iC245
PULSE-WIDTH MODIFIER

preliminary

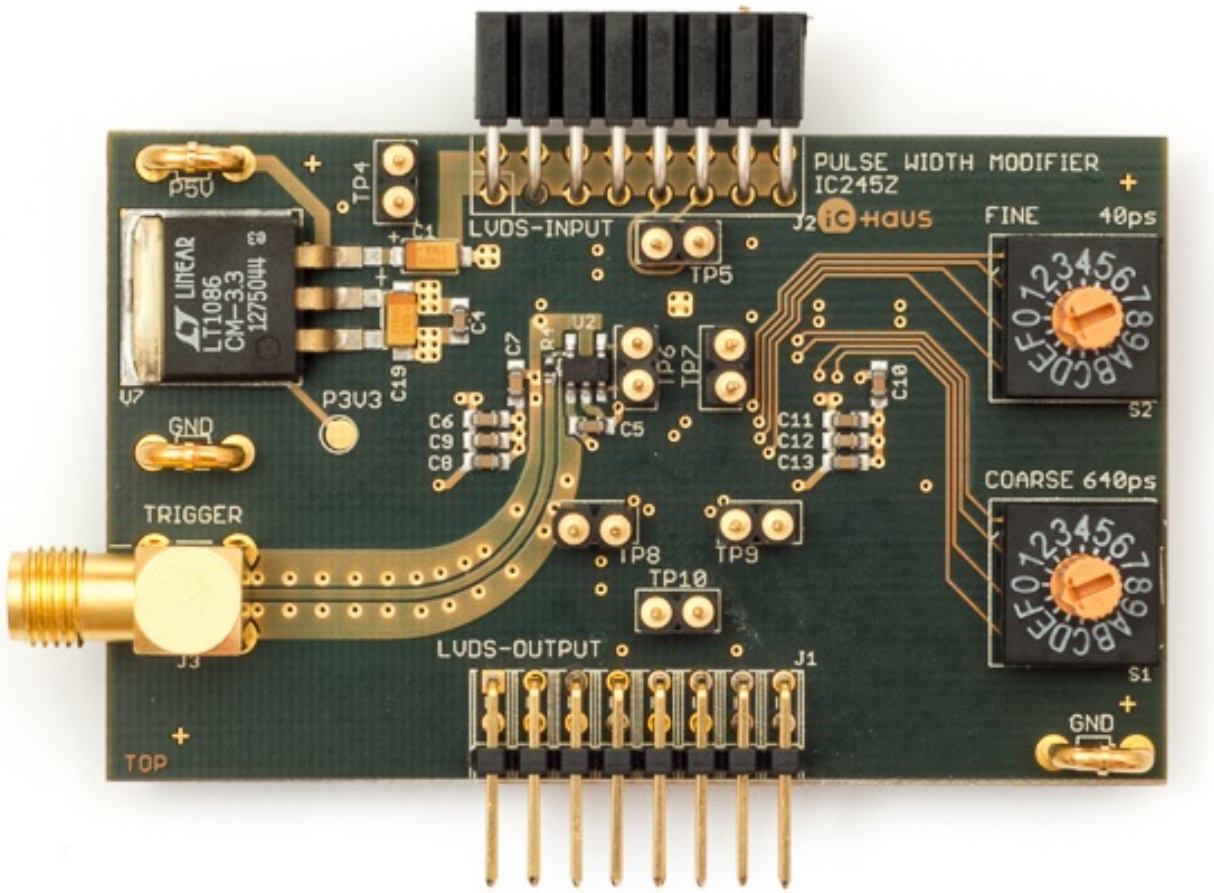
FEATURES

- Pulse width 250 ps to 10.2 ns in steps of 40 ps
- LVDS input and output
- Compatible with iC149 and iC213 generators

APPLICATIONS

- Pulse modifier for short laser pulses
- Duty-cycle modifier to create symmetrical laser pulses: (turn-on-)delay compensation

BOARD



DESCRIPTION

iC245 Pulse-Width Modifier produces short pulses with minimum length of 250 ps from an LVDS input signal up to 400 MHz. For pulses longer than 600 ps the *coarse* step size is typically 640 ps while the *fine* step size is about 40 ps. iC245 can be used to modify the duty cycle of the electrical waveform in order to get a symmetrical optical signal.

