

IL205A, IL206A, IL207A, IL208A,
IL211A, IL212A, IL213A,



SMALL OUTLINE OPTICALLY COUPLED ISOLATOR TRANSISTOR OUTPUT

DESCRIPTION

This series of optically coupled isolators consist of a Gallium Arsenide infrared emitting diode and NPN silicon photo transistor mounted in a standard 8 pin SOIC package, which makes them ideally suited for high density applications with limited space.

FEATURES

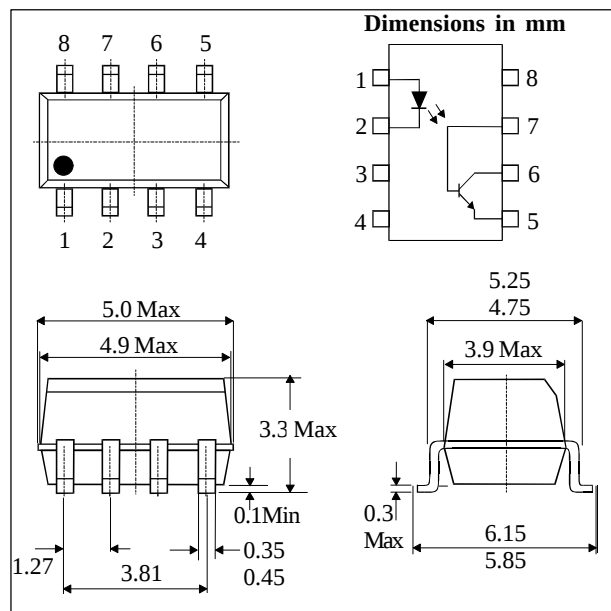
- Standard SOIC-8 Footprint with 0.05" Lead Spacing
- Specified min. and max. CTR at $10\text{mA } I_F$, $5\text{V } V_{CE}$
IL205A, 40 - 80%
IL206A, 63 - 125%
IL207A, 100 - 200%
IL208A, 160 - 320%
- Specified minimum CTR at $10\text{mA } I_F$, $5\text{V } V_{CE}$
IL211A, 20%
IL212A, 50%
IL213A, 100%
- Specified minimum CTR at $1\text{mA } I_F$, $5\text{V } V_{CE}$
IL215A, 20%
IL216A, 50%
IL217A, 100%
- Isolation Voltage, $2500\text{V}_{\text{RMS}}$
- High BV_{CEO} (70V min)
- All electrical parameters 100% tested
- Available in Tape and Reel - add suffix " T & R "
- Custom Electrical Selections available

ABSOLUTE MAXIMUM RATINGS (25°C unless otherwise noted)

Storage Temperature _____ -55°C to $+125^\circ\text{C}$
Operating Temperature _____ -55°C to $+100^\circ\text{C}$
Lead Soldering Temperature _____ 260°C
(single wave for 10 secs)
Input to Output Isolation Voltage _____ $2500\text{V}_{\text{RMS}}$

INPUT DIODE

Forward D.C. Current _____ 60mA
Reverse D.C. Voltage _____ 6V
Peak Forward Current ($t_p \leq 10\mu\text{s}$) _____ 3A
Power Dissipation _____ 100mW
(derate linearly $1.33\text{mW}/^\circ\text{C}$ above 25°C)
Junction Temperature _____ 125°C



APPLICATIONS

- Computer Terminals
- Industrial Systems Controllers
- Hybrid substrates that require high density mounting
- Signal Transmission between systems of different potentials and impedances

OUTPUT TRANSISTOR

Collector-Emitter Voltage BV_{CEO} _____ 70V
Emitter-Collector Voltage BV_{ECO} _____ 7V
Collector-Base Voltage BV_{CBO} _____ 70V
Collector Current _____ 50mA
Collector Current _____ 100mA
($p_w \leq 10\text{ms}$, 50% duty ratio)
Power Dissipation _____ 150mW
(derate linearly $2.00\text{mW}/^\circ\text{C}$ above 25°C)
Junction Temperature _____ 125°C

PACKAGE

Total Power Dissipation _____ 250mW
(derate linearly $3.3\text{mW}/^\circ\text{C}$ above 25°C)

