

**66004** 40kV HIGH VOLTAGE ISOLATOR WITH PHOTOTRANSISTOR  
or PHOTODARLINGTON OUTPUT, CERAMIC PACKAGE



**Features:**

- High Reliability
- Rugged package
- Stability over wide temperature
- 40kVdc electrical isolation

**Applications:**

- Grid current modulator
- Power Supply Feedback
- Switching between power supplies
- Patient station isolation

**DESCRIPTION**

In the **66004**, high voltage isolation is provided with a GaAlAs light emitting diode and by your choice of outputs, either silicon phototransistor or photodarlington, hermetically sealed in TO-46 packages and mounted in a high reliability, hermetically sealed, ceramic package. Available in commercial (0° to +70°C), extended temperature range (-40° to +85°C) and full Military temperature range (-55° to +125°C). **Contact the factory for special custom or multi-channel requirements!**

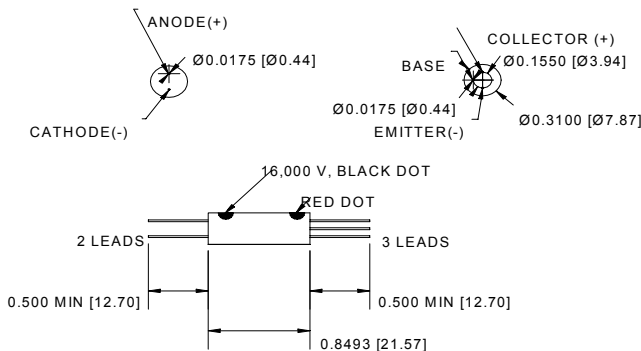
**ABSOLUTE MAXIMUM RATINGS**

Collector-Emitter Voltage (Value applies to emitter-base open-circuited & the input-diode equal to zero) .....	35V
Emitter-Collector Voltage .....	7V
Continuous Collector Current .....	50mA
Continuous Transistor Power Dissipation .....	(see Note 1) 250mW
Input to Output Isolation Voltage .....	40kV
Input Diode Continuous Forward Current at (or below) 65°C Free-Air Temperature .....	100mA
Reverse Input Voltage .....	.2V
Continuous LED Power Dissipation .....	(see Note 1) 250mW
Storage Temperature .....	-65°C to +150°C
Operating Free-Air Temperature Range .....	-55°C to +125°C
Lead Solder Temperature (1/16" from case for 10 seconds max.) .....	240°C

**Notes:**

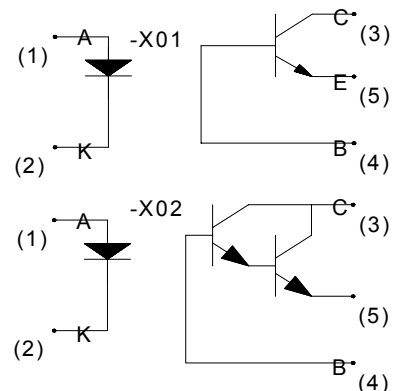
1. Derate linearly to 125°C free-air temperature at the rate of 2.45 mW/°C.

**Package Dimensions**



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS] NOMINAL

**Schematic Diagram**



NOTE: BLACK DOT INDICATES ANODE FOR LED  
RED DOT INDICATES COLLECTOR FOR  
TRANSISTOR.

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode Static Reverse Current 66004-X01 66004-X02	I <sub>R</sub>			100	μA	V <sub>R</sub> = 2V
Input Diode Static Forward Voltage 66004-X01 66004-X02	V <sub>F</sub>		1.15	1.8	V	I <sub>F</sub> = 20mA
Reverse Breakdown Voltage 66004-X01 66004-X02	B <sub>V</sub> R	2	10		V	I <sub>R</sub> = 100μA
Input Diode Capacitance 66004-X01 66004-X02	C <sub>IN</sub>		25		pF	V = 0V, f = 1MHz

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Collector-Emitter Breakdown Voltage	V <sub>(BR)</sub> CEO	35			V	I <sub>C</sub> = 1mA, I <sub>B</sub> = 0, I <sub>F</sub> = 0
Collector-Emitter Dark Current	I <sub>CEO</sub>			75 300	nA nA	V <sub>CE</sub> = 10V, I <sub>F</sub> = 0mA

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Current Transfer Ratio 66004-X01 66004-X02	CTR	5 100			%	V <sub>CE</sub> = 5V, I <sub>F</sub> = 10mA
Collector-Emitter Saturation Voltage 66004-X01 66004-X02	V <sub>CE(SAT)</sub>			0.5 1.2	V	I <sub>F</sub> = 50mA, I <sub>C</sub> = 1mA
DC Isolation Voltage 66004-X01 66004-X02	V <sub>ISO</sub>	40 40			kV	
Rise Time 66004-X01 66004-X02	t <sub>r</sub>		10 20		μs	V <sub>CC</sub> = 5V, I <sub>F</sub> = 16mA, R <sub>L</sub> = 100Ω
Fall Time 66004-X01 66004-X02	t <sub>f</sub>		10 20		μs	V <sub>CC</sub> = 5V, I <sub>F</sub> = 16mA, R <sub>L</sub> = 100Ω

**RECOMMENDED OPERATING CONDITIONS:**

PARAMETER	SYMBOL	MIN	MAX	UNITS
Input Current, High Level	I <sub>FH</sub>	16	50	mA
Supply Voltage	V <sub>CE</sub>	5	10	V
Operating Temperature	T <sub>A</sub>	-55	125	°C

**SELECTION GUIDE**

PART #	PART DESCRIPTION
66004-001	Transistor output, military operating range (-55° to +125°C)
66004-101	Transistor output, full mil-temp (-55° to +125°C) with 100% device screening (on discrete components)
66004-011	Transistor output, commercial version Isolator(0° to 70°C)
66004-002	Darlington output, military operating range (-55° to +125°C)
66004-102	Darlington output, full mil-temp (-55° to +125°C) with 100% device screening (on discrete components)
66004-012	Darlington output, commercial version Isolator(0° to 70°C)



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