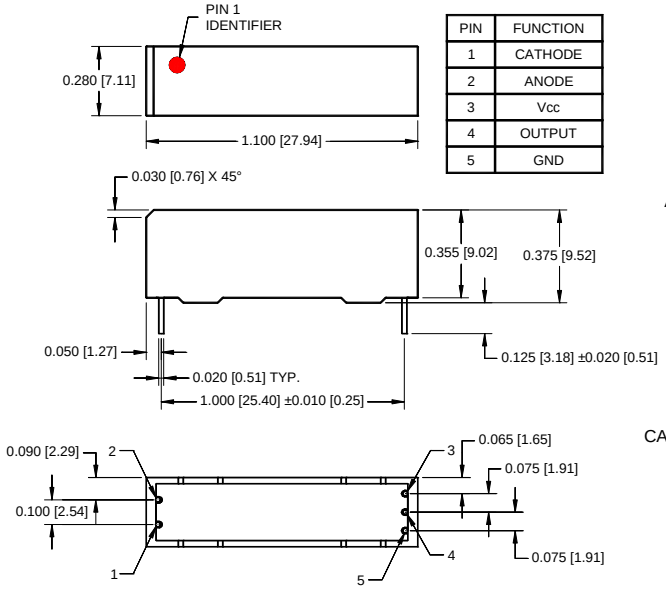
LED:

Peak Forward Input Current (2 μs duration).....300 mA
Average Forward Input Current .....50 mA
Reverse Input Voltage .....3.0 V
Input Power Dissipation .....100 mW

Output IC:

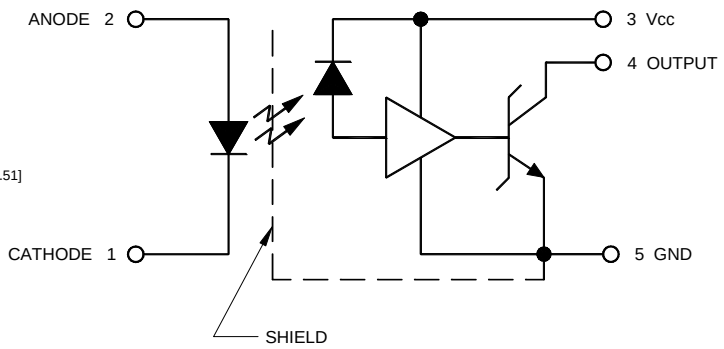
Supply voltage - V_{CC} ..... -0.5 V to 7.0 V (1 minute maximum)
Output Current - I_O .....25 mA
Output Power Dissipation .....40 mW
Output Voltage - V_O .....7 V

Package Dimensions



PIN	FUNCTION
1	CATHODE
2	ANODE
3	Vcc
4	OUTPUT
5	GND

Schematic Diagram



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS] UNLESS OTHERWISE SPECIFIED

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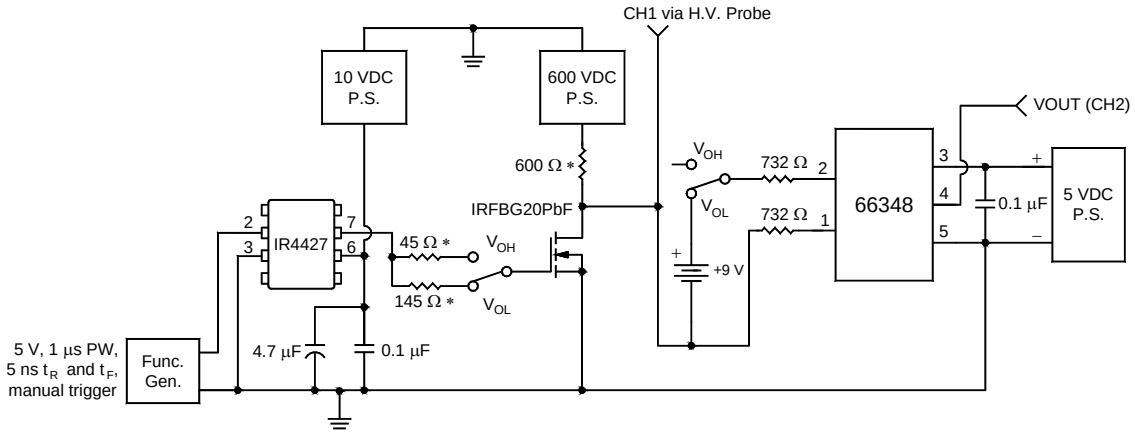
ELECTRICAL CHARACTERISTICS (T_A = 25℃ unless otherwise specified)

