

<b>PCN Number:</b>	20051019002	<b>PCN Date:</b>	01/31/06
<b>Title:</b>	Datasheet Errata for TS5A2053 Device Type		
<b>Customer Contact:</b>	<a href="#">Linda K Miles</a>	<b>Phone:</b>	903-868-7638
		<b>Dept:</b>	Standard Linear Logic
<b>Proposed 1st Ship Date:</b>	N/A	<b>Estimated Sample Availability Date:</b>	N/A
<b>Change Type:</b>	Electrical Specification		
<input type="checkbox"/> <b>Assembly Site</b>	<input type="checkbox"/> <b>Assembly Process</b>	<input type="checkbox"/> <b>Assembly Materials</b>	
<input type="checkbox"/> <b>Design</b>	<input checked="" type="checkbox"/> <b>Electrical Spec</b>	<input type="checkbox"/> <b>Mechanical Spec</b>	
<input type="checkbox"/> <b>Test Site</b>	<input type="checkbox"/> <b>Packing/Shipping/Labeling</b>	<input type="checkbox"/> <b>Test Process</b>	
<input type="checkbox"/> <b>Wafer Bump Site</b>	<input type="checkbox"/> <b>Wafer Bump Materials</b>	<input type="checkbox"/> <b>Wafer Bump Process</b>	
<input type="checkbox"/> <b>Wafer Fab Site</b>	<input type="checkbox"/> <b>Wafer Fab Materials</b>	<input type="checkbox"/> <b>Wafer Fab Process</b>	

## PCN Details

### Description of Change:

Texas Instruments Standard Linear and Logic (SLL) is modifying datasheet parameters for the TS5A2053 Device Type. There have been no changes to the die or the process that will affect the current electrical performance of this device. Changes affect the following sections and parameters:

#### 1. Electrical Characteristics for 5-V supply

- 1.1. "ON-state resistance match between channels" 25C limit has been removed. This parameter is specified across the full temperature range only.
- 1.2. "ON-state resistance flatness" 25C limit has been removed. This parameter is specified across the full temperature range only.
- 1.3. "NO, NC OFF leakage current", "COM OFF leakage current", "NO, NC ON leakage current", and "COM ON leakage current" limits have all been set to +/- 100nA for 25C and +/-200nA for full temp range.

#### 2. Electrical Characteristics for 3.3V supply

- 2.1. "ON-state resistance" 25C limit has been removed. This parameter is specified across the full temperature range only. The full temp limit has been set to 20 ohms.
- 2.2. "ON-state resistance match between channels" 25C limit has been removed. This parameter is specified across the full temperature range only.
- 2.3. "ON-state resistance flatness" 25C limit has been removed. This parameter is specified across the full temperature range only.
- 2.4. "NO, NC OFF leakage current", "COM OFF leakage current", "NO, NC ON leakage current", and "COM ON leakage current" limits have all been set to +/- 100nA for 25C and +/-200nA for full temp range.

#### 3. Electrical Characteristics for 2.5V supply

- 3.1. "ON-state resistance" 25C limit has been removed. This parameter is specified across the full temperature range only. The full temp limit has been set to 40 ohms.
- 3.2. "ON-state resistance match between channels" 25C limit has been removed. This parameter is specified across the full temperature range only.
- 3.3. "ON-state resistance flatness" 25C limit has been removed. This parameter is specified across the full temperature range only.
- 3.4. "NO, NC OFF leakage current", "COM OFF leakage current", "NO, NC ON leakage current", and "COM ON leakage current" limits have all been set to +/- 100nA for 25C and +/-200nA for full temp range.

#### 4. Electrical Characteristics for 1.8V supply

- 4.1. "ON-state resistance" 25C limit has been removed. This parameter is specified across the full temperature range only. The full temp limit has been set to 120 ohms.
- 4.2. "ON-state resistance match between channels" 25C limit has been removed. This parameter is specified across the full temperature range only.
- 4.3. "ON-state resistance flatness" 25C limit has been removed. This parameter is specified across the full temperature range only.
- 4.4. "NO, NC OFF leakage current", "COM OFF leakage current", "NO, NC ON leakage current", and "COM ON leakage current" limits have all been set to +/- 100nA for 25C and +/-200nA for full temp range.

current", and "COM ON leakage current" limits have all been set to +/- 100nA for 25C and +/-200nA for full temp range.

