

# 66353 HIGH VOLTAGE OPTOCOUPLER



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### Features:

- 12 kV Isolation Voltage
- 850 nm Emitters
- 8 kV Output Reverse Breakdown Voltage
- Radiation tolerant by design

### Applications

- High Voltage Power Supplies
- High Voltage Instruments
- Voltage Level Shifting
- Space Instrumentation

## DESCRIPTION

The **66353** is a single channel High Voltage Optocoupler using 850 nm Infrared Light Emitting Diodes optically coupled to a series of high voltage Silicon Photodiodes. The High Voltage Optocoupler is mounted into a non hermetic 4 Pin custom package designed to withstand high isolation voltage and is available as a commercial device or screened according to methods of MIL-PRF-38534 (where applicable).

### ABSOLUTE MAXIMUM RATINGS ( $t_A = 25^\circ\text{C}$ unless otherwise noted)

Operating Free-Air Temperature Range .....	-40°C to +100°C
Storage Temperature.....	-40°C to +100°C
Lead Soldering Temperature (1.6 mm from case for 5 seconds).....	240°C
Input to output Isolation Voltage (Note 1).....	12 kVDC

#### Input Diode:

Reverse Voltage (at 25°C case temperature) .....	7 VDC
Peak Forward Current (1 $\mu\text{s}$ pulse width, 300 pps).....	1 A
Forward Current-Continuous at 25°C case temperature .....	100 mA
Input Power Dissipation (Note 2).....	550 mW

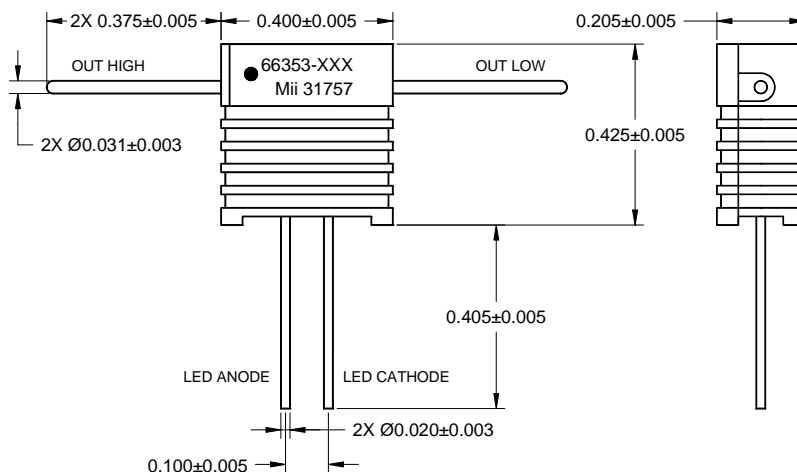
#### Output Photodetector:

Output Reverse Breakdown Voltage.....	8 kVDC
Continuous Detector Current ( $V_{OUT}$ or $P_{OUT}$ dependent) @ 2.5 kV .....	600 $\mu\text{A}$
Power Dissipation at 25°C case temperature (Note 3) .....	1.5 W

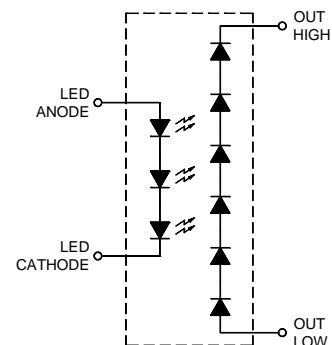
### NOTES:

1. Measured with input leads shorted together and output leads shorted together.
2. Derate linearly at the rate of 15 mW/°C above 65°C case.
3. Derate linearly at the rate of 40 mW/°C above 65°C case.

### Package Dimensions



### Schematic Diagram



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### ELECTRICAL CHARACTERISTICS

T<sub>A</sub> = 25°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
<b>Input Characteristic</b>							
Input Forward Voltage	V <sub>F(IN)</sub>	3.8		4.5	V	I <sub>F</sub> = 20 mA	
		4.3		5.6		I <sub>F</sub> = 100 mA	
Input Reverse Current	I <sub>R</sub>			1	μA	V <sub>R</sub> = 7 V	
<b>Output Characteristic</b>							
Output Forward Voltage	V <sub>F(OUT)</sub>	3.8		5.0	V	I <sub>F</sub> = 20 mA	
		4.3		6.0		I <sub>F</sub> = 100 mA	
Reverse Breakdown Voltage	V <sub>BR</sub>	8			kV	I <sub>d</sub> = 1 μA	
<b>Coupled Characteristic</b>							
Input-Output Isolation Current	I <sub>IO</sub>			10	μA	V <sub>IO</sub> = 12 kV	
Dark Current	I <sub>D</sub>			25	nA	I <sub>F</sub> = 0 mA, V <sub>OUT</sub> = 2.5 kV	
				50		I <sub>F</sub> = 0 mA, V <sub>OUT</sub> = 8 kV	
Current Transfer Ratio	CTR	1.3			%	I <sub>F</sub> = 20 mA, V <sub>OUT</sub> = 0 V	
		1.6				I <sub>F</sub> = 100 mA, V <sub>OUT</sub> = 0 V	
		2.0				I <sub>F</sub> = 20 mA, V <sub>OUT</sub> = 750 V	
		2.3				I <sub>F</sub> = 20 mA, V <sub>OUT</sub> = 2.5 kV	

#### RECOMMENDED OPERATING CONDITIONS:

PARAMETER	SYMBOL	MIN	MAX	UNITS
Forward Current	I <sub>F</sub>		20	mA

#### SELECTION GUIDE

PART NUMBER	PART DESCRIPTION
66353-002	Commercial
66353-301	Screened to space level