

TIL197, TIL197X, TIL198, TIL198X, TIL199,  
 TIL199X, TIL197A, TIL197AX, TIL198A, TIL198AX,  
 TIL199A, TIL199AX, TIL197B, TIL197BX, TIL198B,  
 TIL198BX, TIL199B, TIL199BX



# ISOCOM

COMPONENTS

## HIGH DENSITY MOUNTING PHOTODARLINGTON OPTICALLY COUPLED ISOLATORS



### APPROVALS

- UL recognised, File No. E91231  
 Package Code " FF "

### 'X' SPECIFICATION APPROVALS

- VDE 0884 in 3 available lead form :-  
 - STD  
 - G form  
 - SMD approved to CECC 00802
- Certified to EN60950 by  
 Nemko - Certificate No. P01102465

### 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 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.

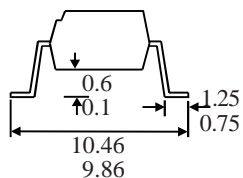
### FEATURES

- 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<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- All electrical parameters 100% tested
- Custom electrical selections available

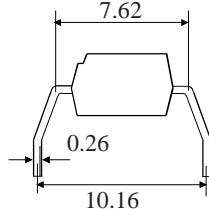
### APPLICATIONS

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

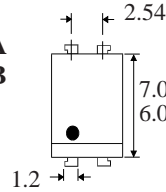
#### OPTION SM SURFACE MOUNT



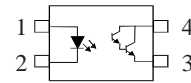
#### OPTION G



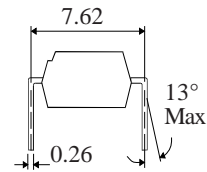
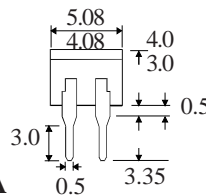
TIL197  
 TIL197A  
 TIL197B



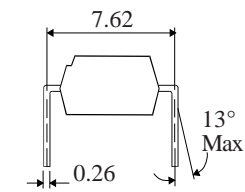
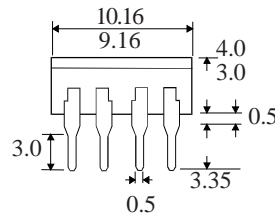
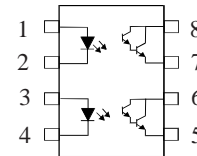
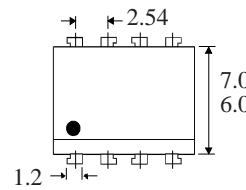
Dimensions in mm



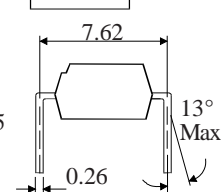
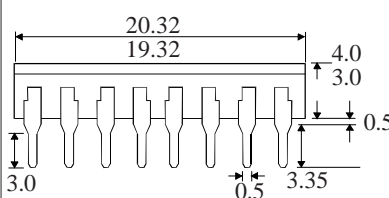
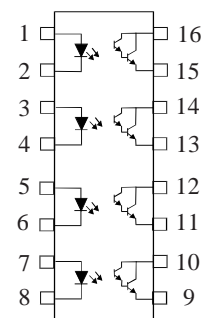
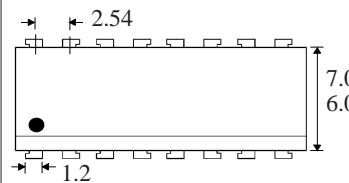
TIL198  
 TIL198A  
 TIL198B



TIL199  
 TIL199A  
 TIL199B



TIL199  
 TIL199A  
 TIL199B



### ISOCOM COMPONENTS LTD

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

**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  
 Reverse Voltage \_\_\_\_\_ 6V  
 Power Dissipation \_\_\_\_\_ 70mW

**OUTPUT TRANSISTOR**

Collector-emitter Voltage  $BV_{CEO}$  \_\_\_\_\_ 35V  
 Emitter-collector Voltage  $BV_{ECO}$  \_\_\_\_\_ 6V  
 Collector Current \_\_\_\_\_ 80mA  
 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 Current ( $I_R$ )			10	$\mu\text{A}$	$V_R = 4\text{V}$
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 TIL197A, TIL198A, TIL199A TIL197B, TIL198B, TIL199B	500 1000 1500		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 $V_{CE(SAT)}$		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 $R_{ISO}$	$5 \times 10^{10}$			$\Omega$	$V_{IO} = 500\text{V}$ (note 1)
	Output Rise Time tr		60		$\mu\text{s}$	$V_{CE} = 2\text{V},$ $I_C = 10\text{mA}, R_L = 100\Omega$
	Output Fall Time tf		53		$\mu\text{s}$	