Current data sheet 5.0V supply



**TS5A2053**  
**SINGLE-CHANNEL 10-Ω SPDT ANALOG SWITCH**  
**WITH ENABLE**

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**Electrical Characteristics for 5-V Supply<sup>(1)</sup>**

V<sub>+</sub> = 4.5 V to 5.5 V, T<sub>A</sub> = -40°C to 85°C (unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	T <sub>A</sub>	V <sub>+</sub>	MIN	TYP	MAX	UNIT
<b>Analog Switch</b>								
Analog signal range	V <sub>COM</sub> , V <sub>NO</sub> , V <sub>NC</sub>				0		V <sub>+</sub>	V
ON-state resistance	r <sub>on</sub>	0 ≤ (V <sub>NO</sub> or V <sub>NC</sub> ) ≤ V <sub>+</sub> , I <sub>COM</sub> = -32 mA, Switch ON, See Figure 13	25°C	4.5 V	7.5		13.8	Ω
			Full			16		
ON-state resistance match between channels	Δr <sub>on</sub>	V <sub>NO</sub> or V <sub>NC</sub> = 3.15 V, I <sub>COM</sub> = -32 mA, Switch ON, See Figure 13	25°C	4.5 V	0.8		3	Ω
			Full			4.5		
ON-state resistance flatness	r <sub>on(flat)</sub>	0 ≤ (V <sub>NO</sub> or V <sub>NC</sub> ) ≤ V <sub>+</sub> , I <sub>COM</sub> = -32 mA, Switch ON, See Figure 13	25°C	4.5 V	1.7		2	Ω
			Full			4.5		
NO, NC OFF leakage current	I <sub>NO(OFF)</sub> , I <sub>NC(OFF)</sub>	V <sub>NO</sub> or V <sub>NC</sub> = 1 V, V <sub>COM</sub> = 4.5 V, or V <sub>NO</sub> or V <sub>NC</sub> = 4.5 V, V <sub>COM</sub> = 1 V, Switch OFF, See Figure 14	25°C	5.5 V	-20	5	20	nA
			Full			-20	20	
COM OFF leakage current	I <sub>COM(OFF)</sub>	V <sub>COM</sub> = 1 V, V <sub>NO</sub> or V <sub>NC</sub> = 4.5 V, or V <sub>COM</sub> = 4.5 V, V <sub>NO</sub> or V <sub>NC</sub> = 1 V, Switch OFF, See Figure 14	25°C	5.5 V	-10	-1	10	nA
			Full			-10	10	
NO, NC ON leakage current	I <sub>NO(ON)</sub> , I <sub>NC(ON)</sub>	V <sub>NO</sub> = 1 V, V <sub>COM</sub> = Open, or V <sub>NO</sub> = 4.5 V, V <sub>COM</sub> = Open, Switch ON, See Figure 15	25°C	5.5 V	-10	5.5	10	nA
			Full			-20	20	
COM ON leakage current	I <sub>COM(ON)</sub>	V <sub>COM</sub> = 1 V, V <sub>NO</sub> or V <sub>NC</sub> = Open, or V <sub>COM</sub> = 4.5 V, V <sub>NO</sub> or V <sub>NC</sub> = Open, Switch ON, See Figure 15	25°C	5.5 V	-5	-1	5	nA
			Full			-10	10	
<b>Digital Control Inputs (IN, EN)</b>								
Input logic high	V <sub>IH</sub>		Full		V <sub>+</sub> × 0.7		5.5	V
Input logic low	V <sub>IL</sub>		Full		0		V <sub>+</sub> × 0.3	V
Input leakage current	I <sub>IH</sub> , I <sub>IL</sub>	V <sub>I</sub> = 5.5 V or 0	25°C	5.5 V	-0.1	0.05	0.1	μA
			Full			-1	1	

(1) The algebraic convention, whereby the most negative value is a minimum and the most positive value is a maximum