This module can be used with the evaluation boards HG1D, HG2D, NZN1D and NZP1D in combination with the iC149 and iC213 generators.

ELECTRICAL CHARACTERISTICS

Item No.	Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Power Supply							
101	V(P5V)	Power Supply		4.5	5	5.5	V
102	I(P5V)	Supply Current			600		mA
LVDS Input							
201	tmin	Minimum input pulse width		600			ps
202	trmax	Maximum input rise time				50	ps

PIN CONFIGURATION

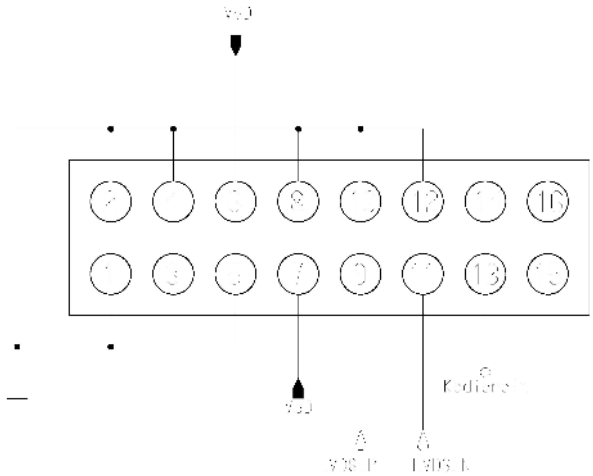


Figure 1: Pin configuration LVDS input (output similar),
PCB bottom view

BLOCK DIAGRAM

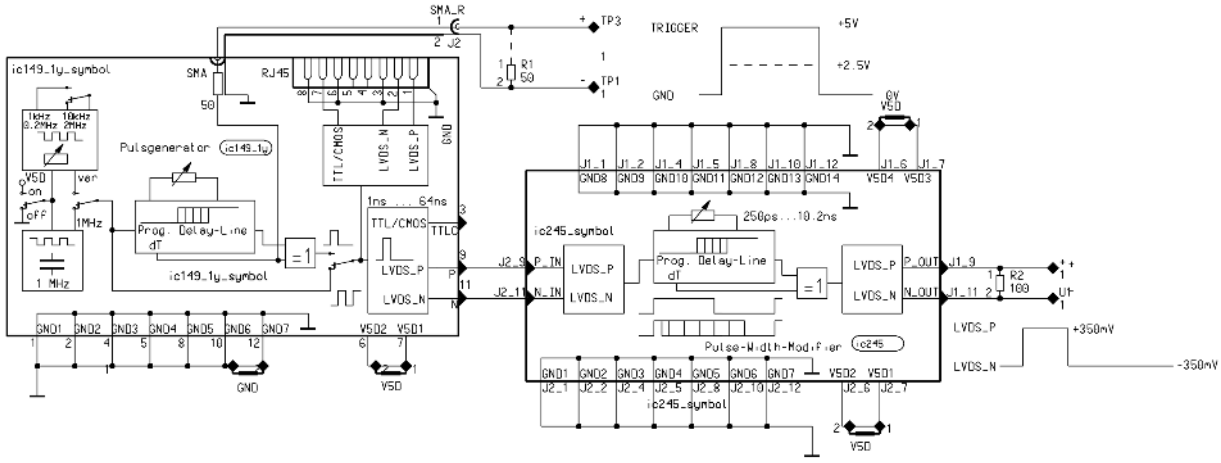


Figure 2: Block diagram of iC245 in connection with iC149

SETTING THE PULSE WIDTH

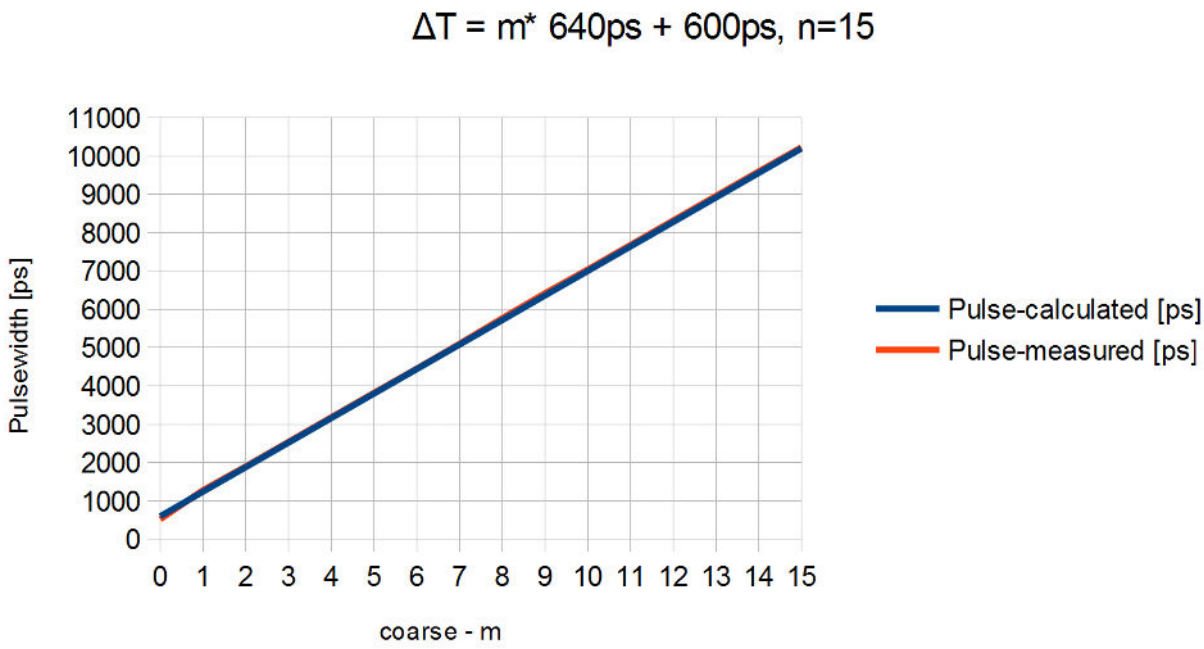


Figure 3: Setting the pulse width "coarse"