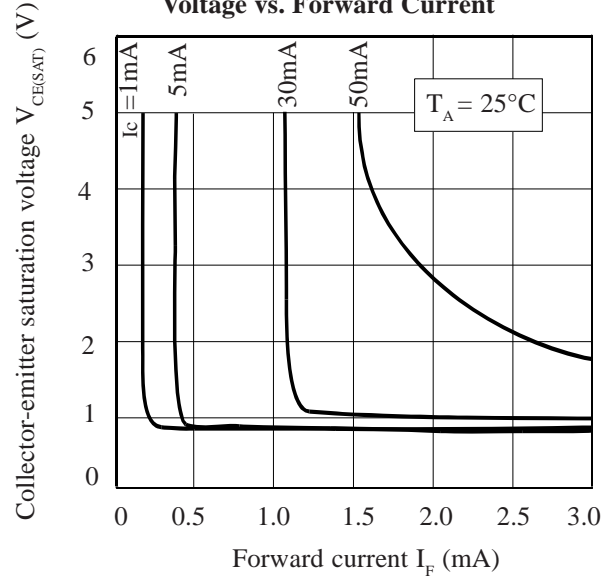
Note 1 Measured with input leads shorted together and output leads shorted together.

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

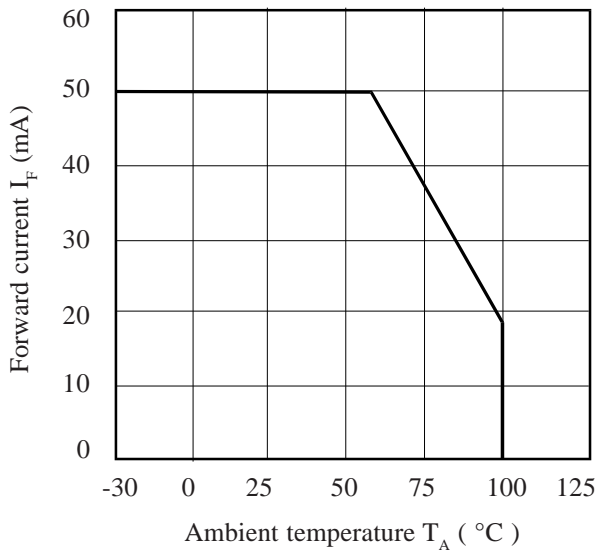
**Collector Power Dissipation vs. Ambient Temperature**



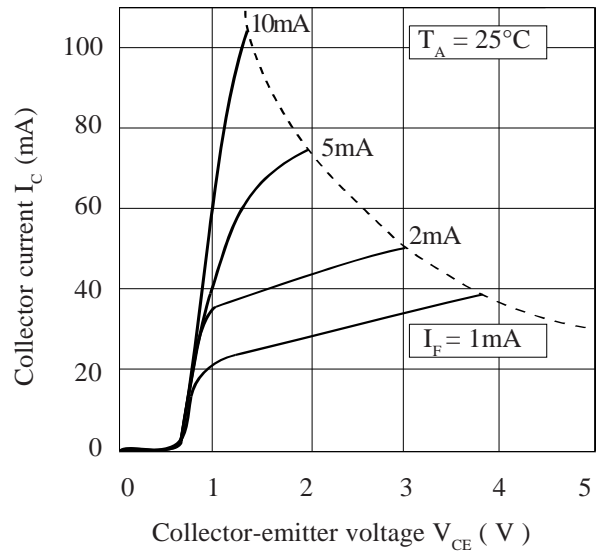
**Collector-emitter Saturation Voltage vs. Forward Current**



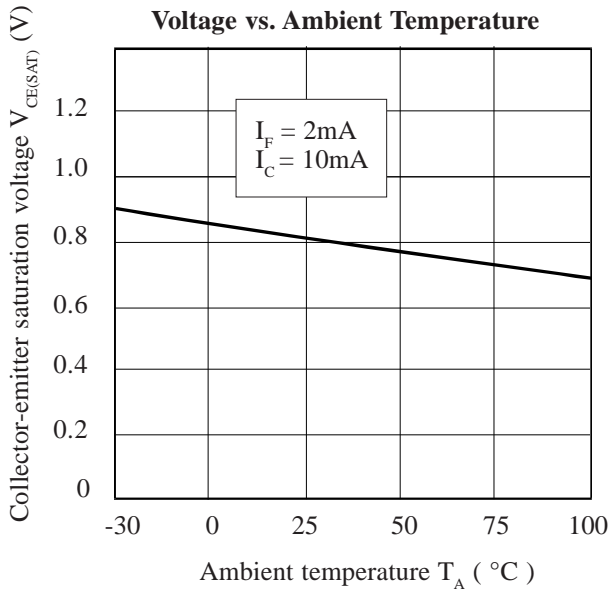
**Forward Current vs. Ambient Temperature**



**Collector Current vs. Collector-emitter Voltage**



**Collector-emitter Saturation Voltage vs. Ambient Temperature**



**Relative Current Transfer Ratio vs. Ambient Temperature**

