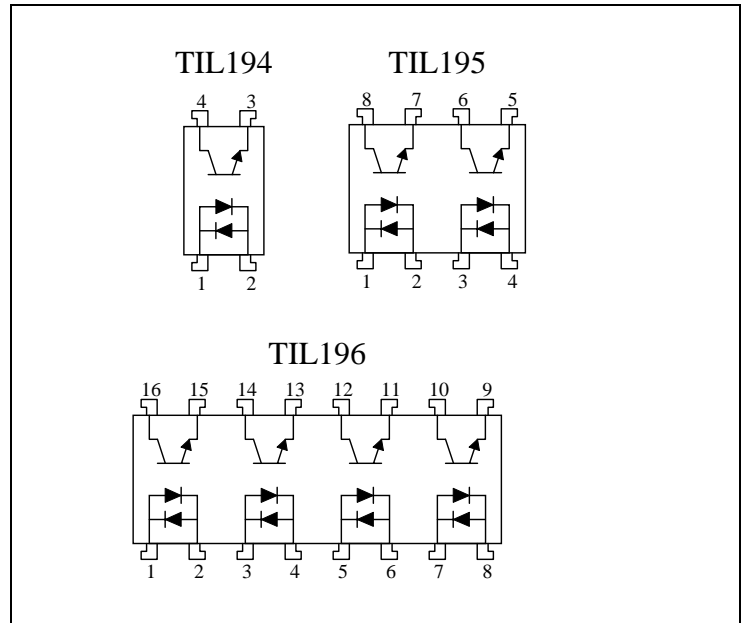


TIL194, 195, 196



AC-INPUT OPTOCOUPPLERS



Features

- AC Signal Input
- GaAs Diode
- Single, Dual or Quad Channels
- CTR Ratio 20, 50 or 100%
- Low Cost Dual-in-Line Package
- 5000V Isolation

Description

These optocouplers consist of two gallium-arsenide light-emitting diodes connected in a reverse-parallel configuration for ac-input applications and a silicon n-p-n phototransistors mounted for each channel in standard 4, 8 and 16-pin dual-in-line packages.

Absolute Maximum Ratings ($T_{AMB} = 25^{\circ}\text{C}$ u.o.s.)

Input-to-Output Isolation Voltage (note 1)	± 5000 Vdc
Collector-Emitter Voltage (note 2)	35 V
Emitter-Collector Voltage	7 V
Input Diode Continuous Forward Current ($T_A \leq 25^{\circ}\text{C}$) (note 3)	± 50 mA
Continuous Power Dissipation ($T_A \leq 25^{\circ}\text{C}$)	
PhotoTransistor	150 mW
Input Diode + Phototransistor per Channel (note 5)	200 mW
Storage Temperature Range	-55°C to 125°C
Lead Temperature 1.6 mm from case, 10 secs	260°C

Notes

1. This rating applies for sine-wave operation at 50 or 60 Hz.
2. This value applies when the base-emitter diode is open-circuited.
3. Derate linearly to 100°C free-air temperature at 0.67 mA/ $^{\circ}\text{C}$
4. Derate linearly to 100°C free-air temperature at 2 mW/ $^{\circ}\text{C}$
5. Derate linearly to 100°C free-air temperature at 2.67 mW/ $^{\circ}\text{C}$

Isocom Ltd reserves the right to change the details on this specification without notice. Please consult Isocom Ltd prior to use. Isocom Ltd cannot accept liability for any errors or omissions.

For sales enquiries, or further information, please contact our sales office at:

Isocom Ltd, Hutton Close, Crowther Industrial Estate, District 3, Washington, NE38 0AH

Tel: +44 0191 4166 546 Fax: +44 0191 4155 055 Email Isocom@isocomoptocouplers.com

Or go to the Isocom Website @: [Http://www.isocom.uk.com](http://www.isocom.uk.com)

Electrical Characteristics (at 25°C)

SYMBOL	PARAMETER	Test Conditions	MIN	TYP	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 0.5 \text{ mA}, I_F = 0$	35			V
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	$I_C = 100 \mu\text{A}, I_F = 0$	7			V
$I_{C(OFF)}$	Off-State Collector Current	$V_{CE} = 24 \text{ V}, I_F = 0$			100	nA
CTR	Current Transfer Ratio	$I_F = 5 \text{ mA}, V_{CE} = 5 \text{ V}$	20			%
			50			%
			100			%
V_F	Input Diode Static Forward Voltage	$I_F = 20 \text{ mA}$			1.4	V
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	$I_F = 5 \text{ mA}, I_C = 1 \text{ mA}$			0.4	V
c_{IO}	Input-to-Output Capacitance	$V_{IN-OUT} = 0, f = 1 \text{ MHz}, \text{note 6}$		1		pF
R_{IO}	Input-to-Output Internal Resistance	$V_{IN-OUT} = \pm 1 \text{ kV}, \text{note 6}$		100		GΩ
$I_{C(ON)1}$ $I_{C(ON)2}$	On-State Collector Current Symmetry Ratio (note 7)	$V_{CE} = 5 \text{ V}, I_F = 5 \text{ mA}$	1		3	
t_R	Rise Time (note 8)	$V_{CC} = 5 \text{ V}, I_{C(ON)} = 2 \text{ mA},$ $R_L = 100 \Omega$		6		μs
t_F	Fall Time (note 8)			6		μs

Notes

6. These parameters are measured between all input-diode leads shorted together and all phototransistor leads shorted together.
7. The higher of the two values of $I_{C(ON)}$ generated by the two diodes is taken as $I_{C(ON)1}$.
8. These parameters apply to either direction of the input current.

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