Delphi Analog Digital Multiplexer

Description

The Delphi 8-channel Analog/Digital Multiplexer (A/D MUX) (similar to a CD/HC4051) is controlled by analog switches via three mux select inputs. These A/D MUX switches have low on resistance and high off resistance. They are not intended to be used bidirectionally, but rather as inputs and a single output. The inhibit (INH) input, when pulled high disables all switches to their off state, resulting in the output being placed in a hi Z low leakage current state. All ANx inputs and digital inputs are protected from electrostatic damage by internal protection diodes.

Features

- 8 to 1 Mux
- Input clamps on the mux avoid disruption from -2V to 26.5V on adjacent pins
- Low Rdson < 200 ohms
- 'Break before make' to assure no crosstalk
- Internal pull down current sources on the select lines

Packaging

- Available in 16-pin SO package
- Available in Flip Chip package

Typical Applications

- Automotive Engine Controls
- Exhaust System
- ADC 'front end'

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Recommended Operating Conditions			
Characteristic	**Symbol**	**Value**	**Unit**
Supply Voltage	Vdd	4.75 to 5.25	V
Input Control Voltage (MSEL, Control Logic)	Vin	0 to VDD	V
Input Voltage (ANx, with 10K series resistors)	Vin	-2.0 to 26.5	VDC
Operating Temp. Range, Ambient	Ta	-40 to 125	°C

Absolute Maximum Ratings			
Characteristic	**Symbol**	**Value**	**Unit**
Supply Voltage	Vdd	-0.3 to 7.0	V
Input Control Voltage (MSEL, Control Logic)	Vin	-0.3 to 7.0	V
Input Voltage (ANx w/10K series resistors)	Vin	-2.0 to 26.5	V
Max. Thermal Resistance		71	°C/W
Power Dissipation		350	mW
Storage Temp. Range	Tstg	-65 to 150	°C
Max. Junction Temp.		-40 to 125	°C

Characteristics	Symbol	Condition	Min	Max	Unit
Quiescent Device Current	Idd	Vdd=5.0 ±0.1 Vdc		1.0 2.0	mA
Minimum high level Input Voltage	Vih	3 volt logic	2.0		V
Max. low level Input Voltage	Vil	3 volt logic		0.8	V
Input Current High	Iih	Vin=Vih		80	µA
Input Current Low	Iil	Vin=Vil	10		µA
Input Capacitance	Cin	Switch inputs, ANx, Control & inhibit inputs, MSELx, INH		7.5 20	pF
Output Capacitance	Cout	Common output; OUT		100	pF
Feedthrough Capacitance	Cios	Switch inputs to common output		10	pF
Signal input (ANx) to signal out (OUT)	Tphl Tplh	Rout=200K		145	ns
(MSELx) address to signal output (OUT) MUX switch turn "on⁄off"	Tpzl Tpzh	Measured from MUX Vthreshold to OUT Vout @ 10%⁄90% voltage levels @ Vin=Vanx=oV & Vdd Rout=1K pull-up to Vdd Cload=50pF		250	ns
Inhibit (INH) to signal output (OUT) INH switch turn "on⁄off"	Tpzl Tpzh	Measured from MUX Vthreshold to OUT Vout @ 10%⁄90% voltage levels@ Vin=Vanx=oV & Vdd Cload=50pF		350	ns
Control input to signal out crosstalk	Xtlk	Rload=10Kohms to gnd. on both input and output pins		20	mVp
Crosstalk between any two channels	Xtlk	Rload=1Koms to gnd. 20 log10 VO⁄Vi=-40dB		3	MHz
"OFF" Channel Leakage Current	Ioclc	Sum of "off" channels leakage currents at inputs; -40 to 25°C 125°C		 0.2 1.0	µA

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