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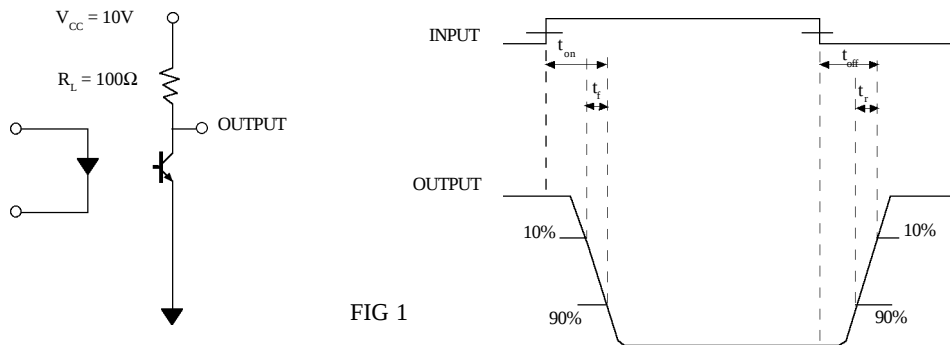
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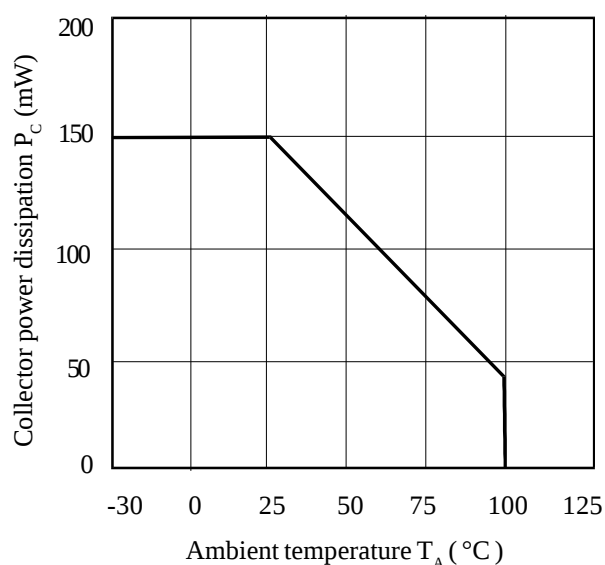
ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input	Forward Voltage (V_F)		1.2	1.5	Volt	$I_F = 10 \text{ mA}$ $V_R = 0, f = 1 \text{ MHz}$ $V_R = 6 \text{ V}$
	Capacitance		50		pF	
	Reverse Current (I_R)			100	μA	
Output	Collector-Emitter Voltage (BV_{CEO})	70			Volt	$I_C = 100 \mu\text{A}$ $I_E = 100 \mu\text{A}$ $I_C = 100 \mu\text{A}$ $V_{CE} = 10 \text{ V}$
	Emitter-Collector Voltage (BV_{ECO})	7			Volt	
	Collector-Base Voltage (BV_{CBO})	70			Volt	
	Collector-Emitter Dark Current (I_{CEO})			50	nA	
Coupled	Current Transfer Ratio (CTR) IL205A	40		80	%	$I_F = 10 \text{ mA}, V_{CE} = 5 \text{ V}$
		IL206A	63	125	%	
		IL207A	100	200	%	
		IL208A	160	320	%	
		IL211A	20		%	
		IL212A	50		%	
		IL213A	100		%	
	IL205A	13			%	$I_F = 1 \text{ mA}, V_{CE} = 5 \text{ V}$
		IL206A	22		%	
		IL207A	34		%	
		IL208A	56		%	
		IL215A	20		%	
		IL216A	50		%	
		IL217A	100		%	
	Collector-Emitter Saturation Voltage $V_{CE(SAT)}$ (IL205A to IL213A)			0.4	Volt	$I_F = 10 \text{ mA}, I_C = 2 \text{ mA}$
	Collector-Emitter Saturation Voltage $V_{CE(SAT)}$ (IL215A to IL217A)			0.4	Volt	$I_F = 1 \text{ mA}, I_C = 0.1 \text{ mA}$
	Capacitance Input to Output (C_{IO})		0.3		pF	$f = 1 \text{ MHz}$ (note 1) $V_{IO} = 500 \text{ V}$ (note 1) Note 1
	Input to Output Isolation Resistance (R_{IO})	10^{11}			Ω	
	Input to Output Isolation Voltage (V_{IO})	2500			V_{RMS}	
	Output Turn on Time (t_{on})		3.0		μs	
	Output Turn off Time (t_{off})		3.0		μs	
	Output Rise Time (t_r)		1.6		μs	$I_C = 2 \text{ mA},$ $V_{CC} = 10 \text{ V}, R_L = 100 \Omega$
	Output Fall Time (t_f)		2.2		μs	

