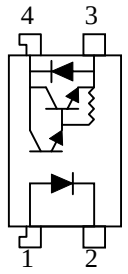
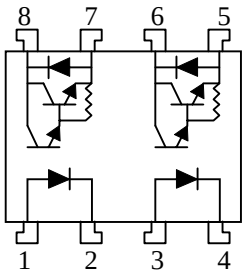
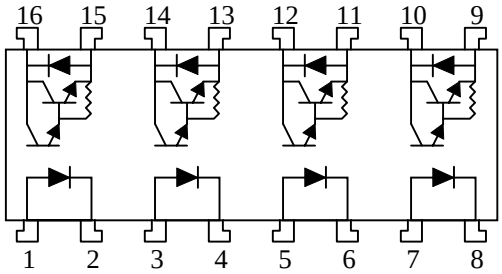
DARLINGTON OPTOCOUPLERS

TIL 197	TIL 198	TIL 199
		

DESCRIPTION

These devices are single, dual and quad optocouplers. Each channel is composed of a Gallium Arsenide infra-red emitting diode and a silicon phototransistor. Package styles for these devices include 4pin, 8 pin, and 16 pin, with surface mount, butt cut and gull wing options available. The same electrical die, assembly processes and materials are used for each channel of each device shown above Therefore absolute maximum ratings, recommended operating conditions, electrical specifications and performance characteristics are identical for all units. Any exceptions, due to packaging variations and limitations, are as noted.

Isocom Ltd supplies a multitude of plastic optocouplers for all applications varying from standard transistor optos through to Darlingtons and Schmitt Trigger devices. It's massive family of optos vary in speed allowing maximum opportunity to engineers worldwide.

All devices are performance guaranteed between -20ºC and +80ºC and have completed rigorous testing.
The Company's customers can be assured of our commitment to stringent quality, reliability and inspection standards, as demonstrated by our existing approvals. Other customer specific options can also be offered.

FEATURES

- Performance guaranteed over -55°C to +125°C temperature range
- Manufactured and tested in BS9000 and CECC20000 approved premises
- High current transfer ratio
- 5000V electrical isolation

For sales enquiries, or further information, please contact our sales office at:
Isocom Ltd, Hutton Close, Crowther Industrial Estate, District 3, Washington, NE38 0AH
Tel: +44 0191 4166 546 Fax: +44 0191 4155 055 Email Isocom@isocomoptocouplers.com
Or go to the Isocom Website @: Http://www.isocom.uk.com

ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-55°C to + 150°C
Operating Temperature	-55°C to + 100°C
Lead Soldering Temperature	260°C
Input-to-Output Isolation Voltage	± 5000 V

Input Diode

Forward DC Current	60 mA	
Reverse DC Voltage	6 V	
Peak forward Current	1 A	
Power Dissipation	70 mW	

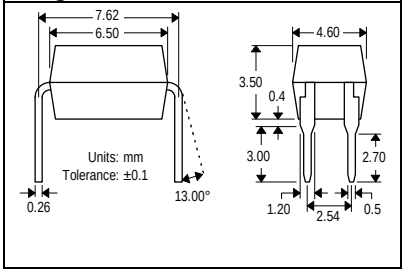
Output Transistor

Collector-Emitter Voltage (BV_{CEO})	TIL 197 TIL 198 TIL 199	200 V 300 V 400 V
Emitter-base Voltage	6 V	
Collector-Base Voltage (BV_{CBO})	TIL 197 TIL 198 TIL 199	200 V 300 V 400 V
Power Dissipation	300mW	
Package Total Power Dissipation	350 mW	

PACKAGES

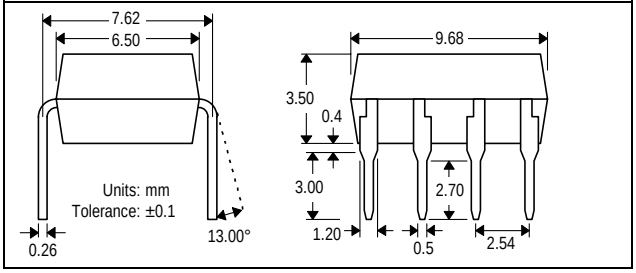
TIL 197 - 4 Pin

Single Channel



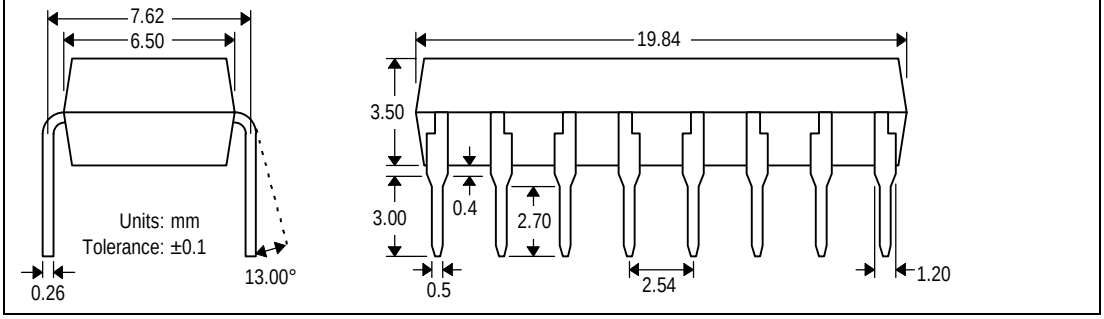
TIL 198 - 8 pin

Dual Channel



TIL 199- 16 Pin

Quad Channel



SMD and GULL WING are available for all the above.

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ELECTRICAL CHARACTERISTICS

T_A = 25°C U.O.S. (each channel where appropriate).