PARAMETER		SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Input LED								
Input Forward Voltage		V_F		1.3	1.6	V	I_F = 20 mA	
Reverse Current		I_R			100	µA	V_R = 3.0 V	
Output IC								
High Level Output Current		I_{OH}		0.25	15	µA	V_{CC} = 5.25 V, V_{OH} = 5.25 V, I_F = 0 mA, C_L = 0.1 µF	
Low Level Output Voltage		V_{OL}		0.40	0.5	V	V_{CC} = 4.5 V, I_F = 10 mA I_{OL} (Sinking) = 8.0 mA, C_L = 0.1 µF	
High Level Supply Current		I_{CCH}		2.5	7	mA	V_{CC} = 5.25V, I_F = 0 mA	
Low Level Supply Current		I_{CCL}		6	10	mA	V_{CC} = 5.25 V, I_F = 10 mA	
Coupled Characteristics (V_{CC} = 5 V)								
Coupling Capacitance		$C_{I—O}$			2.0	pF	Input and Output leads shorted	
Propagation Delay Time To High Output Level		t_{PLH}		55	100	ns	V_{CC} = 5 V, R_L = 560 Ω, I_F = 10 mA, C_L = 0.1 µF	
Propagation Delay Time To Low Output Level		t_{PHL}		55	200	ns	V_{CC} = 5 V, R_L = 560 Ω, I_F = 10 mA, C_L = 0.1 µF	
Difference in Propagation Delays		t_{PHL} - t_{PLH}			100	ns		
Input – Output Isolation Voltage		V_{I-O}	15,000			V	I_{I-O} = 25 µA	2
LED Positive going Threshold Current	-001	I_{F+}	0.9		5.0	mA	V_{CC} = 5.0 V, I_{OL} = 8.0 mA C_L = 0.1 µF	
	-002		4.0		15.0			
dV/dt Withstand (LED is OFF)		CM_H	5.0			kV/µs	V_{CC} = 5.0 V, I_F = 0 mA, 400 V <V_{CM} < 1000 V, $V_{O(MIN)}$ = 2.0 V, t = 1 µs	Fig. 1 3
dV/dt Withstand (LED is ON)	-001	CM_L	-5.0			kV/µs	V_{CC} = 5.0 V, I_F = 5.0 mA, 400 V < V_{CM} < 1000 V, $V_{O(MAX)}$ = 0.8 V, t = 1 µs	Fig. 1 3
	-002		-5.0				V_{CC} = 5.0 V, I_F = 15.0 mA, 400 V < V_{CM} < 1000 V, $V_{O(MAX)}$ = 0.8 V, t = 1 µs	Fig. 1 3

NOTES:

1) The duration can be extended to 10 seconds maximum when flow soldering. Otherwise 5 seconds with soldering iron.
2) Device considered a two terminal device with all Input pins (Anode and Cathode) shorted together and all Output pins (V_{CC}, GND and Output) shorted together.
3) These tests are not performed 100% in production. Tests are run on an evaluation sample of isolators built with each unique sensor wafer lot. Wafer lots that pass evaluation are certified for use in production fabrication of isolators.



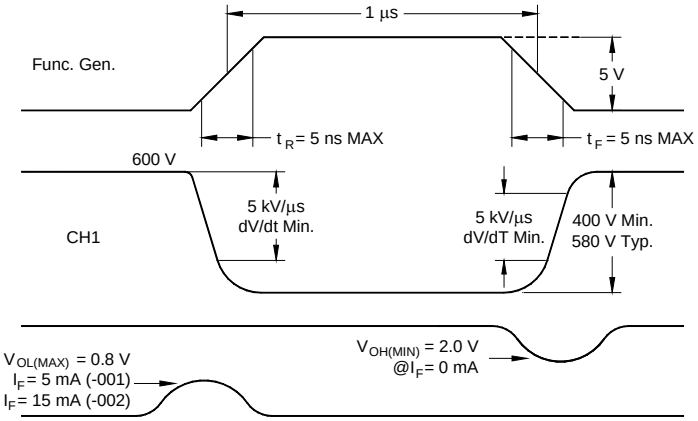


Fig. 1. dV/dt Withstand Test

SELECTION GUIDE

PART #	PART DESCRIPTION
66348-001	Commercial, Sensitive
66348-002	Commercial, Normal
66348-003	Commercial, Includes solder dipped leads and bubble test