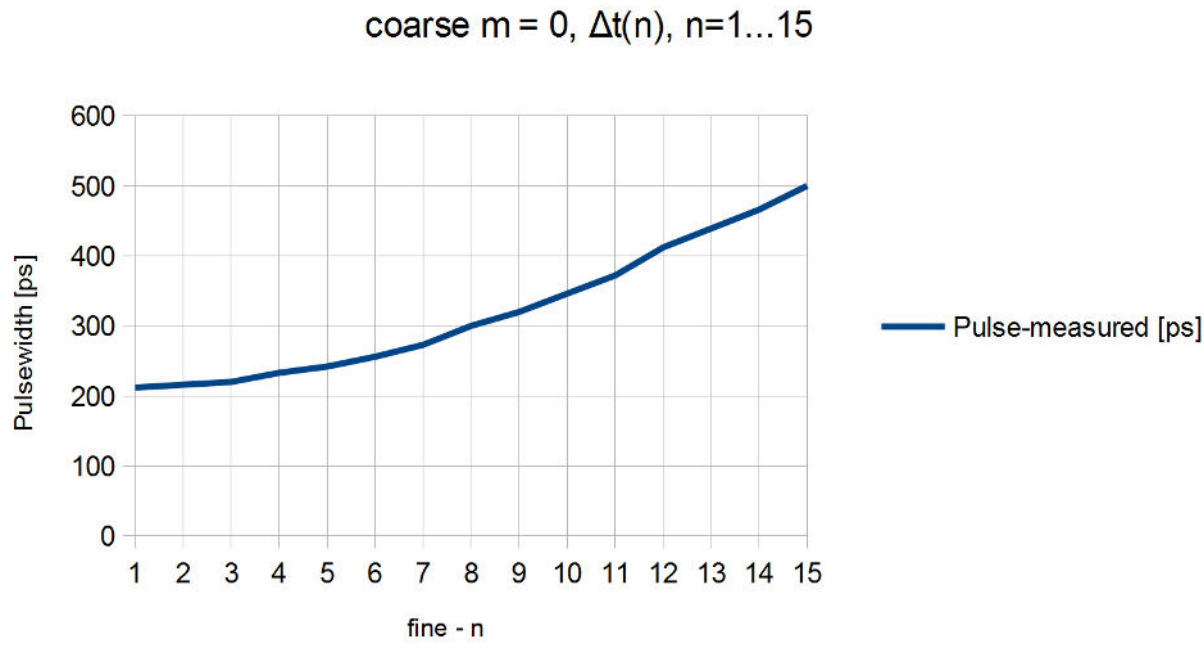


Figure 4: Setting the pulse width "fine"

USAGE EXAMPLES

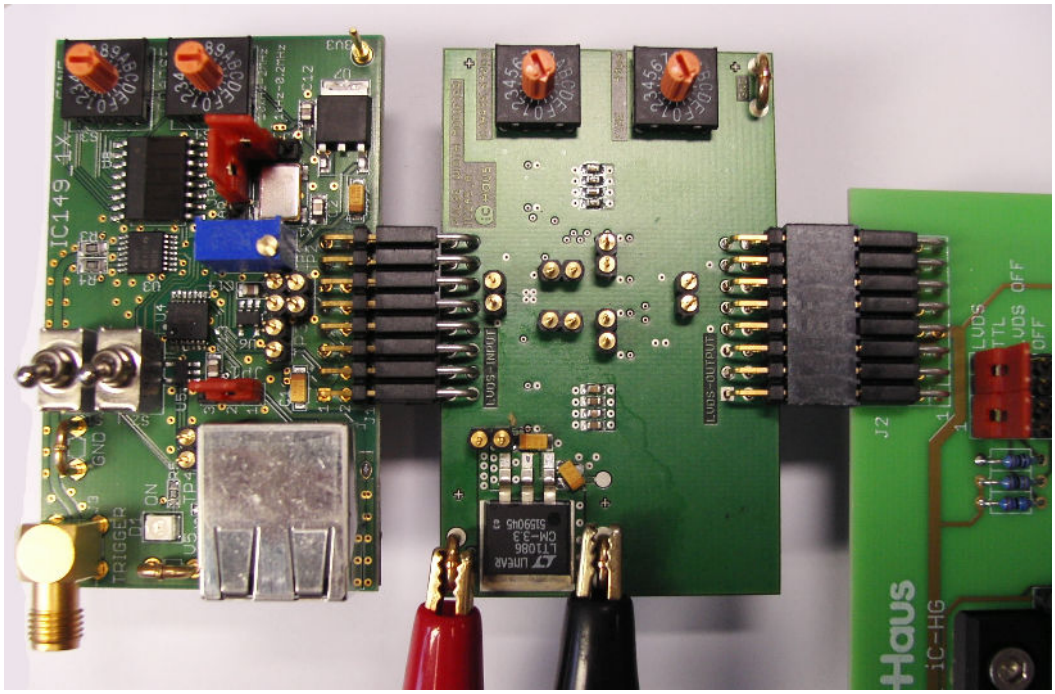


Figure 5: Connecting iC149 and iC245 to HG2D.

