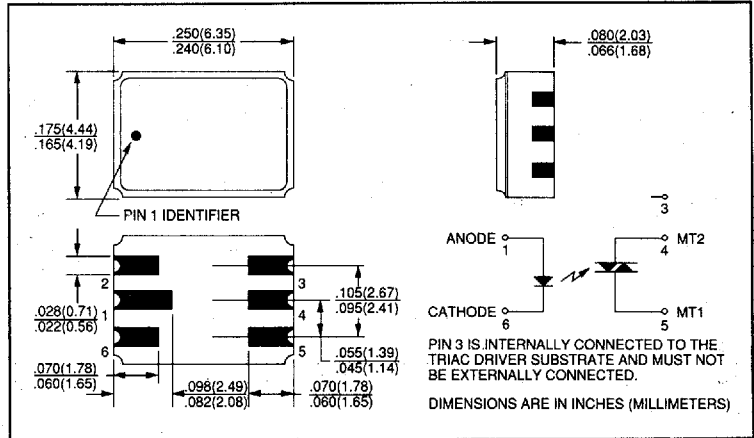
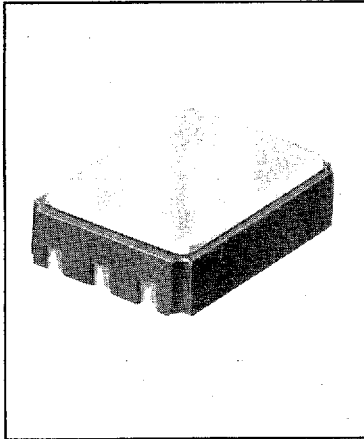


# Zero Voltage Crossing Optically Coupled Triac Driver Type HCC340



## Features

- For 220 VAC operation
- 1500 VDC electrical isolation
- Zero voltage crossing for reduced EMI, line noise, and improved static dV/dt
- Surface mountable on ceramic or printed circuit board
- Miniature package saves circuit board area
- Hermetically sealed package

## Description

The HCC340 consists of a gallium aluminum arsenide infrared emitting diode and a monolithic integrated circuit containing a photodiode and a zero voltage bidirectional triac driver mounted in a miniature six pin hermetic leadless chip carrier. The device is for low power DC controlling of power triacs which in turn control resistive, inductive, or capacitive loads powered from 220 VAC. Zero voltage crossing ensures that the device will not turn on until the line voltage reduces to 15 volts, typical.

## Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Input-to-Output Isolation Voltage	..... $\pm 1.5$ kVDC <sup>(1)</sup>
Operating Temperature	..... $-55^\circ\text{C}$ to $+125^\circ\text{C}$
Storage Temperature	..... $-65^\circ\text{C}$ to $+150^\circ\text{C}$
Soldering Temperature (vapor phase reflow for 30 sec.)	..... $215^\circ\text{C}$
Soldering Temperature (heated collet for 5 sec.)	..... $260^\circ\text{C}$

## Input Diode

Forward DC Current ( $65^\circ\text{C}$ or below)	..... 40 mA
Reverse Voltage	..... 3.0 V
Power Dissipation	..... 60 mW <sup>(2)</sup>

## Output Photosensor

Off-State Terminal Voltage	..... 400 V
On-State RMS Current (Full Cycle, 50-60 Hz, $T_A = 25^\circ\text{C}$ )	..... 100 mA
On-State RMS Current (Full Cycle, 50-60 Hz, $T_A = 70^\circ\text{C}$ )	..... 50 mA
Peak Non-Repetitive Surge Current (PW = 10 ms, duty cycle = 10%)	..... 1.20 A
Power Dissipation	..... 300 mW <sup>(3)</sup>

## Notes:

- (1) Measured with inputs shorted together and outputs shorted together.
- (2) Derate linearly 1.0 mW/ $^\circ\text{C}$  above  $65^\circ\text{C}$ .
- (3) Derate linearly 3.0 mW/ $^\circ\text{C}$  above  $25^\circ\text{C}$ .

# Type HCC340

Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
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## Input Diode

$V_F$	Forward Voltage	1.20		1.60	V	$I_F = 10.0 \text{ mA}$
		1.00		1.80	V	$I_F = 10.0 \text{ mA}, T_A = -55^\circ\text{C}$
		0.80		1.40	V	$I_F = 10.0 \text{ mA}, T_A = 125^\circ\text{C}$
$I_R$	Reverse Current			100	$\mu\text{A}$	$V_R = 3.0 \text{ V}$

## Output Phototransistor

$I_{\text{DRM}}$	Peak Blocking Current, Either Direction		10.0	100	nA	$V_{\text{DRM}} = 400 \text{ V}$
				6.0	$\mu\text{A}$	$V_{\text{DRM}} = 400 \text{ V}, T_A = 85^\circ\text{C}$
				6.0	$\mu\text{A}$	$V_{\text{DRM}} = 300 \text{ V}, T_A = 125^\circ\text{C}$
$V_{\text{TM}}$	Peak On-State Voltage, Either Direction		1.75	3.0	V	$I_{\text{TM}} = 100 \text{ mA}, I_F = 10.0 \text{ mA}$
				3.0	V	$I_{\text{TM}} = 100 \text{ mA}, I_F = 10.0 \text{ mA}, T_A = -55^\circ\text{C}$
				5.0	V	$I_{\text{TM}} = 100 \text{ mA}, I_F = 10.0 \text{ mA}, T_A = 125^\circ\text{C}$
dV/dt	Critical Rate of Rise of Off-State Voltage	100			V/ $\mu\text{s}$	$R_L = 2.5 \text{ k}\Omega$

## Coupled

$I_{\text{FT}}$	LED Trigger Current Required to Latch			10.0	mA	$V_{\text{TM}} = 3.0 \text{ V}, R_L = 150 \Omega$
				15.0	mA	$V_{\text{TM}} = 5.0 \text{ V}, R_L = 150 \Omega, T_A = -55^\circ\text{C}$
				20.0	mA	$V_{\text{TM}} = 5.0 \text{ V}, R_L = 150 \Omega, T_A = 125^\circ\text{C}$
$I_H$	Holding Current, Either Direction		200		$\mu\text{A}$	
$V_{\text{ISO}}$	Isolation Voltage	1500			VDC	See Note (1)
$V_{\text{I(TH)}}$	Zero Voltage Crossing Inhibit Voltage Threshold			40	V	$I_{\text{FT}} = 10.0 \text{ mA}$
				40	V	$I_{\text{FT}} = 10.0 \text{ mA}, T_A = -55^\circ\text{C}$
				40	V	$I_{\text{FT}} = 10.0 \text{ mA}, T_A = 125^\circ\text{C}$
$I_{\text{R(I)}}$	Leakage Current in Inhibit State			300	$\mu\text{A}$	$I_{\text{FT}} = 10.0 \text{ mA}, V_{\text{MT}} = 400 \text{ V}$
				600	$\mu\text{A}$	$I_{\text{FT}} = 10.0 \text{ mA}, V_{\text{MT}} = 400 \text{ V}, T_A = -55^\circ\text{C}$
				300	$\mu\text{A}$	$I_{\text{FT}} = 10.0 \text{ mA}, V_{\text{MT}} = 300 \text{ V}, T_A = 125^\circ\text{C}$

HI REL OPTO COMPONENTS

Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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