Input Diode Electrical Characteristics

Parameter	Symbol	Test Conditions	Device	Min	Typ	Max	Units
Forward Voltage	V_F	I_F = 10mA		-	1.2	1.5	V
Reverse Breakdown Voltage	V_R	I_R = 10µA		6	-	-	V
Reverse Current	I_R	V_R = 6.0V		-	-	10	µA

Output Detector Electrical Characteristics

Collector-Emitter Breakdown Voltage (See note 1 below)	BV_{CEO}	I_C = 1mA, 1_F = 0	TIL 197 TIL 197-2 TIL 197-4	200 300 400	260 350 440	-	V
Collector-Base Breakdown Voltage (See note 1 below)	BV_{CBO}	I_B = 0.1mA, I_F = 0	TIL 197 TIL 197-2 TIL 197-4	200 300 400	-	-	V
Emitter-Base Breakdown Voltage	BV_{ECO}	I_E = 100µA, I_F = 0		6	-	-	V
Collector-Emitter Leakage Current	I_{CEO}	V_{CE} = 100V, I_F = 0		-	-	100	nA

Coupled Electrical Characteristics

DC Current Transfer Ratio	$_{IC/IF}$	I_F = 1mA, V_{CE} = 2V, I_B = 0		500	1000	-	%
Collector-Emitter Saturation Voltage	V_{CE} (Sat)	I_F = 10mA, I_C = 100mA		-	-	1.2	V
Input to Output Capacitance	C_{IO}	V_{IO} = 0, f = 1mhz (See note 2 below)		-	0.6	-	pF
Input to Output Resistance	R_{IO}	V_{IO} = 500V (See note 2 below)		10^{11}	-	-	↓
Input-to-Output Isolation Voltage	V_{IO}	(See note 2 below)		5000	-	-	V
Output Rise Time	tr	V_{CE} = 2 V, I_C = 20mA		-	130	250	µS
Output Fall Time	tf	R_L = 100↓		-	30	70	µS
Cut-off-frequency	f_c	V_{CC} = 2V, I_f = 20mA, R_L = 100↓		1	4	-	khz

Notes

1. BV_{CEO} and BV_{CBO} can be selected to suit customer specifications.
2. Measured between input when leads 1, 2 and 3 are shorted together, and output when leads 4, 5 and 6 are shorted together.
3. A higher CTR can be selected to suit customer specification as a standard part.

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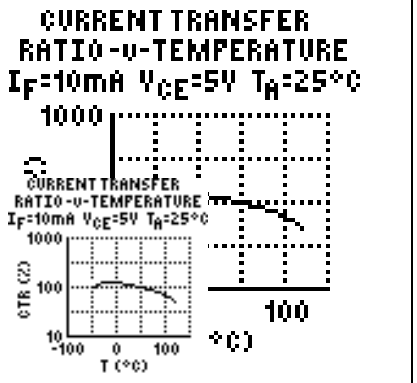
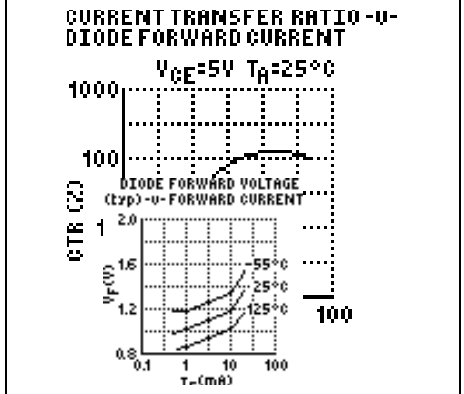
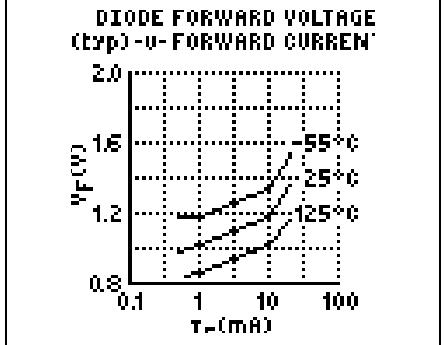
ELECTRICAL CHARACTRISTICS



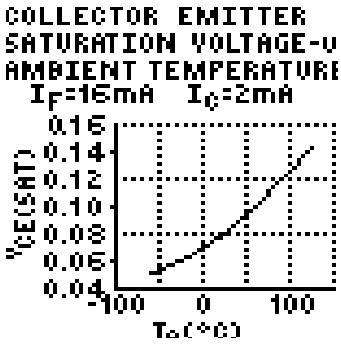
CTR vs Temperature



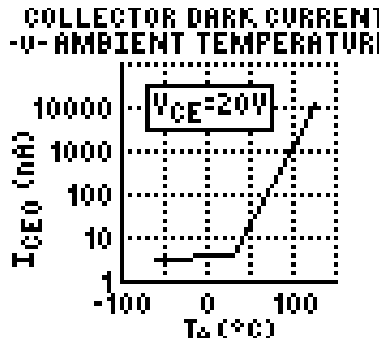
CTR vs Diode Forward Current



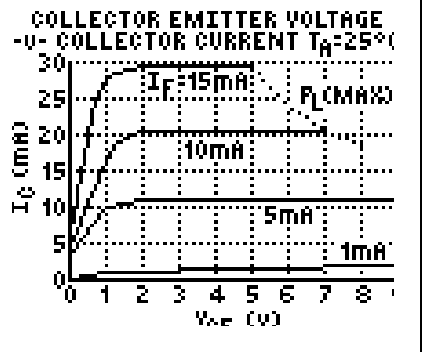
Forward Voltage (Typ) of the Diode vs Forward Current



Collector-Emitter Saturation Voltage vs Ambient Temperature



Collector Dark Current vs Ambient Temperature



Collector Current vs Collector-Emitter Voltage

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