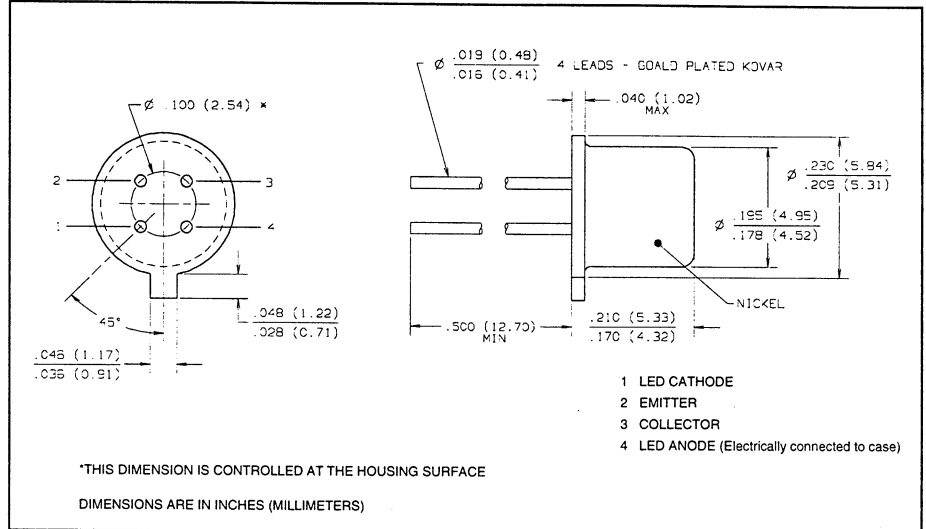
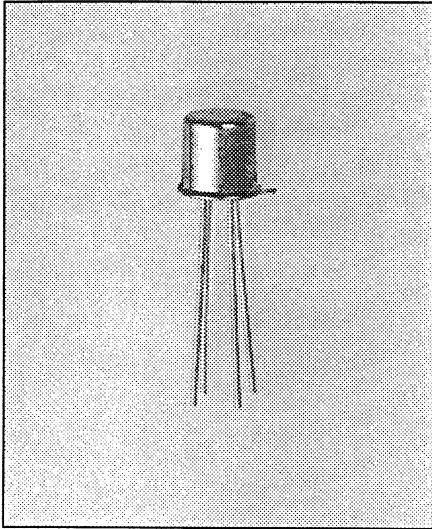


# Optically Coupled Isolator

## Type 3C92C, 3C92CHR, 3C92CTX, 3C92CTXV



### Features

- TO-72 hermetic package
- 1 kVDC electrical isolation
- High current transfer ratio

### Description

The 3C92C is an optically coupled isolator consisting of an infrared emitting diode and an NPN silicon phototransistor mounted in a hermetically sealed TO-72 package.

Typical screening and lot acceptance tests are provided on page 13-4.

The 3C92CHR device has been 100% screened as a TXV device although Group B and C testing is not performed.

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

Input to Output Isolation Voltage	.....	$\pm 1\text{kVDC}^{(1)}$
Operating Temperature Range	.....	$-55^\circ\text{C}$ to $+125^\circ\text{C}$
Storage Temperature Range	.....	$-65^\circ\text{C}$ to $+150^\circ\text{C}$
Lead Soldering Temperature [1/16 inch (1.6 mm) from case, 5 sec. with soldering iron]	.....	$240^\circ\text{C}^{(2)}$
Power Dissipation (Output Transistor)	.....	200 mW <sup>(3)</sup>
Power Dissipation (Input Diode)	.....	60 mW <sup>(4)</sup>

#### Notes:

- (1) Measured with input leads shorted together and output leads shorted together.
- (2) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
- (3) Derate linearly 2.0 mW/ $^\circ\text{C}$  above  $25^\circ\text{C}$ .
- (4) Derate linearly 0.60 mW/ $^\circ\text{C}$  above  $65^\circ\text{C}$ .

# Types 3C92C, 3C92CHR, 3C92CTX, 3C92CTXV

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITION
<b>Input Diode</b>						
$V_F$	Forward Voltage			1.2	V	$I_F = 2\text{ mA}$
				1.5	V	$I_F = 50\text{ mA}$
$V_R$	Reverse Voltage	7			V	$I_R = 0.1\text{ mA}$
$I_R$	Reverse Current			1	$\mu\text{A}$	$V_R = 3\text{ V}$
$C_{IN}$	Diode Capacitance		25		pF	$V = 0, f = 1\text{ MHz}$
<b>Phototransistor</b>						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	50			V	$I_C = 10\text{ mA}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	7			V	$I_C = 10\text{ }\mu\text{A}$
$I_{CEO}$	Collector-Emitter Leakage Current			10	nA	$V_{CE} = 5\text{ V}$
				50	nA	$V_{CE} = 50\text{ V}$
<b>Coupled</b>						
$I_{C(ON)}$	On-State Collector Current	4.0		—	mA	$I_F = 10\text{ mA}, V_{CE} = 5\text{ V}$
		3.0		20	mA	$I_F = 10\text{ mA}, V_{CE} = 0.4\text{ V}$
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage			0.4	V	$I_F = 50\text{ mA}, I_C = 10\text{ mA}$
$t_{on}$	Turn on Time			9	$\mu\text{s}$	$V_{CC} = 5\text{ V}, I_C = 2\text{ mA}, R_L = 100\text{ }\Omega$
$t_{off}$	Turn off Time			6	$\mu\text{s}$	
$C_{IO}$	Input-to-Output Capacitance		2	2.5	pF	$f = 1\text{ MHz}$
$R_{IO}$	Isolation Resistance	$10^9$			$\Omega$	$V_{IO} = +1\text{ kV}$

HI-REL OPTO COMPONENTS