TIL194, TIL195, TIL196, TIL194X, TIL195X, TIL196X
TIL194A, TIL195A,TIL196A, TIL194AX, TIL195AX,TIL196AX
TIL194B, TIL195B, TIL196B, TIL194BX, TIL195BX, TIL196BX

HIGH DENSITY A.C. INPUT PHOTOTRANSISTOR OPTICALLY COUPLED ISOLATORS

APPROVALS

- UL recognised, File No. E91231

'X' SPECIFICATION APPROVALS

- VDE 0884 in 3 available lead form:
  - STD
  - G form
  - SMD approved to CECC 00802
- TIL194X/AX/BX Certified to EN60950 by the following Test Bodies :-
  Nemko - Certificate No. P01102465
  Fimko - Certificate No. FI18162
  Semko - Reference No. 0202041/01-25
  Demko - Certificate No. 311161-01
- TIL194X/AX/BX : BSI approved
  - Certificate No. 8001

DESCRIPTION

The TIL194, TIL195, TIL196 series of optically coupled isolators consist of two infrared light emitting diodes connected in inverse parallel and NPN silicon photo transistors in space efficient dual in line plastic packages.

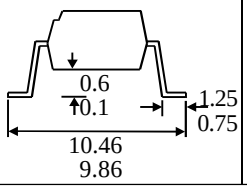
FEATURES

- Options :-
  10mm lead spread - add G after part no.
  Surface mount - add SM after part no.
  Tape&reel - add SMT&R after part no.
- High Isolation Voltage ($5.3kV_{RMS}$,$7.5kV_{PK}$)
- AC or polarity insensitive input
- All electrical parameters 100% tested
- Custom electrical selections available

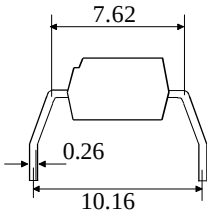
APPLICATIONS

- Computer terminals
- Industrial systems controllers
- Telephone sets, Telephone exchangers
- Signal transmission between systems of different potentials and impedances

OPTION SM
SURFACE MOUNT

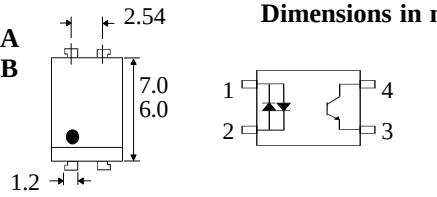


OPTION G

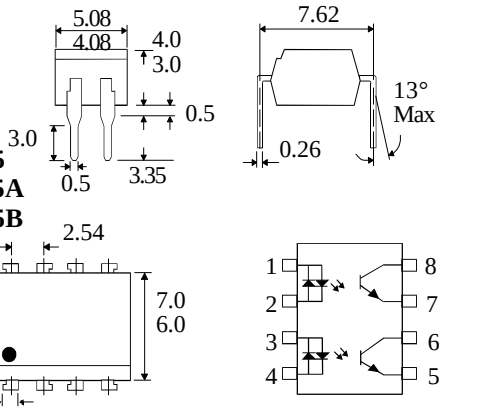


Dimensions in mm

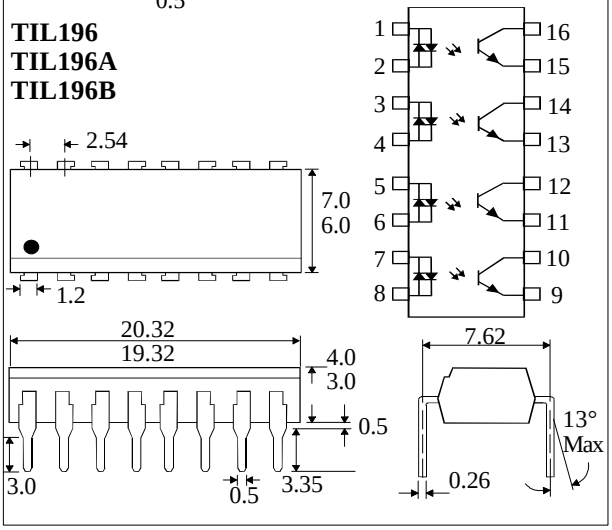
TIL194
TIL194A
TIL194B



TIL195
TIL195A
TIL195B



TIL196
TIL196A
TIL196B



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Hartlepool, Cleveland, TS25 1YD
Tel: (01429) 863609 Fax :(01429) 863581

ISOCOM INC
1024 S. Greenville Ave, Suite 240,
Allen, TX 75002 USA
Tel: (214) 495-0755 Fax: (214) 495-0901
e-mail info@isocom.com
http://www.isocom.com