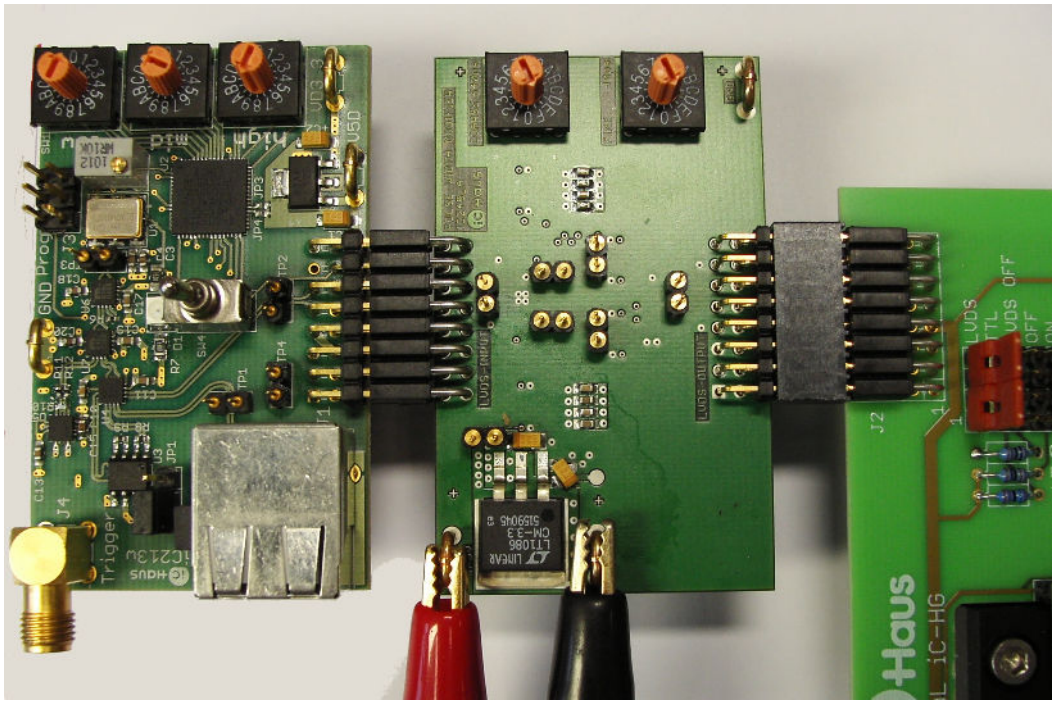


Figure 6: Connecting iC213 and iC245 to HG2D.