New data sheet 5.0V supply



**TS5A2053**  
**SINGLE-CHANNEL 10-Ω SPDT ANALOG SWITCH**  
**WITH ENABLE**

SCDS183 – JANUARY 2005

**Electrical Characteristics for 5-V Supply<sup>(1)</sup>**

$V_+ = 4.5\text{ V to }5.5\text{ V}$ ,  $T_A = -40^\circ\text{C to }85^\circ\text{C}$  (unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	$T_A$	$V_+$	MIN	TYP	MAX	UNIT
<b>Analog Switch</b>								
Analog signal range	$V_{COM}, V_{NO}, V_{NC}$				0		$V_+$	V
ON-state resistance	$r_{on}$	$0 \leq (V_{NO} \text{ or } V_{NC}) \leq V_+$ , $I_{COM} = -32\text{ mA}$ , Switch ON, See Figure 13	25°C Full	4.5 V		7.5	13.8 16	Ω
ON-state resistance match between channels	$\Delta r_{on}$	$V_{NO} \text{ or } V_{NC} = 3.15\text{ V}$ , $I_{COM} = -32\text{ mA}$ , Switch ON, See Figure 13	25°C Full	4.5 V		0.8	4.5	Ω
ON-state resistance flatness	$r_{on(flat)}$	$0 \leq (V_{NO} \text{ or } V_{NC}) \leq V_+$ , $I_{COM} = -32\text{ mA}$ , Switch ON, See Figure 13	25°C Full	4.5 V		1.7	4.5	Ω
NO, NC OFF leakage current	$I_{NO(OFF)}, I_{NC(OFF)}$	$V_{NO} \text{ or } V_{NC} = 1\text{ V}$ , $V_{COM} = 4.5\text{ V}$ , or $V_{NO} \text{ or } V_{NC} = 4.5\text{ V}$ , $V_{COM} = 1\text{ V}$ , Switch OFF, See Figure 14	25°C Full	5.5 V	-100	5	100 200	nA
COM OFF leakage current	$I_{COM(OFF)}$	$V_{COM} = 1\text{ V}$ , $V_{NO} \text{ or } V_{NC} = 4.5\text{ V}$ , or $V_{COM} = 4.5\text{ V}$ , $V_{NO} \text{ or } V_{NC} = 1\text{ V}$ , Switch OFF, See Figure 14	25°C Full	5.5 V	-100	-1	100 200	nA
NO, NC ON leakage current	$I_{NO(ON)}, I_{NC(ON)}$	$V_{NO} = 1\text{ V}, V_{COM} = \text{Open}$ , or $V_{NO} = 4.5\text{ V}, V_{COM} = \text{Open}$ , Switch ON, See Figure 15	25°C Full	5.5 V	-100	5.5	100 200	nA
COM ON leakage current	$I_{COM(ON)}$	$V_{COM} = 1\text{ V}$ , $V_{NO} \text{ or } V_{NC} = \text{Open}$ , or $V_{COM} = 4.5\text{ V}$ , $V_{NO} \text{ or } V_{NC} = \text{Open}$ , Switch ON, See Figure 15	25°C Full	5.5 V	-100	-1	100 200	nA
<b>Digital Control Inputs (IN, EN)</b>								
Input logic high	$V_{IH}$		Full		$V_+ \times 0.7$		5.5	V
Input logic low	$V_{IL}$		Full		0		$V_+ \times 0.3$	V
Input leakage current	$I_{IH}, I_{IL}$	$V_I = 5.5\text{ V or }0$	25°C Full	5.5 V	-0.1	0.05	0.1 1	μA

<sup>(1)</sup> The algebraic convention, whereby the most negative value is a minimum and the most positive value is a maximum