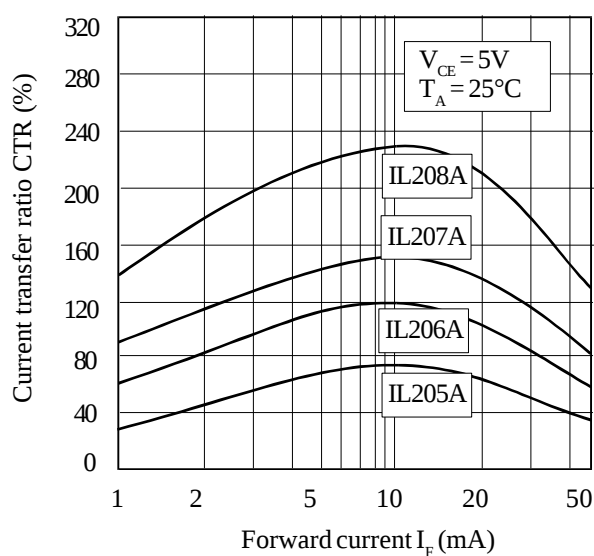
Note 1. Measured with input leads shorted together and output leads shorted together.



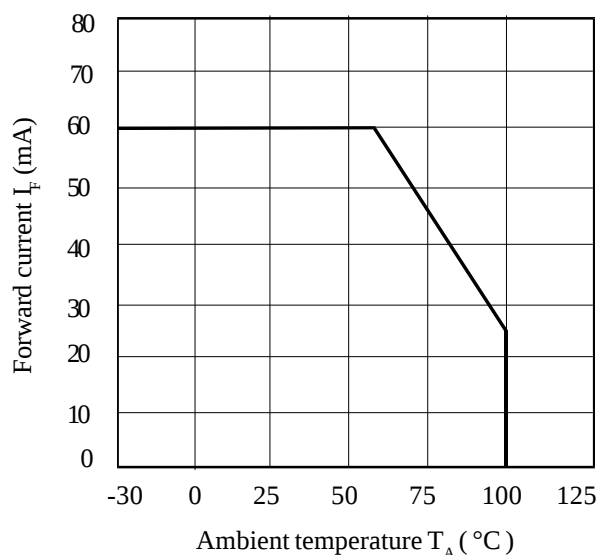
Collector Power Dissipation vs. Ambient Temperature



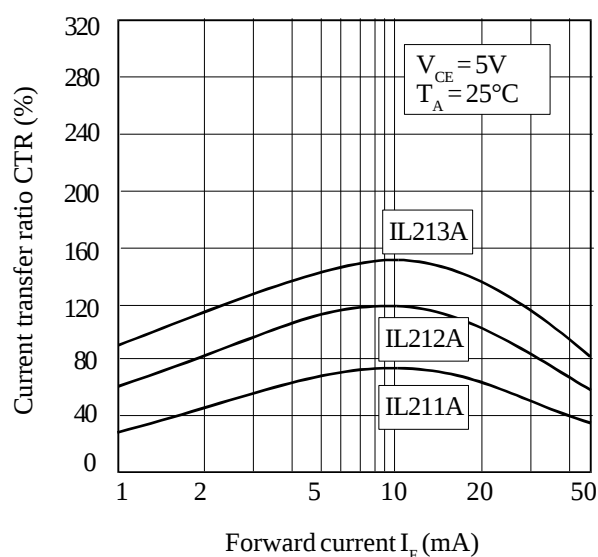
Current Transfer Ratio vs. Forward Current



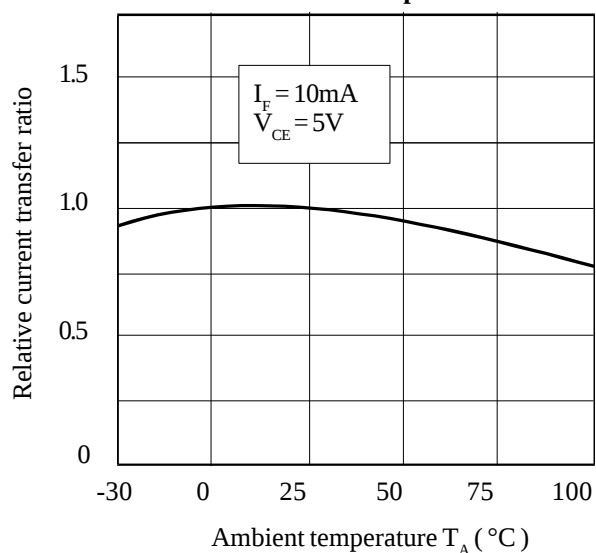
Forward Current vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current



Relative Current Transfer Ratio vs. Ambient Temperature



Current Transfer Ratio vs. Forward Current

