

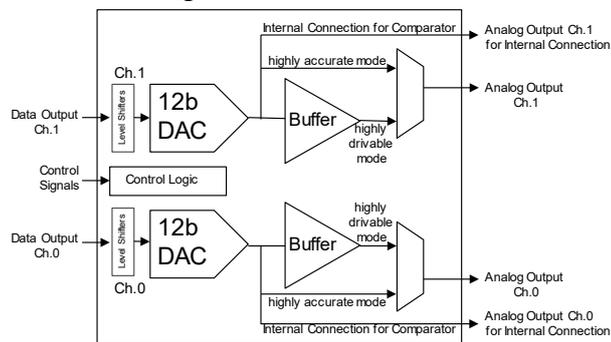
Data Converter Datasheet

Dual Channel 12b D/A Converter

Overview

A Dual Channel 12b D/A converter are provided with TSMC T40ULP+ESF3 wafer process. They are voltage output D/A Converter, supporting the wide supply range from 1.62 to 3.63V. The reference voltage can be set independently on the power supply. The linearity is excellent and the transition is fast. They support 2 operation choices; at the 1st mode; high buffered mode, they can drive 50pF capacitive load and 5k-ohm resistive load. And at the 2nd mode; high accuracy mode, they can show the high linearity from 0 to FS.

Block Diagram of Dual Channel DAC



Technology

- TSMC T40ULP+ESF3
- Available metallization technologies :7lm4x1z1u, DACs use only 4x1z metals.

Key Features

- 12b resolution, 3us conversion time
- Level Shifter inside. Directly connectable Interface to the digital section.
- Dual channel
- Independent Reference Voltage from the power supply
- Support 2 output mode; highly drivable mode / highly accurate mode.
- High Drivability of 50pF capacitive load and 5k-ohm resistive load at the highly drivable mode.
- Excellent linearity from 0 to FS at the accurate mode.

Electrical characteristics

Item	Unit	Spec			Description
		MIN	TYP	MAX	
Power Supply AVCC	V	1.62	-	3.63	
Power Supply VDD	V	0.81	-	1.21	
Temperature	degree-C	-40	25	125	
Output Range	highly drivable mode	V	0.2	-	AVCC-0.2
	highly accurate mode	V	0	-	AVCC
Conversion time	us	-	-	3	
Integral Non-Linearity (INL)	LSB	-4	-	+4	
Differential Non-Linearity (DNL)	LSB	-1	-	+1	
Center Offset Error	at highly drivable mode	LSB	-20	-	+20
Gain Error	at highly drivable mode	%	-1	-	+1
Power consumption	highly drivable mode	mA	-	2.6	-
	highly accurate mode	mA	-	0.25	-
Area	mm ²	0.113			size on Si

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