

TIL191, TIL191X, TIL192, TIL192X, TIL193, TIL193X, TIL191A, TIL191AX, TIL192A, TIL192AX, TIL193A, TIL193ATIL191B, TIL191BX, TIL192B, TIL192BX, TIL193B, TIL193BX



ISOCOM

COMPONENTS



HIGH DENSITY MOUNTING PHOTOTRANSISTOR OPTICALLY COUPLED ISOLATORS

APPROVALS

- UL recognised, file no. E91231
Package "EE "

'X' SPECIFICATION APPROVALS

- VDE 0884 in 3 available lead form : -
- STD
- G form
- SMD approved to CECC 00802

DESCRIPTION

The TIL191, TIL192, TIL193 series of optically coupled isolators consist of infrared light emitting diodes and NPN silicon photo transistors in space efficient dual in line plastic packages. The standard parts TIL191, TIL192, TIL193 are tested for a CTR of 20% minimum. Parts with the suffix A or B are tested for a CTR of 50 and 100% minimum respectively.

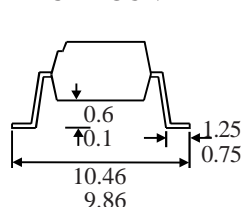
FEATURES

- Options :-
10mm lead spread - add G after part no.
Surface mount - add SM after part no.
Tape&reel - add SMT&R after part no.
- Three Current Transfer Ratio grades
- High Isolation Voltage (5.3kV_{RMS}, 7.5kV_{PK})
- All electrical parameters 100% tested
- Custom electrical selections available

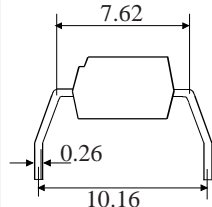
APPLICATIONS

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

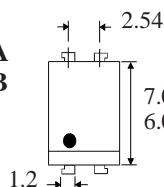
OPTION SM SURFACE MOUNT



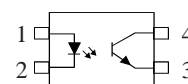
OPTION G



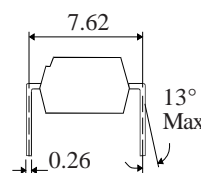
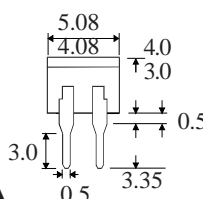
TIL191 TIL191A TIL191B



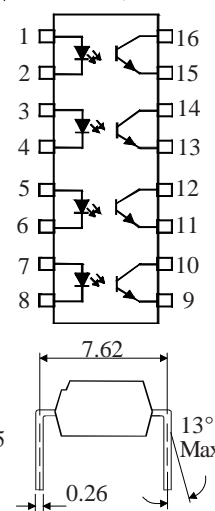
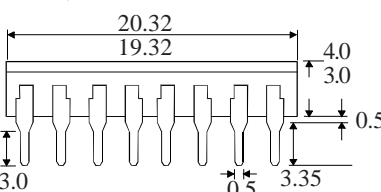
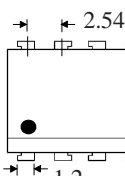
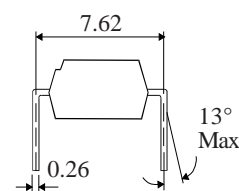
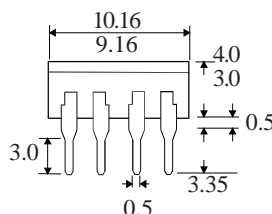
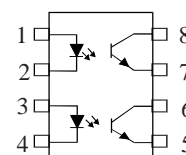
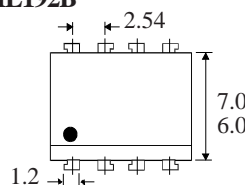
Dimensions in mm



TIL192 TIL192A TIL192B



TIL193 TIL193A TIL193B



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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 _____ 50mA
 Power Dissipation _____ 150mW

