

# 66314 35 kV HIGH VOLTAGE, RADIATION TOLERANT ISOLATOR



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### Features:

- Designed to exceed MIL-PRF-19500 radiation requirements
- 35 kVdc Isolation
- Current Transfer Ratio 150% typical
- Base lead provided for conventional transistor biasing

### Applications:

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

### DESCRIPTION

The **66314** high voltage isolator consisting of an 850 nm LED optically coupled to a radiation tolerant phototransistor. This configuration has proven to be highly tolerant to both proton and total dose radiation. The isolator is built with hermetic components internally optically coupled and encased in a high temperature outer PPS plastic housing.

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise specified)

Isolation Voltage (Input to Output) (Note 2).....	35 kVdc
Operating Free-Air Temperature Range .....	-40°C to +100°C
Storage Temperature.....	-40°C to +100°C
Lead Solder Temperature (10 seconds, 1.6mm from case) (Note 1).....	260°C

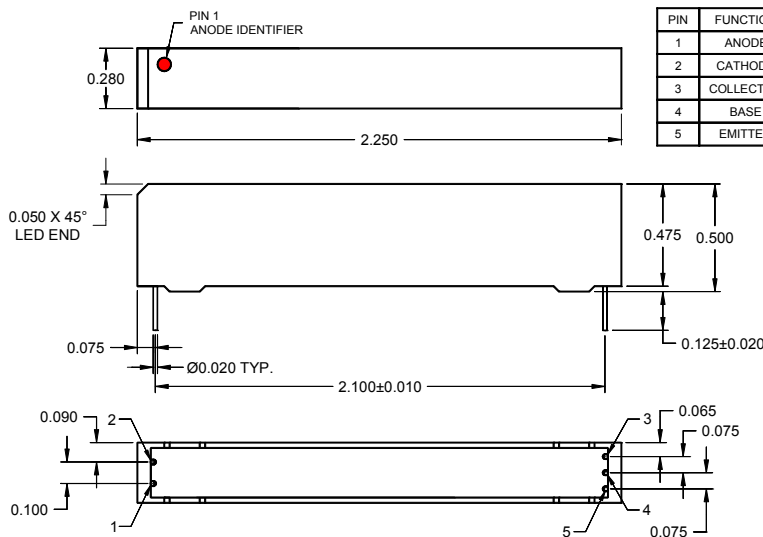
### LED:

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

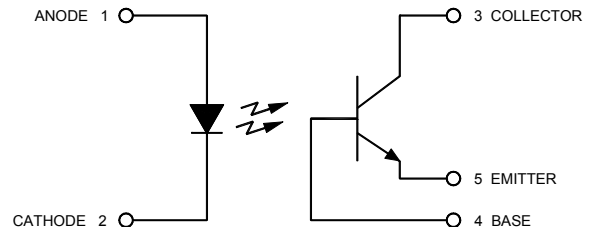
### Output Transistor:

Collector-Base Voltage .....	40 V
Collector-Emitter Voltage .....	40 V
Emitter-Base Voltage .....	4 V
Continuous Collector Current .....	50 mA
Continuous Transistor Power Dissipation .....	300 mW

### Package Dimensions



### Schematic Diagram



ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
<b>Input LED</b>							
Input Forward Voltage	$V_F$		1.3	1.8	V	$I_F = 20\text{ mA}$	
Reverse Current	$I_R$			100	$\mu\text{A}$	$V_R = 3.0\text{ V}$	
<b>Output Transistor</b>							
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	40			V	$I_C = 100\ \mu\text{A}, I_E = 0, I_F = 0$	
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40			V	$I_C = 1\text{ mA}, I_B = 0, I_F = 0$	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	4			V	$I_C = 0, I_E = 100\ \mu\text{A}, I_F = 0$	
Collector-Emitter Cutoff Current	$I_{CEO}$			100	nA	$V_{CC} = 20\text{ V}, I_F = 0$	
<b>Coupled Characteristics</b>							
Current Transfer Ratio	CTR	50			%	$V_{CE} = 1\text{ V}, I_F = 10\text{ mA}$	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.3	V	$I_F = 20\text{ mA}, I_C = 10\text{ mA}$	
Input – Output Isolation Voltage	$V_{I-O}$	35,000			V	$I_{I-O} = 25\ \mu\text{A}$	2
Rise Time	$t_r$			20	$\mu\text{s}$	$V_{CC} = 10\text{ V}, I_F = 10\text{ mA}, R_L = 100\ \Omega$	
Fall Time	$t_f$			20	$\mu\text{s}$	$V_{CC} = 10\text{ V}, I_F = 10\text{ mA}, R_L = 100\ \Omega$	

**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 (Collector, Emitter and Base) shorted together.

**SELECTION GUIDE**

PART #	PART DESCRIPTION
66314-001	Commercial
66314-101	Screened