**Electrical Characteristics for 3.3-V Supply<sup>(1)</sup>**V<sub>+</sub> = 3 V to 3.6 V, T<sub>A</sub> = -40°C to 85°C (unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	T <sub>A</sub>	V <sub>+</sub>	MIN	TYP	MAX	UNIT
<b>Analog Switch</b>								
Analog signal range	V <sub>COM</sub> , V <sub>NO</sub> , V <sub>NC</sub>				0		V <sub>+</sub>	V
ON-state resistance	r <sub>on</sub>	0 ≤ (V <sub>NO</sub> or V <sub>NC</sub> ) ≤ V <sub>+</sub> , I <sub>COM</sub> = -24 mA, Switch ON, See Figure 13	25°C	3 V		13.2	13.8	Ω
			Full				16	
ON-state resistance match between channels	Δr <sub>on</sub>	V <sub>NO</sub> or V <sub>NC</sub> = 2.1 V, I <sub>COM</sub> = -24 mA, Switch ON, See Figure 13	25°C	3 V		1	3	Ω
			Full				5.5	
ON-state resistance flatness	r <sub>on(flat)</sub>	0 ≤ (V <sub>NO</sub> or V <sub>NC</sub> ) ≤ V <sub>+</sub> , I <sub>COM</sub> = -24 mA, Switch ON, See Figure 13	25°C	3 V		5.3	7	Ω
			Full				11	
NO, NC OFF leakage current	I <sub>NO(OFF)</sub> , I <sub>NC(OFF)</sub>	V <sub>NO</sub> or V <sub>NC</sub> = 1 V, V <sub>COM</sub> = 3 V, or V <sub>NO</sub> or V <sub>NC</sub> = 3 V, V <sub>COM</sub> = 1 V, Switch OFF, See Figure 14	25°C	3.6 V	-20	4	20	nA
			Full		-20		20	
COM OFF leakage current	I <sub>COM(OFF)</sub>	V <sub>COM</sub> = 1 V, V <sub>NO</sub> or V <sub>NC</sub> = 3 V, or V <sub>COM</sub> = 3 V, V <sub>NO</sub> or V <sub>NC</sub> = 1 V, Switch OFF, See Figure 14	25°C	3.6 V	-10	-1	10	nA
			Full		-10		10	
NO, NC ON leakage current	I <sub>NO(ON)</sub> , I <sub>NC(ON)</sub>	V <sub>NO</sub> or V <sub>NC</sub> = 1 V, V <sub>COM</sub> = Open, or V <sub>NO</sub> or V <sub>NC</sub> = 3 V, V <sub>COM</sub> = Open, Switch ON, See Figure 15	25°C	3.6 V	-10	4.5	10	nA
			Full		-20		20	
COM ON leakage current	I <sub>COM(ON)</sub>	V <sub>COM</sub> = 1 V, V <sub>NO</sub> or V <sub>NC</sub> = Open, or V <sub>COM</sub> = 3 V, V <sub>NO</sub> or V <sub>NC</sub> = Open, Switch ON, See Figure 15	25°C	3.6 V	-5	-1	5	nA
			Full		-10		10	
<b>Digital Control Inputs (IN, EN)</b>								
Input logic high	V <sub>IH</sub>		Full		V <sub>+</sub> × 0.7		5.5	V
Input logic low	V <sub>IL</sub>		Full		0		V <sub>+</sub> × 0.3	V
Input leakage current	I <sub>IH</sub> , I <sub>IL</sub>	V <sub>I</sub> = 5.5 V or 0	25°C	3.6 V	-0.1	0.05	0.1	μA
			Full		-1		1	

(1) The algebraic convention, whereby the most negative value is a minimum and the most positive value is a maximum

New data sheet 3.3V supply



**TS5A2053**  
**SINGLE-CHANNEL 10-Ω SPDT ANALOG SWITCH**  
**WITH ENABLE**

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**Electrical Characteristics for 3.3-V Supply<sup>(1)</sup>**