PULSE EXAMPLES

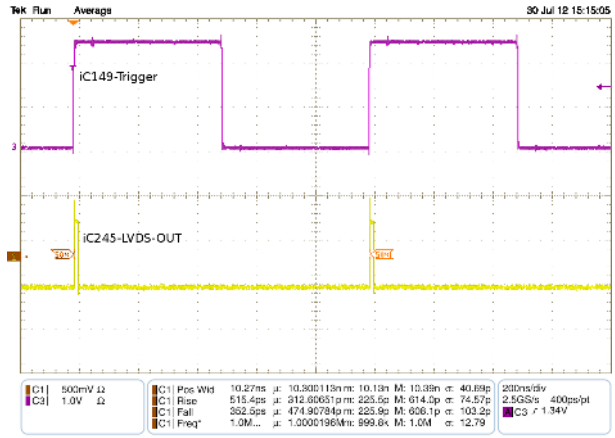


Figure 7: Maximum pulse width of 10.2 ns

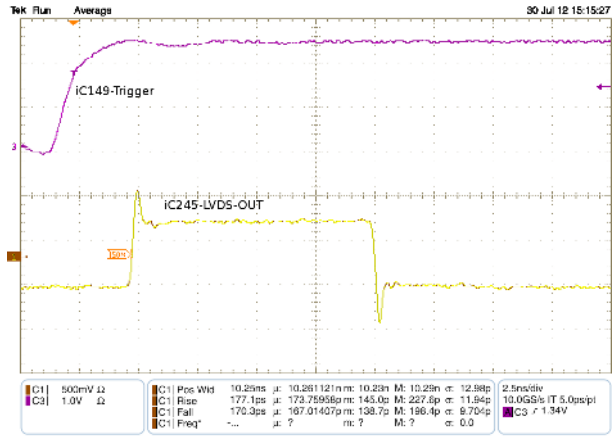


Figure 8: Maximum pulse width of 10.2 ns, zoomed

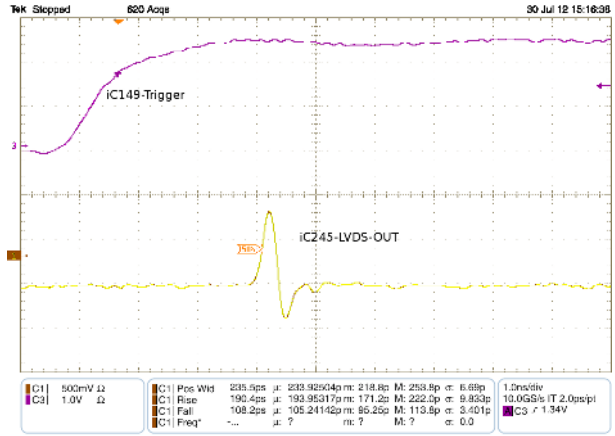


Figure 9: Minimum pulse width of 235 ps

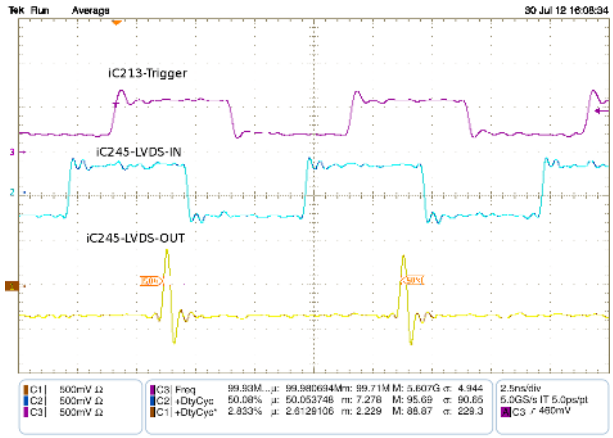


Figure 10: 100 MHz signal from iC213 and a short duty cycle < 3%

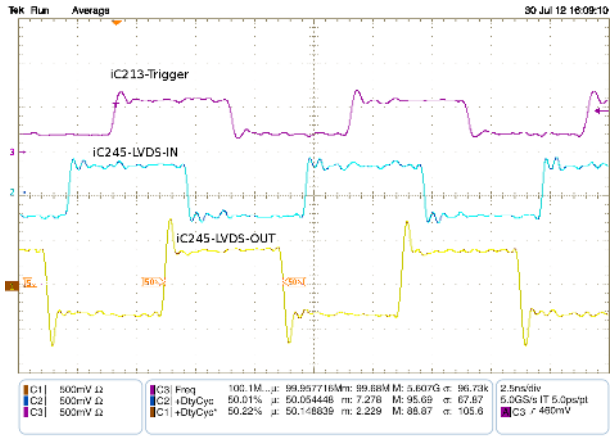


Figure 11: 100 MHz signal from iC213 and a duty cycle of 50%

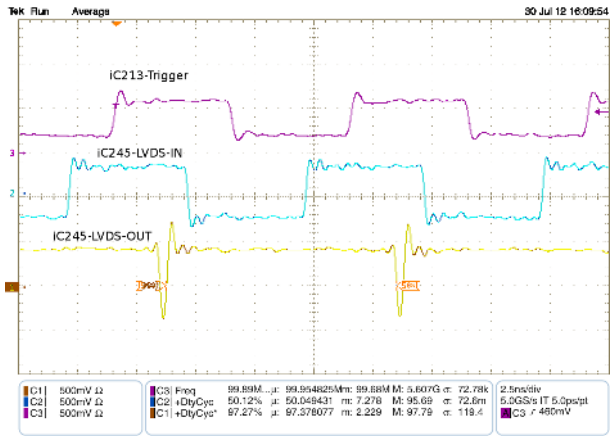


Figure 12: 100 MHz signal from iC213 and a long duty cycle > 97%

REVISION HISTORY

Rel.	Rel. Date*	Chapter	Modification	Page
A1	2023-02-17		Initial release	all

Rel.	Rel. Date*	Chapter	Modification	Page
A2	2023-03-31	APPLICATIONS	Added example	1
		DESCRIPTION	Updated description	2

* Release Date format: *YYYY-MM-DD*