10-bit 1-channel 100 MSPS current DAC

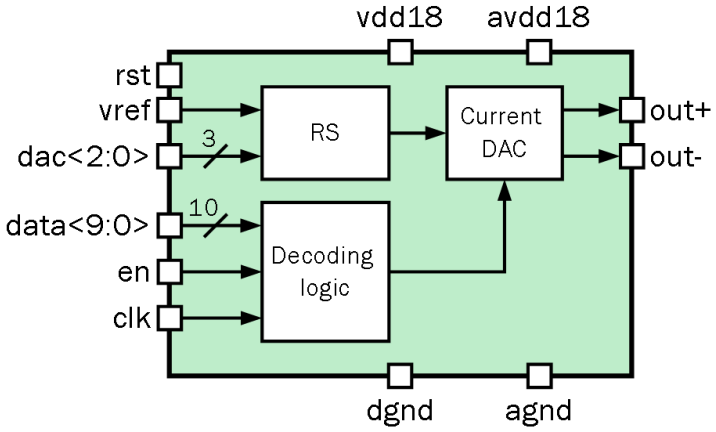
OVERVIEW

180SMIC_DAC_01 is based on current steering architecture, which provides high-speed conversion rate and good dynamic performance. DAC consists of three principal blocks: adjustable reference voltage and current generator (RS), decoding logic, current source and output switches array. Device has a feature of adjusting output current and entering sleep mode, turning the device off. DAC requires 1.8 V analog and digital supply, and digital and analog ground to work properly. Pins **dac<2:0>** adjust DAC output current from 1.3mA to 21mA.

IP technology: SMIC EEPROM CMOS 0.18 um.

IP status: silicon proven.

Area: 0.38mm^2.



ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Value			Units
			min	typ.	max	
Supply voltage	V_{avdd18}	-	1.7	1.8	1.9	V
	V_{vdd18}	-				
Operating temperature range	T_j	-	-60	+27	+120	°C
Input reference voltage	V_{ref}	-	-	1.2	-	V
Resolution	N	-	-	10	-	bits
Clock frequency	F_{clk}	-	-	100	-	MHz
Sampling rate	F_s	-	-	100	-	MSPS
Standby current	I_{st}	-	-	200	-	nA
Power consumption	P_{diss}	-	5.7	38	38	mW
Output current	I_{out}	Adjustable	1.3	-	21	mA
Spurious-free dynamic range	SFDR	$F_{IN} \leq 25$ MHz, $R_{LOAD} = 25$ Ohm, $F_{clk} = 100$ MHz, $I_{out} = 21$mA	60	62	66	dB
Input high-logic level	V_{IH}	For digital inputs	0.8*V_{vdd18}	-	V_{vdd18}	V
Input low-logic level	V_{IL}		0	-	0.4	V