ABSOLUTE MAXIMUM RATINGS
(25°C unless otherwise specified)

Storage Temperature	-55°C to + 125°C
Operating Temperature	-30°C to + 100°C
Lead Soldering Temperature (1/16 inch (1.6mm) from case for 10 secs)	260°C

INPUT DIODE

Forward Current	± 50mA
Power Dissipation	70mW

OUTPUT TRANSISTOR

Collector-emitter Voltage BV_{CEO}	35V
Emitter-collector Voltage BV_{ECO}	6V
Power Dissipation	150mW

POWER DISSIPATION

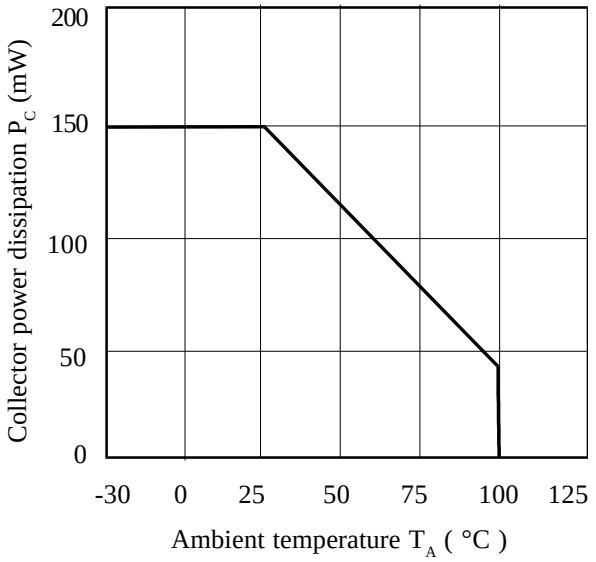
Total Power Dissipation (derate linearly 2.67mW/°C above 25°C)	200mW

ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless otherwise noted)

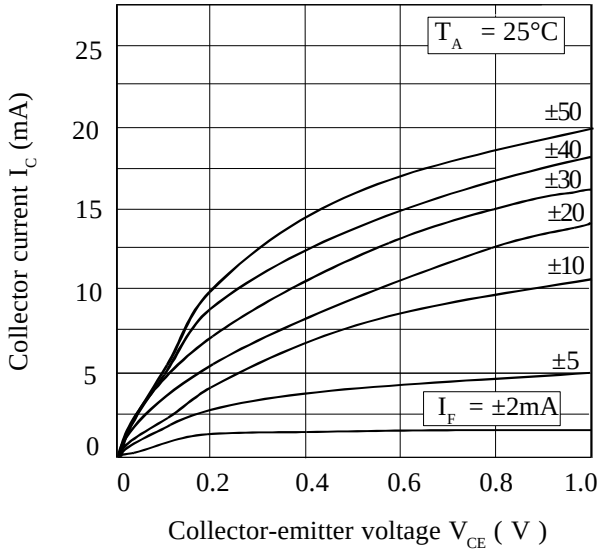
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.4	V	I_F = ± 20mA
Output	Collector-emitter Breakdown (BV_{CEO}) (Note 2)	35			V	I_C = 0.5mA
	Emitter-collector Breakdown (BV_{ECO})	6			V	I_E = 100µA
	Collector-emitter Dark Current (I_{CEO})			100	nA	V_{CE} = 20V
Coupled	Current Transfer Ratio (CTR) (Note 2)					
	TIL194, TIL195, TIL196	20			%	± 5mAI_F, 5V V_{CE}
	TIL194A, TIL195A, TIL196A	50			%	
	TIL194B, TIL195B, TIL196B	100			%	
	Collector-Emitter Saturation Voltage $V_{CE\ (SAT)}$			0.4	V	± 5mAI_F, 1mAI_C
	Input to Output Isolation Voltage V_{ISO}	5300			V_{RMS}	See note 1
		7500			V_{PK}	See note 1
	Input-output Isolation Resistance R_{ISO}	$5x10^{10}$			Ω	V_{IO} = 500V (note 1)
	Response Time (Rise), tr		4		µs	V_{CE} = 2V,
	Response Time (Fall), tf		3		µs	I_C = 2mA, R_L = 100Ω

Note 1 Measured with input leads shorted together and output leads shorted together.
Note 2 Special Selections are available on request. Please consult the factory.

