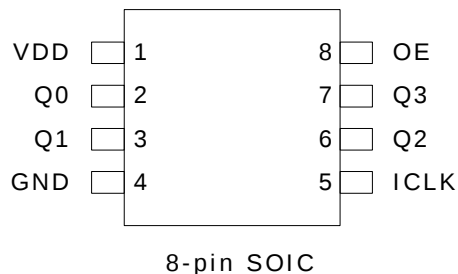


Pin Assignment



Pin Descriptions

Pin Number	Pin Name	Pin Type	Pin Description
1	VDD	Power	Connect to +2.5 V, +3.3 V or +5.0 V.
2	Q0	Output	Clock output 0.
3	Q1	Output	Clock output 1.
4	GND	Power	Connect to ground.
5	ICLK	Input	Clock input, 5 V tolerant input.
6	Q2	Output	Clock Output 2.
7	Q3	Output	Clock Output 3.
8	OE	Input	Output Enable. Tri-states outputs when low. Connect to VDD for normal operation.

External Components

A minimum number of external components are required for proper operation. A decoupling capacitor of 0.01 μ F should be connected between VDD on pin 1 and GND on pin 4, as close to the device as possible. A 33 Ω series terminating resistor may be used on each clock output if the trace is longer than 1 inch.

To achieve the low output skew that the ICS553 is capable of, careful attention must be paid to board layout. Essentially, all four outputs must have identical terminations, identical loads and identical trace geometries. If they do not, the output skew will be degraded. For example, using a 30 Ω series termination on one output (with 33 Ω on the others) will cause at least 15 ps of skew.

Absolute Maximum Ratings

Stresses above the ratings listed below can cause permanent damage to the ICS553. These ratings, which are standard values for IDT commercially rated parts, are stress ratings only. Functional operation of the device at these or any other conditions above those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods can affect product reliability. Electrical parameters are guaranteed only over the recommended operating temperature range.

Item	Rating
Supply Voltage, VDD	7 V
Output Enable and All Outputs	-0.5 V to VDD+0.5 V
ICLK	-0.5 V to 5.5 V
Ambient Operating Temperature (commercial)	0 to +70° C
Ambient Operating Temperature (industrial)	-40 to +85° C
Storage Temperature	-65 to +150° C
Junction Temperature	125° C
Soldering Temperature	260° C

Recommended Operation Conditions

Parameter	Min.	Typ.	Max.	Units
Ambient Operating Temperature (commercial)	0		+70	° C
Ambient Operating Temperature (industrial)	-40		+85	° C
Power Supply Voltage (measured in respect to GND)	+2.375		+5.25	V

DC Electrical Characteristics

VDD=2.5 V $\pm$ 5%, Ambient temperature -40 to +85° C, unless stated otherwise

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Operating Voltage	VDD		2.375		2.625	V
Input High Voltage, ICLK	V _{IH}	Note 1	VDD/2+0.5		5.5	V
Input Low Voltage, ICLK	V _{IL}	Note 1			VDD/2-0.5	V
Input High Voltage, OE	V _{IH}		1.8		VDD	V
Input Low Voltage, OE	V _{IL}				0.7	V
Output High Voltage	V _{OH}	I _{OH} = -16 mA	2			V
Output Low Voltage	V _{OL}	I _{OL} = 16 mA			0.4	V
Operating Supply Current	IDD	No load, 135 MHz		25		mA
Nominal Output Impedance	Z _O			20		Ω
Input Capacitance	C _{IN}	ICLK, OE pin		5		pF
Short Circuit Current	I _{OS}			$\pm$ 28		mA

DC Electrical Characteristics (continued)

VDD=3.3 V ±5% , Ambient temperature -40 to +85° C, unless stated otherwise

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Operating Voltage	VDD		3.15		3.45	V
Input High Voltage, ICLK	V _{IH}	Note 1	VDD/2+0.7		5.5	V
Input Low Voltage, ICLK	V _{IL}	Note 1			VDD/2-0.7	V
Input High Voltage, OE	V _{IH}		2		VDD	V
Input Low Voltage, OE	V _{IL}				0.8	V
Output High Voltage	V _{OH}	I _{OH} = -25 mA	2.4			V
Output Low Voltage	V _{OL}	I _{OL} = 25 mA			0.4	V
Output High Voltage (CMOS Level)	V _{OH}	I _{OH} = -12 mA	VDD-0.4			V
Operating Supply Current	IDD	No load, 135 MHz		35		mA
Nominal Output Impedance	Z _O			20		Ω
Input Capacitance	C _{IN}	ICLK, OE pin		5		pF
Short Circuit Current	I _{OS}			±50		mA

VDD=5 V ±5% , Ambient temperature -40 to +85° C, unless stated otherwise

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Operating Voltage	VDD		4.75		5.25	V
Input High Voltage, ICLK	V _{IH}	Note 1	VDD/2+1		5.5	V
Input Low Voltage, ICLK	V _{IL}	Note 1			VDD/2-1	V
Input High Voltage, OE	V _{IH}		2		VDD	V
Input Low Voltage, OE	V _{IL}				0.8	V
Output High Voltage	V _{OH}	I _{OH} = -35 mA	2.4			V
Output Low Voltage	V _{OL}	I _{OL} = 35 mA			0.4	V
Output High Voltage (CMOS Level)	V _{OH}	I _{OH} = -12 mA	VDD-0.4			V
Operating Supply Current	IDD	No load, 135 MHz		45		mA
Nominal Output Impedance	Z _O			20		Ω
Input Capacitance	C _{IN}	ICLK, OE pin		5		pF
Short Circuit Current	I _{OS}			±80		mA

Notes: 1. Nominal switching threshold is VDD/2

ICS553

LOW SKEW 1 TO 4 CLOCK BUFFER

FAN OUT BUFFER