

TIL194, TIL195, TIL196
TIL194A, TIL195A, TIL196A
TIL194B, TIL195B, TIL196B



HIGH DENSITY A.C. INPUT PHOTOTRANSISTOR OPTICALLY COUPLED ISOLATORS

APPROVALS

- UL recognised, File No. E91231

'X' SPECIFICATION APPROVALS

- VDE 0884 approval pending
- TIL194X- Certified to EN60950 by the following Test Bodies :-
Nemko - Certificate No. P96102022
Fimko - Registration No. 192313-01..25
Semko - Reference No. 9639052 01
Demko - Reference No. 305969
TIL195X, TIL196X - EN60950 pending

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.

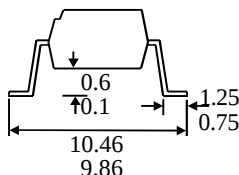
FEATURES

- 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

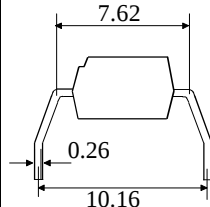
APPLICATIONS

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

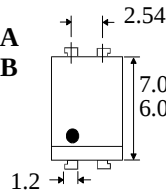
**OPTION SM
SURFACE MOUNT**



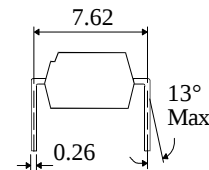
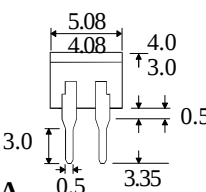
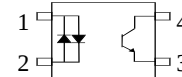
OPTION G



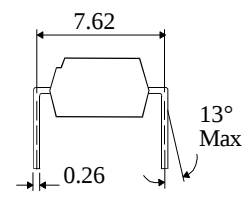
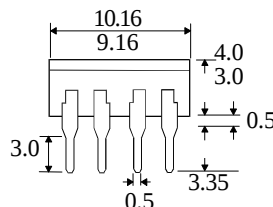
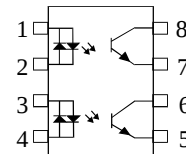
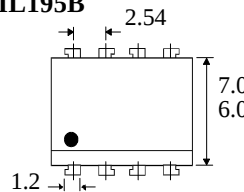
**TIL194
TIL194A
TIL194B**



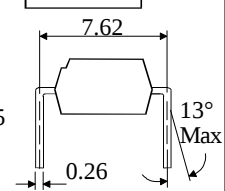
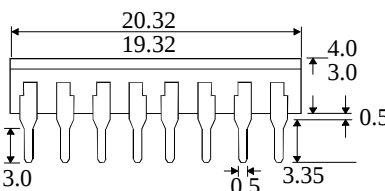
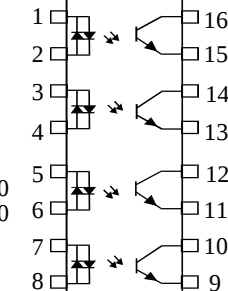
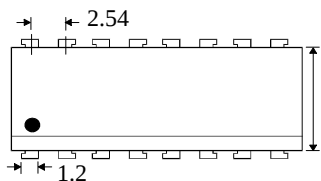
Dimensions in mm



**TIL195
TIL195A
TIL195B**



**TIL196
TIL196A
TIL196B**



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ABSOLUTE MAXIMUM RATINGS
(25°C unless otherwise specified)

Storage Temperature ——— -55°C to + 125°C
Operating Temperature ——— -55°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 ——— 200mW
(derate linearly 2.67mW/°C above 25°C)

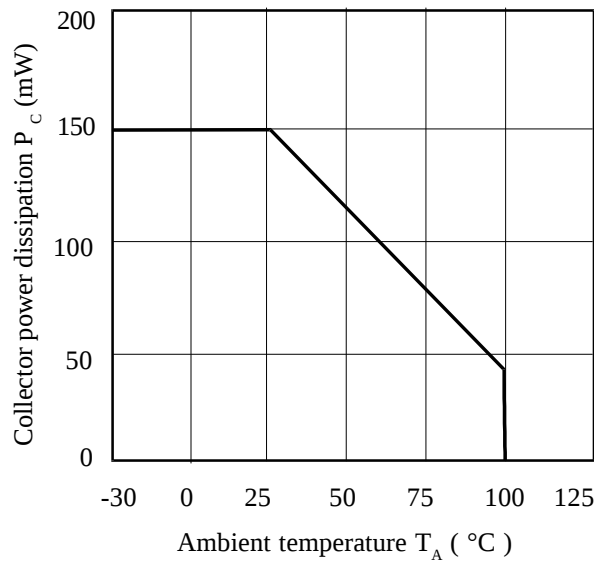
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.4	V	$I_F = \pm 20\text{mA}$
Output	Collector-emitter Breakdown (BV_{CEO}) (Note 2)	35			V	$I_C = 0.5\text{mA}$
	Emitter-collector Breakdown (BV_{ECO})	6			V	$I_E = 100\mu\text{A}$
	Collector-emitter Dark Current (I_{CEO})			100	nA	$V_{CE} = 24\text{V}$
Coupled	Current Transfer Ratio (CTR) (Note 2) TIL194, TIL195, TIL196	20			%	$\pm 5\text{mA}I_F$, 5V V_{CE}
	TIL194A, TIL195A, TIL196A	50			%	
	TIL194B, TIL195B, TIL196B	100			%	
	Collector-Emitter Saturation Voltage $V_{CE(SAT)}$			0.4	V	$\pm 5\text{mA}I_F$, 1mA I_C
	Input to Output Isolation Voltage V_{ISO}	5300 7500			V_{RMS} V_{PK}	See note 1 See note 1
	Input-output Isolation Resistance R_{ISO}	5×10^{10}			Ω	$V_{IO} = 500\text{V}$ (note 1)
	Output Rise Time tr Output Fall Time tf		6 6		μs μs	$V_{CC} = 5\text{V}$, $I_C = 2\text{mA}$, $R_L = 100\Omega$

