

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 darlington 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.

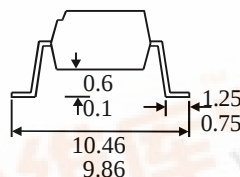
FEATURES

- 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

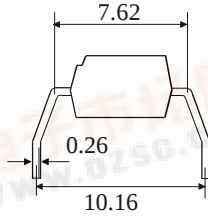
APPLICATIONS

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

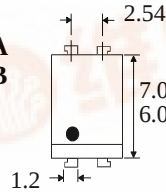
OPTION SM SURFACE MOUNT



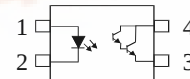
OPTION G



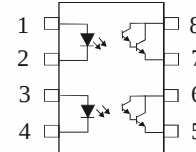
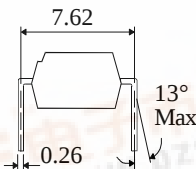
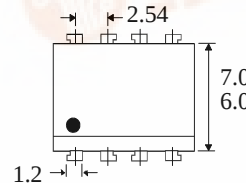
TIL197 TIL197A TIL197B



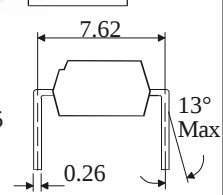
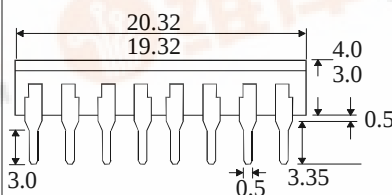
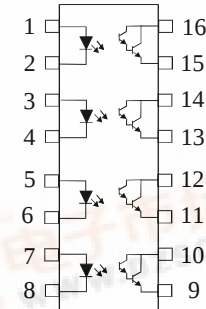
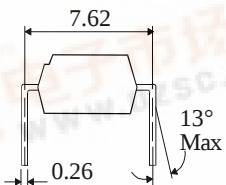
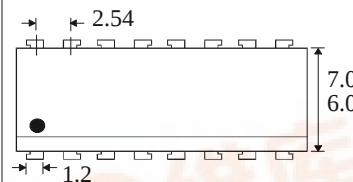
Dimensions in mm



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)		

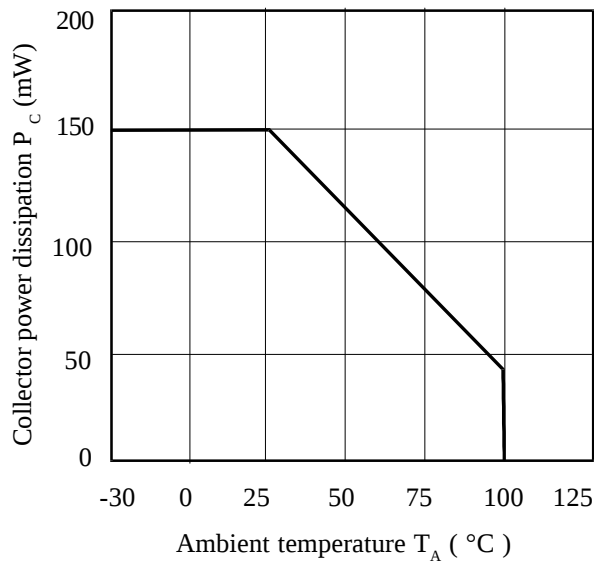
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

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

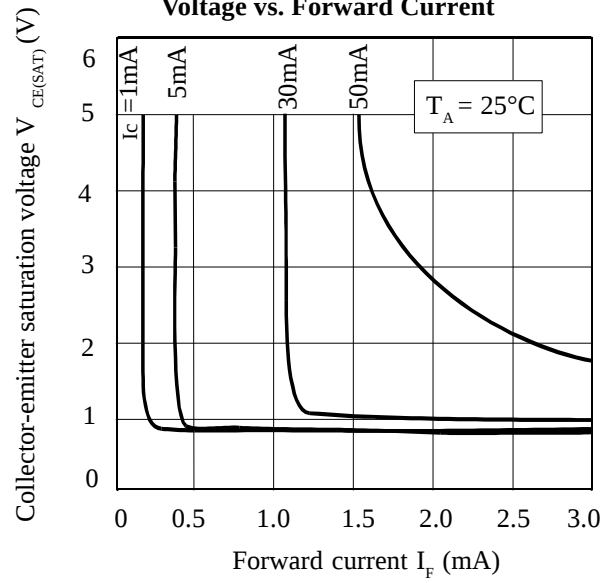
Note 1 Measured with input leads shorted together and output leads shorted together.

