

TIL191, TIL192, TIL193  
 TIL191A, TIL192A, TIL193A  
 TIL191B, TIL192B, TIL193B



**HIGH DENSITY MOUNTING  
 PHOTOTRANSISTOR  
 OPTICALLY COUPLED ISOLATORS**

**APPROVALS**

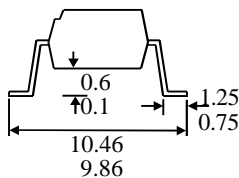
- UL recognised, file no. E91231

- High Isolation Voltage ( $5.3kV_{RMS}, 7.5kV_{PK}$ )
- All electrical parameters 100% tested
- Custom electrical selections available

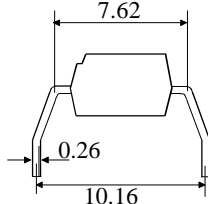
**APPLICATIONS**

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

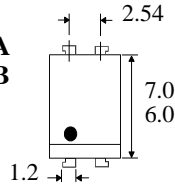
**OPTION SM  
 SURFACE MOUNT**



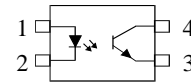
**OPTION G**



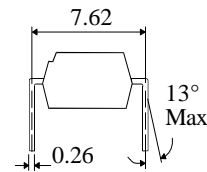
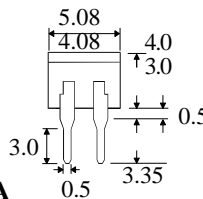
**TIL191  
 TIL191A  
 TIL191B**



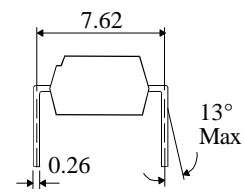
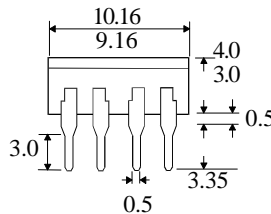
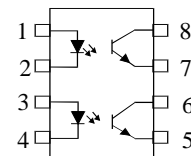
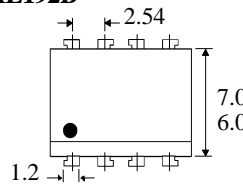
**Dimensions in mm**



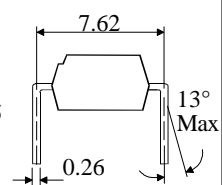
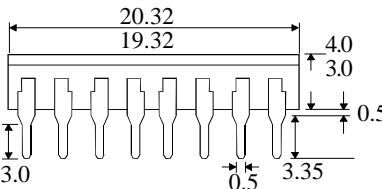
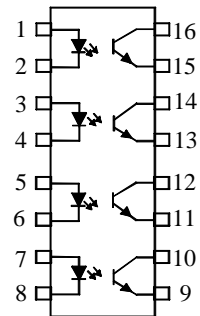
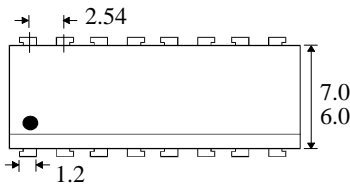
**TIL192  
 TIL192A  
 TIL192B**



**TIL193  
 TIL193A  
 TIL193B**



**TIL193  
 TIL193A  
 TIL193B**



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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	_____	5V
Power Dissipation	_____	70mW

**OUTPUT TRANSISTOR**

Collector-emitter Voltage $BV_{CEO}$	_____	35V
Emitter-collector Voltage $BV_{ECO}$	_____	6V
Power Dissipation	_____	150mW

**POWER DISSIPATION**

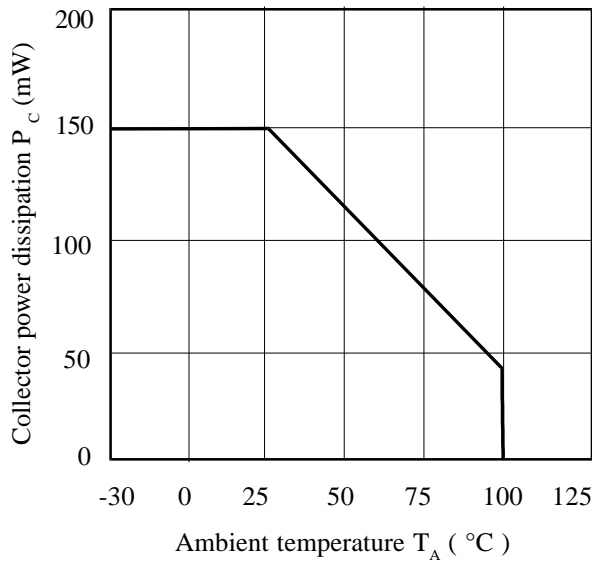
Total Power Dissipation	_____	200mW
(derate linearly 2.67mW/°C above 25°C)		