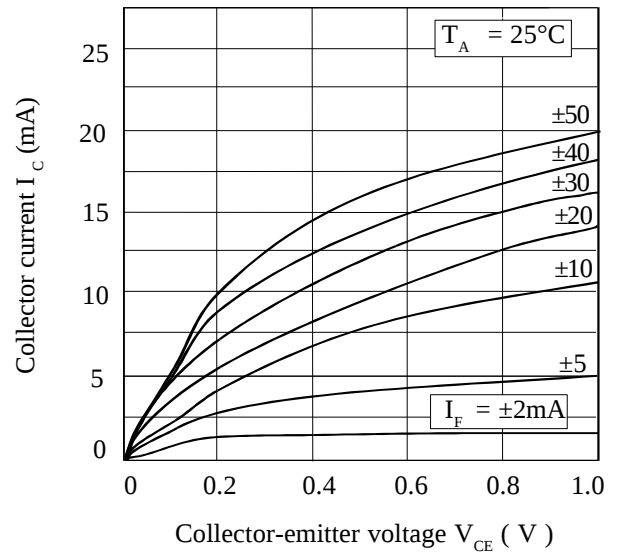
Note 1 Measured with input leads shorted together and output leads shorted together.

Note 2 Special Selections are available on request. Please consult the factory.

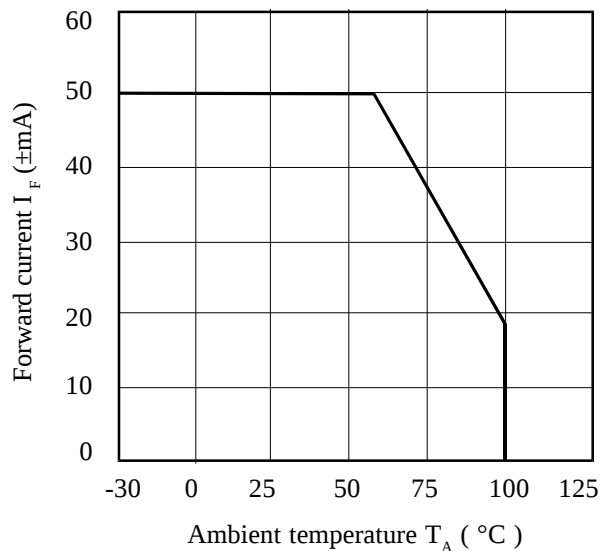
Collector Power Dissipation vs. Ambient Temperature



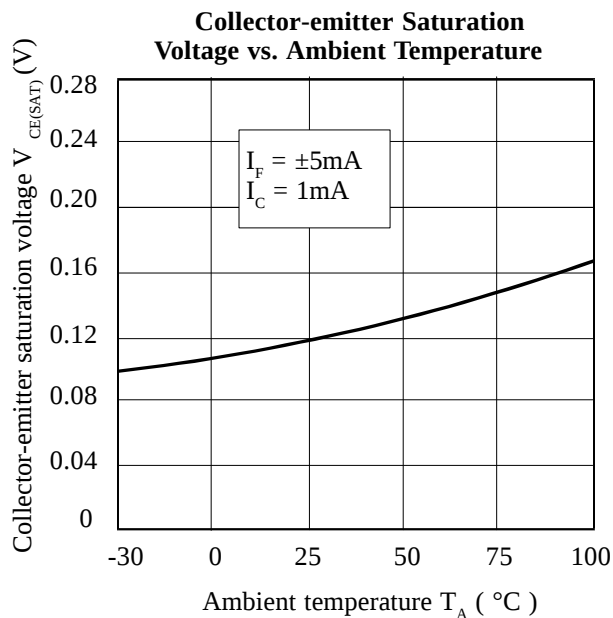
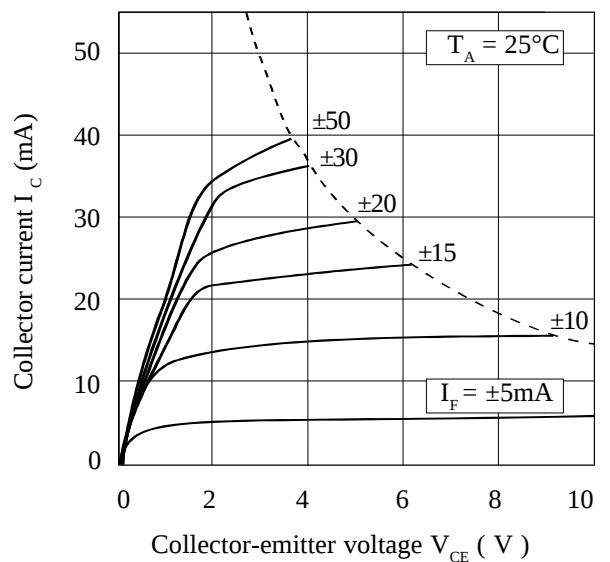
Collector Current vs. Low Collector-emitter Voltage



Forward Current vs. Ambient Temperature



Collector Current vs. Collector-emitter Voltage



Current Transfer Ratio vs. Forward Current

