

TIL197, TIL198, TIL199
TIL197A, TIL198A, TIL199A
TIL197B, TIL198B, TIL199B



HIGH DENSITY MOUNTING PHOTODARLINGTON OPTICALLY COUPLED ISOLATORS

APPROVALS

- UL recognised, File No. E91231

'X' SPECIFICATION APPROVALS

- VDE 0884 approval pending
- 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

DESCRIPTION

The TIL197, TIL198, TIL199 series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo darlingtontons in space efficient dual in line plastic packages. The standard parts TIL197, TIL198, TIL199 are tested for a CTR of 500% minimum. Parts with the suffix A or B are tested for a CTR of 1000 and 1500% minimum respectively.

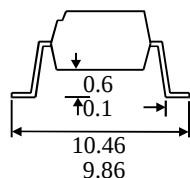
FEATURES

- 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 Current Transfer Ratio (500%min)
- High Isolation Voltage (5.3kV_{RMS}, 7.5kV_{PK})
- All electrical parameters 100% tested
- Custom electrical selections available

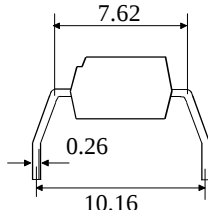
APPLICATIONS

- Computer terminals
- Industrial systems controllers
- Measuring instruments
- Signal transmission between systems of different potentials and impedances

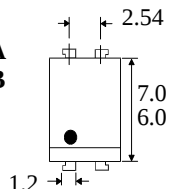
OPTION SM SURFACE MOUNT



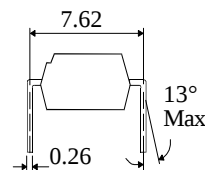
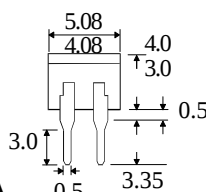
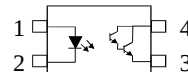
OPTION G



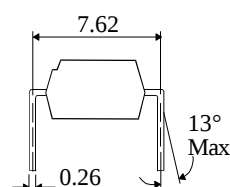
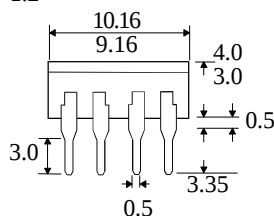
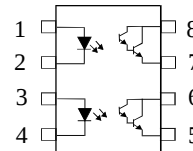
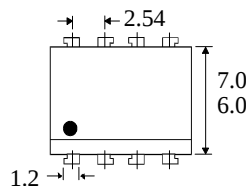
TIL197 TIL197A TIL197B



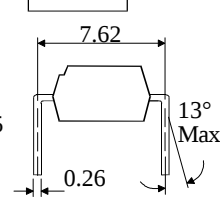
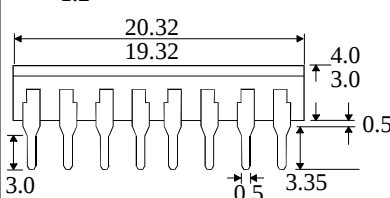
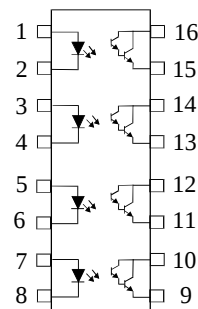
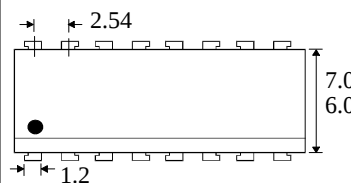
Dimensions in mm



TIL198 TIL198A TIL198B



TIL199 TIL199A TIL199B



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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
Reverse Voltage _____ 6V
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)

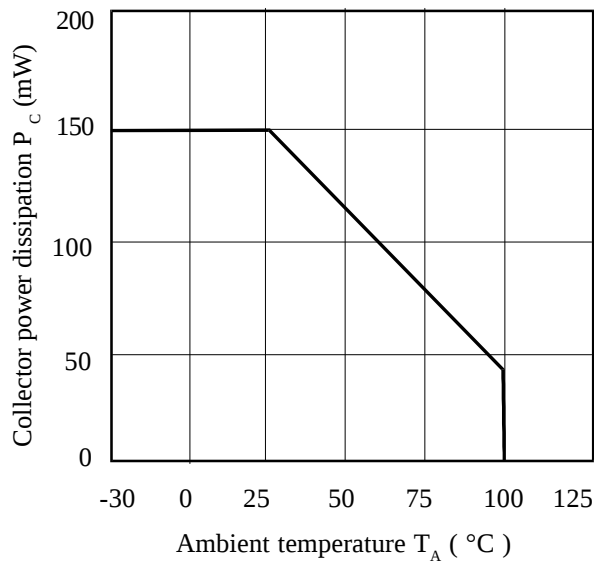
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)	5	1.2	1.4	V	$I_F = 20\text{mA}$ $I_R = 10\mu\text{A}$ $V_R = 5\text{V}$
	Reverse Voltage (V_R)			10	V	
	Reverse Current (I_R)				μA	
Output	Collector-emitter Breakdown (BV_{CEO}) (Note 2)	35		100	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})				nA	$V_{CE} = 10\text{V}$
Coupled	Current Transfer Ratio (CTR) (Note 2) TIL197, TIL198, TIL199 TIL197A, TIL198A, TIL199A TIL197B, TIL198B, TIL199B	500 1000 1500	0.8	7500 7500 7500		$2\text{mA } I_F, 1\text{V } V_{CE}$ $2\text{mA } I_F, 1\text{V } V_{CE}$ $2\text{mA } I_F, 1\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			1.0	V	$2\text{mA } I_F, 10\text{mA } I_C$
	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 t_r			100	μs	$V_{CC} = 10\text{V},$ $I_C = 10\text{mA}, R_L = 100\Omega$
	Output Fall Time t_f			100	μs	