POWER DISSIPATION

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

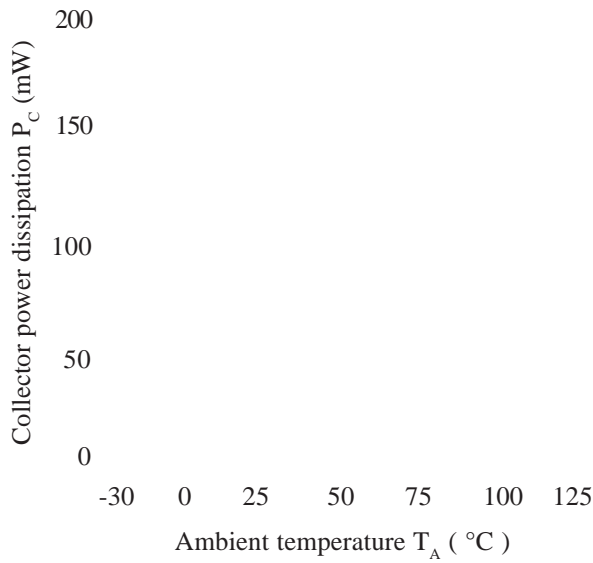
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

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	μA	$V_R = 4\text{V}$
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	$V_{CE} = 20\text{V}$
Coupled	Current Transfer Ratio (CTR) (Note 2) TIL191, TIL192, TIL193	20			%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	TIL191A, TIL192A, TIL193A	50			%	
	TIL191B, TIL192B, TIL193B	100			%	
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			0.4	V	$5\text{mA } I_F, 1\text{mA } I_C$
	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 tr		4		μs	$V_{CE} = 2\text{V}$,
Output Fall Time tf		3		μs	$I_C = 2\text{mA}, R_L = 100\Omega$	

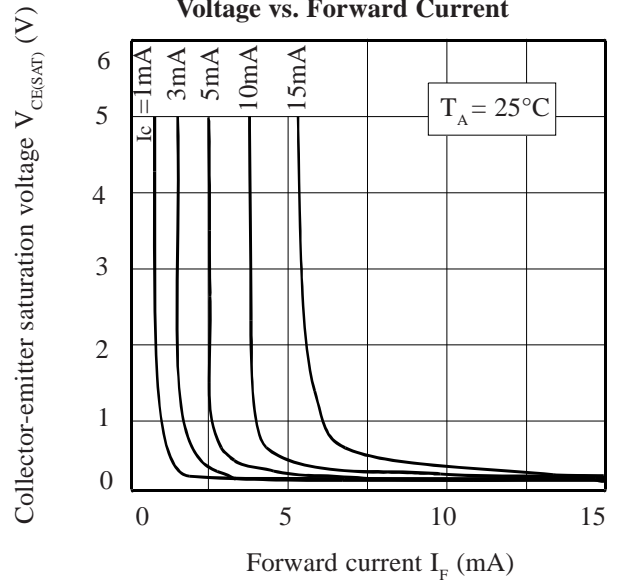
Note 1 Measured with input leads shorted together and output leads shorted together.

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

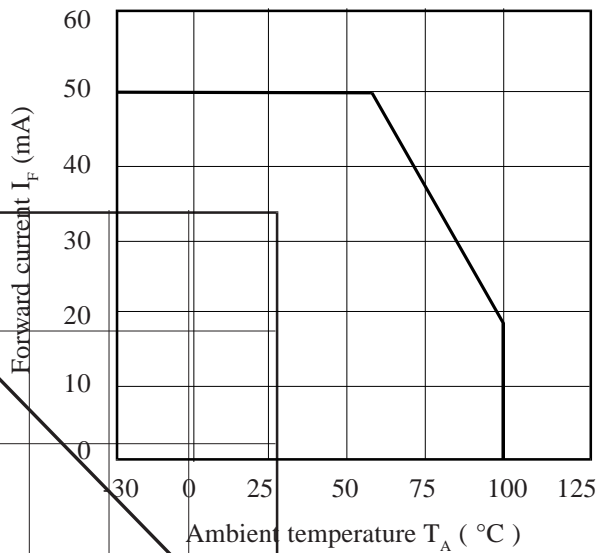
Collector Power Dissipation vs. Ambient Temperature