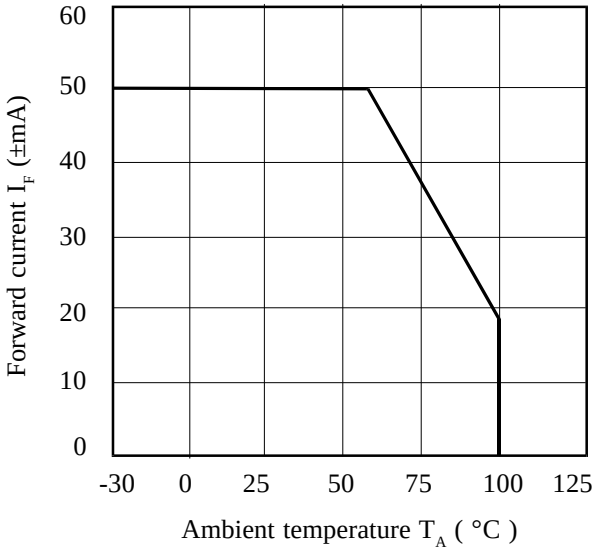
Collector Power Dissipation vs. Ambient Temperature



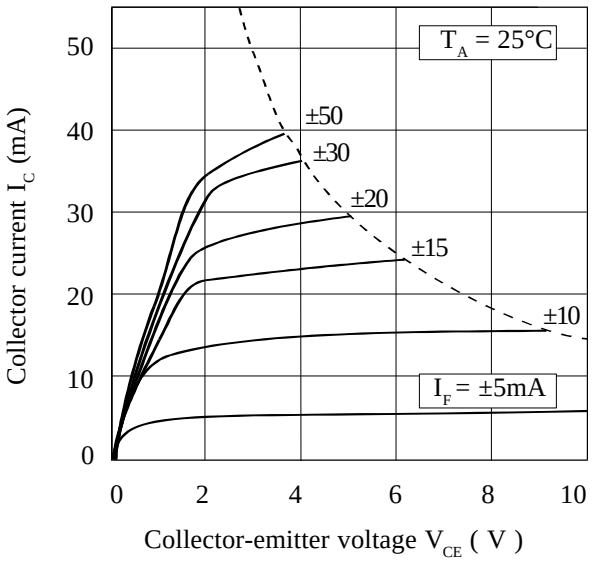
Collector Current vs. Low Collector-emitter Voltage



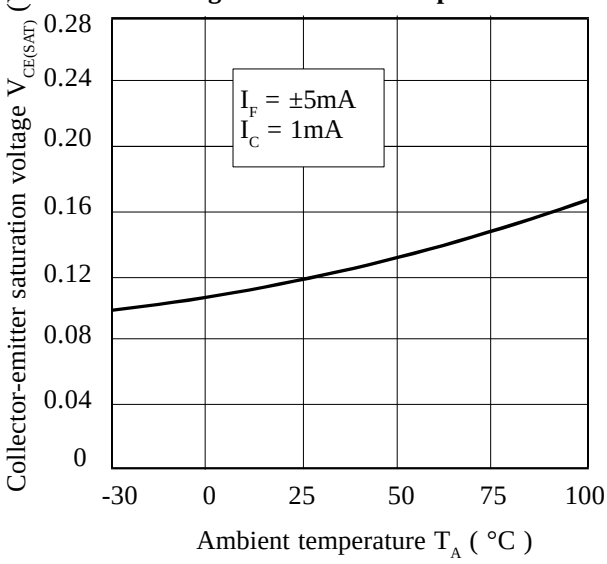
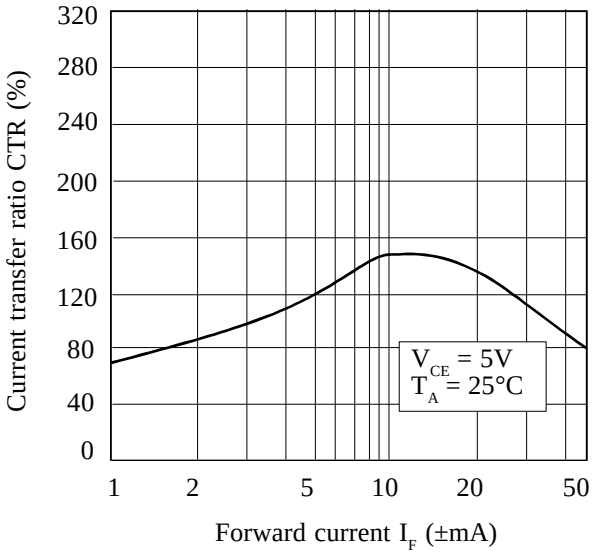
Forward Current vs. Ambient Temperature



Collector Current vs. Collector-emitter Voltage



Collector-emitter Saturation Voltage vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current