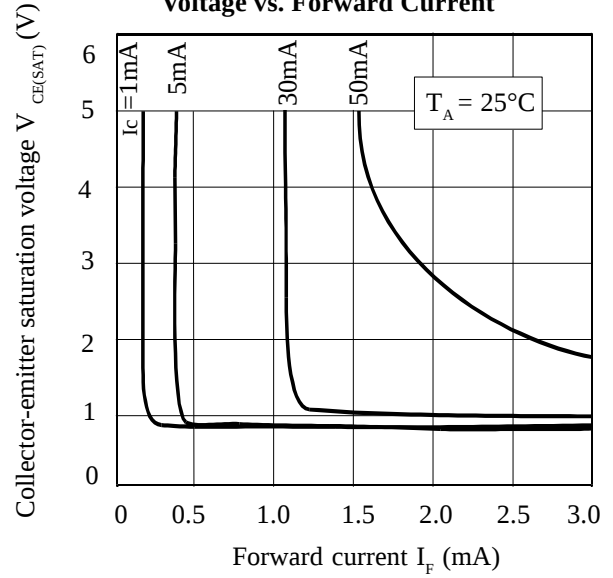
Note 1 Measured with input leads shorted together and output leads shorted together.

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

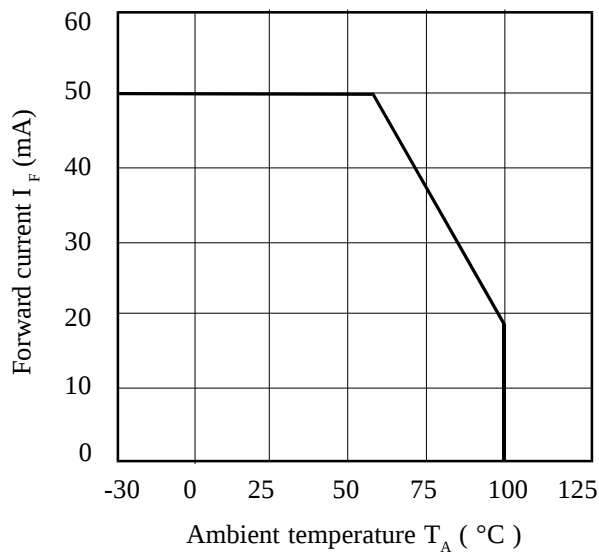
Collector Power Dissipation vs. Ambient Temperature



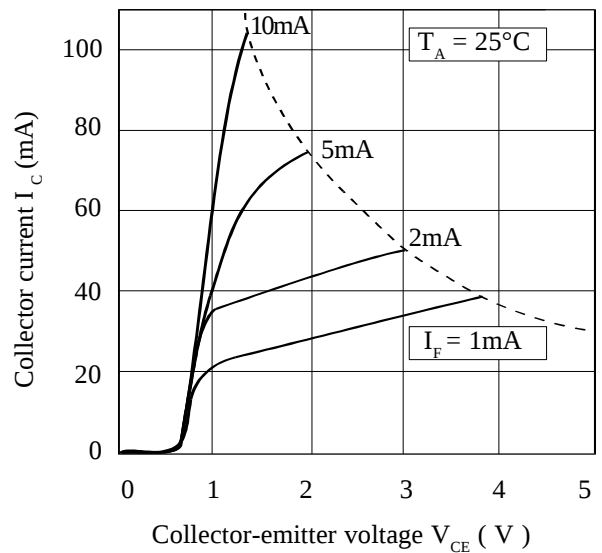
Collector-emitter Saturation Voltage vs. Forward Current



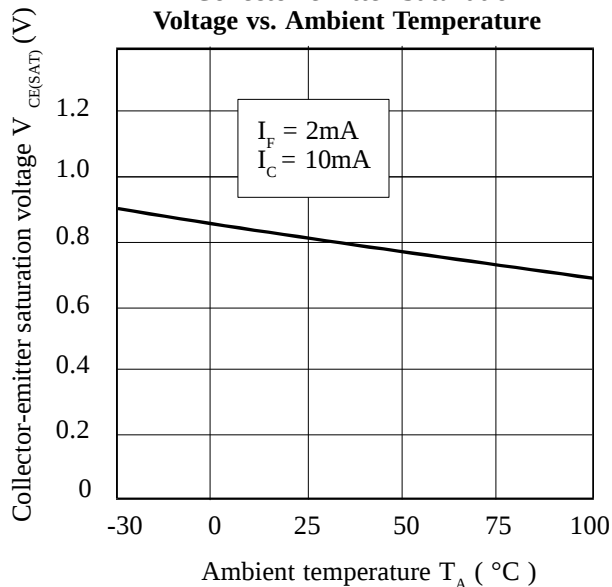
Forward Current vs. Ambient Temperature



Collector Current vs. Collector-emitter Voltage



Collector-emitter Saturation Voltage vs. Ambient Temperature



Relative Current Transfer Ratio vs. Ambient Temperature