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

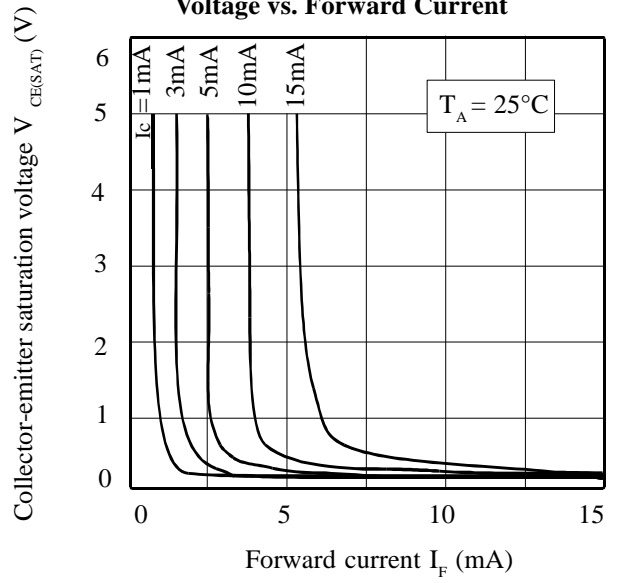
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ )		1.2	1.4	V	$I_F = 20\text{mA}$ $I_R = 10\mu\text{A}$ $V_R = 5\text{V}$
	Reverse Voltage ( $V_R$ )	5			V	
	Reverse Current ( $I_R$ )			10	$\mu\text{A}$	
Output	Collector-emitter Breakdown ( $BV_{CEO}$ ) ( Note 2 )	35			V	$I_C = 0.5\text{mA}$ $I_E = 100\mu\text{A}$ $V_{CE} = 24\text{V}$
	Emitter-collector Breakdown ( $BV_{ECO}$ )	6			V	
	Collector-emitter Dark Current ( $I_{CEO}$ )			100	nA	
Coupled	Current Transfer Ratio (CTR) (Note 2)					$5\text{mA } I_F, 5\text{V } V_{CE}$
	TIL191, TIL192, TIL193	20			%	
	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				$V_{RMS}$ $V_{PK}$
	Input-output Isolation Resistance $R_{ISO}$	$5 \times 10^{10}$				$\Omega$
Output Rise Time tr		6			$\mu\text{s}$	
Output Fall Time tf		6			$\mu\text{s}$	

Note 2 Measured with input leads shorted together and output leads shorted together.  
Special Selections are available on request. Please consult the factory.

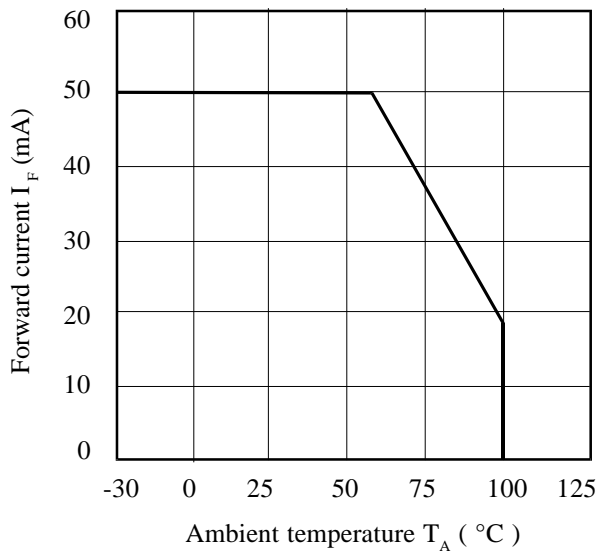
**Collector Power Dissipation vs. Ambient Temperature**



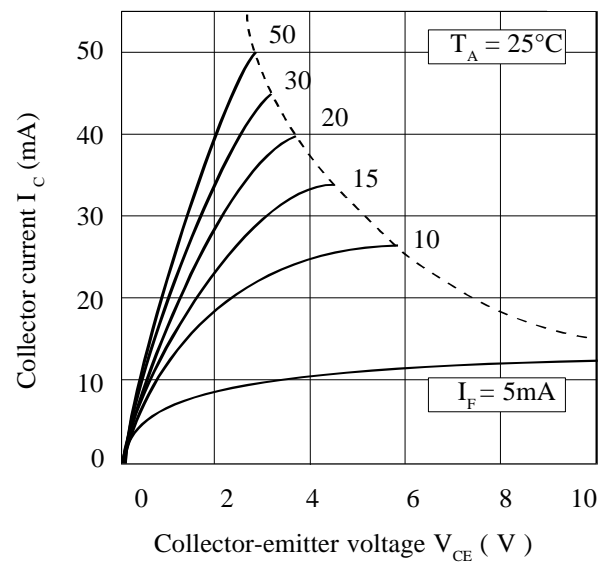
**Collector-emitter Saturation Voltage vs. Forward Current**



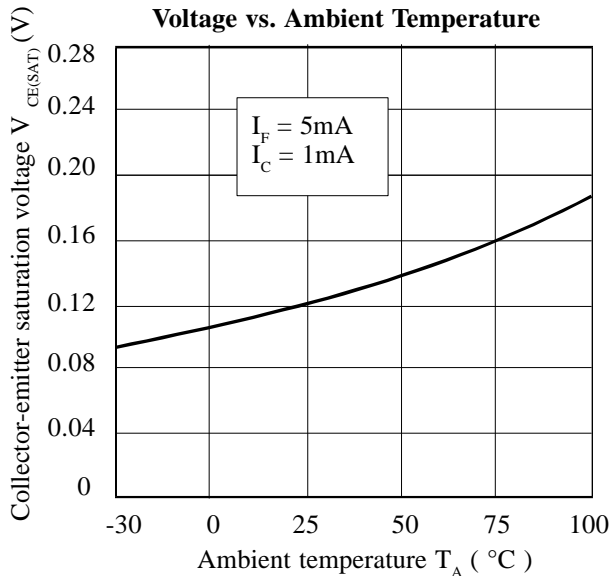
**Forward Current vs. Ambient Temperature**



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



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



**Current Transfer Ratio vs. Forward Current**