V<sub>+</sub> = 3 V to 3.6 V, T<sub>A</sub> = -40°C to 85°C (unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	T <sub>A</sub>	V <sub>+</sub>	MIN	TYP	MAX	UNIT
<b>Analog Switch</b>								
Analog signal range	V <sub>COM</sub> , V <sub>NO</sub> , V <sub>NC</sub>				0		V <sub>+</sub>	V
ON-state resistance	r <sub>on</sub>	0 ≤ (V <sub>NO</sub> or V <sub>NC</sub> ) ≤ V <sub>+</sub> , I <sub>COM</sub> = -24 mA,	25°C Full	3 V		13.2	20	Ω
ON-state resistance match between channels	Δr <sub>on</sub>	V <sub>NO</sub> or V <sub>NC</sub> = 2.1 V, I <sub>COM</sub> = -24 mA,	25°C Full	3 V		1	5.5	Ω
ON-state resistance flatness	r <sub>on(flat)</sub>	0 ≤ (V <sub>NO</sub> or V <sub>NC</sub> ) ≤ V <sub>+</sub> , I <sub>COM</sub> = -24 mA,	25°C Full	3 V		5.3	11	Ω
NO, NC OFF leakage current	I <sub>NO(OFF)</sub> , I <sub>NC(OFF)</sub>	V <sub>NO</sub> or V <sub>NC</sub> = 1 V, V <sub>COM</sub> = 3 V, or V <sub>NO</sub> or V <sub>NC</sub> = 3 V, V <sub>COM</sub> = 1 V,	25°C Full	3.6 V	-100	4	100	nA
COM OFF leakage current	I <sub>COM(OFF)</sub>	V <sub>COM</sub> = 1 V, V <sub>NO</sub> or V <sub>NC</sub> = 3 V, or V <sub>COM</sub> = 3 V, V <sub>NO</sub> or V <sub>NC</sub> = 1 V,	25°C Full	3.6 V	-100	-1	100	nA
NO, NC ON leakage current	I <sub>NO(ON)</sub> , I <sub>NC(ON)</sub>	V <sub>NO</sub> or V <sub>NC</sub> = 1 V, V <sub>COM</sub> = Open, or V <sub>NO</sub> or V <sub>NC</sub> = 3 V, V <sub>COM</sub> = Open,	25°C Full	3.6 V	-100	4.5	100	nA
COM ON leakage current	I <sub>COM(ON)</sub>	V <sub>COM</sub> = 1 V, V <sub>NO</sub> or V <sub>NC</sub> = Open, or V <sub>COM</sub> = 3 V, V <sub>NO</sub> or V <sub>NC</sub> = Open,	25°C Full	3.6 V	-100	-1	100	nA
<b>Digital Control Inputs (IN, EN)</b>								
Input logic high	V <sub>IH</sub>		Full		V <sub>+</sub> × 0.7		5.5	V
Input logic low	V <sub>IL</sub>		Full		0		V <sub>+</sub> × 0.3	V
Input leakage current	I <sub>IH</sub> , I <sub>IL</sub>	V <sub>I</sub> = 5.5 V or 0	25°C Full	3.6 V	-0.1	0.05	0.1	μA
					-1		1	

<sup>(1)</sup> The algebraic convention, whereby the most negative value is a minimum and the most positive value is a maximum



**TS5A2053**  
**SINGLE-CHANNEL 10-Ω SPDT ANALOG SWITCH**  
**WITH ENABLE**

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**Electrical Characteristics for 2.5-V Supply<sup>(1)</sup>**