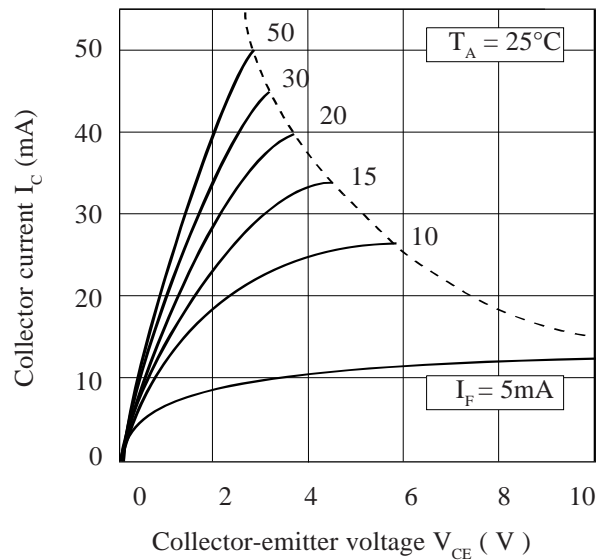
Collector-emitter Saturation Voltage vs. Forward Current



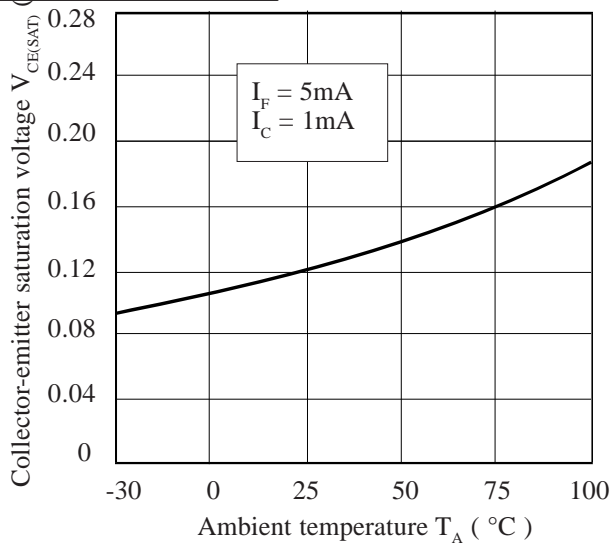
Forward Current vs. Ambient Temperature



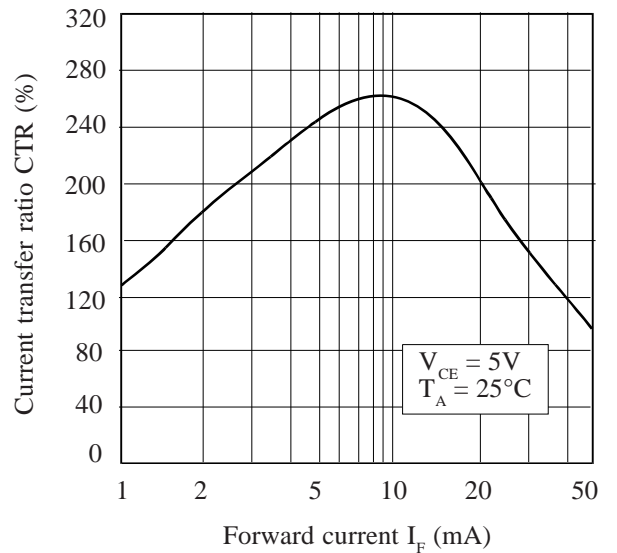
Collector Current vs. Collector-emitter Voltage



Collector-emitter Saturation Voltage vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current



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