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

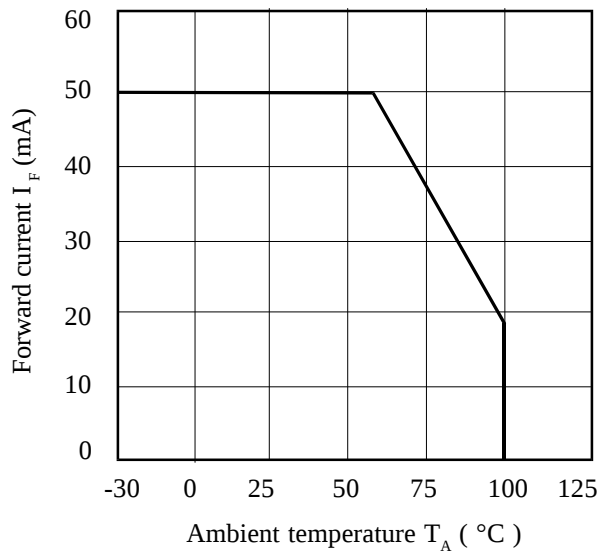
Collector Power Dissipation vs. Ambient Temperature



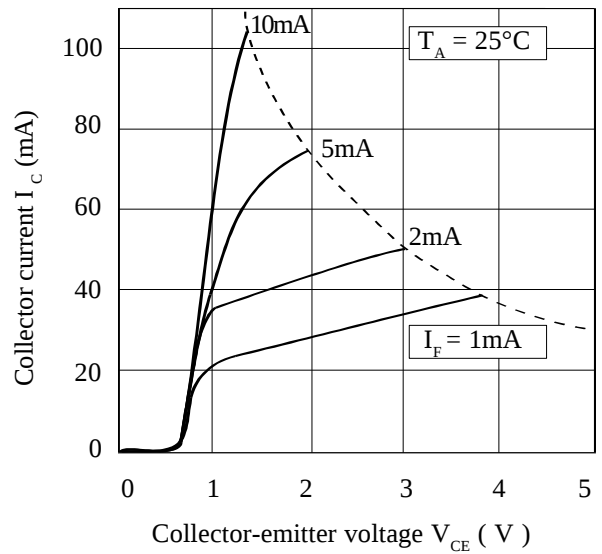
Collector-emitter Saturation Voltage vs. Forward Current



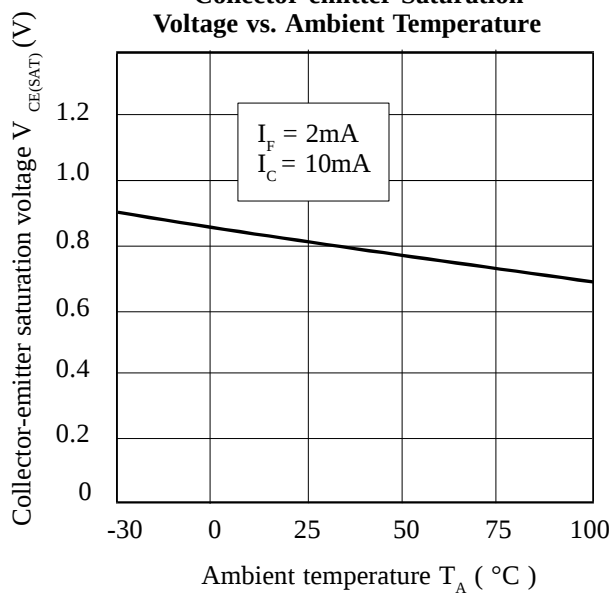
Forward Current vs. Ambient Temperature



Collector Current vs. Collector-emitter Voltage



Collector-emitter Saturation Voltage vs. Ambient Temperature



Relative Current Transfer Ratio vs. Ambient Temperature