$V_+ = 2.3\text{ V to }2.7\text{ V}$ ,  $T_A = -40^\circ\text{C to }85^\circ\text{C}$  (unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	$T_A$	$V_+$	MIN	TYP	MAX	UNIT
<b>Analog Switch</b>								
Analog signal range	$V_{COM}$ , $V_{NO}$ , $V_{NC}$				0		$V_+$	V
ON-state resistance	$r_{on}$	$0 \leq (V_{NO} \text{ or } V_{NC}) \leq V_+$ , $I_{COM} = -8\text{ mA}$ , Switch ON, See Figure 13	25°C Full	2.3 V		20	28 30	$\Omega$
ON-state resistance match between channels	$\Delta r_{on}$	$V_{NO} \text{ or } V_{NC} = 1.6\text{ V}$ , $I_{COM} = -8\text{ mA}$ , Switch ON, See Figure 13	25°C Full	2.3 V		1.1	3 6	$\Omega$
ON-state resistance flatness	$r_{on(flat)}$	$0 \leq (V_{NO} \text{ or } V_{NC}) \leq V_+$ , $I_{COM} = -8\text{ mA}$ , Switch ON, See Figure 13	25°C Full	2.3 V		15	16 20	$\Omega$
NO, NC OFF leakage current	$I_{NO(OFF)}$ , $I_{NC(OFF)}$	$V_{NO} \text{ or } V_{NC} = 0.5\text{ V}$ , $V_{COM} = 2.2\text{ V}$ , or $V_{NO} \text{ or } V_{NC} = 2.2\text{ V}$ , $V_{COM} = 0.5\text{ V}$ , Switch OFF, See Figure 14	25°C Full	2.7 V	-20	3.5	20	nA
COM OFF leakage current	$I_{COM(OFF)}$	$V_{COM} = 0.5\text{ V}$ , $V_{NO} \text{ or } V_{NC} = 2.2\text{ V}$ , or $V_{COM} = 2.2\text{ V}$ , $V_{NO} \text{ or } V_{NC} = 0.5\text{ V}$ , Switch OFF, See Figure 14	25°C Full	2.7 V	-10	-2	10	nA
NO, NC ON leakage current	$I_{NO(ON)}$ , $I_{NC(ON)}$	$V_{NO} \text{ or } V_{NC} = 0.5\text{ V}$ , $V_{COM} = \text{Open}$ , or $V_{NO} \text{ or } V_{NC} = 2.2\text{ V}$ , $V_{COM} = \text{Open}$ , Switch ON, See Figure 15	25°C Full	2.7 V	-10	4	10 20	nA
COM ON leakage current	$I_{COM(ON)}$	$V_{COM} = 0.5\text{ V}$ , $V_{NO} \text{ or } V_{NC} = \text{Open}$ , or $V_{COM} = 2.2\text{ V}$ , $V_{NO} \text{ or } V_{NC} = \text{Open}$ , Switch ON, See Figure 15	25°C Full	2.7 V	-5	-2	5 10	nA
<b>Digital Control Inputs (IN, EN)</b>								
Input logic high	$V_{IH}$		Full		$V_+ \times 0.7$		5.5	V
Input logic low	$V_{IL}$		Full		0		$V_+ \times 0.3$	V
Input leakage current	$I_{IH}$ , $I_{IL}$	$V_I = 5.5\text{ V or }0$	25°C Full	2.7 V	-0.1	0.05	0.1 1	$\mu\text{A}$

(1) The algebraic convention, whereby the most negative value is a minimum and the most positive value is a maximum

New data sheet 2.5V supply



**TS5A2053**  
**SINGLE-CHANNEL 10-Ω SPDT ANALOG SWITCH**  
**WITH ENABLE**

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**Electrical Characteristics for 2.5-V Supply<sup>(1)</sup>**

$V_+ = 2.3\text{ V to }2.7\text{ V}$ ,  $T_A = -40^\circ\text{C to }85^\circ\text{C}$  (unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	$T_A$	$V_+$	MIN	TYP	MAX	UNIT
<b>Analog Switch</b>								
Analog signal range	$V_{COM}$ , $V_{NO}$ , $V_{NC}$				0		$V_+$	V
ON-state resistance	$r_{on}$	$0 \leq (V_{NO} \text{ or } V_{NC}) \leq V_+$ , $I_{COM} = -8\text{ mA}$ , Switch ON, See Figure 13	25°C Full	2.3 V		20	40	$\Omega$
ON-state resistance match between channels	$\Delta r_{on}$	$V_{NO} \text{ or } V_{NC} = 1.6\text{ V}$ , $I_{COM} = -8\text{ mA}$ , Switch ON, See Figure 13	25°C Full	2.3 V		1.1	6	$\Omega$
ON-state resistance flatness	$r_{on(flat)}$	$0 \leq (V_{NO} \text{ or } V_{NC}) \leq V_+$ , $I_{COM} = -8\text{ mA}$ , Switch ON, See Figure 13	25°C Full	2.3 V		15	20	$\Omega$
NO, NC OFF leakage current	$I_{NO(OFF)}$ , $I_{NC(OFF)}$	$V_{NO} \text{ or } V_{NC} = 0.5\text{ V}$ , $V_{COM} = 2.2\text{ V}$ , or $V_{NO} \text{ or } V_{NC} = 2.2\text{ V}$ , $V_{COM} = 0.5\text{ V}$ , Switch OFF, See Figure 14	25°C Full	2.7 V	-100	3.5	100	nA
COM OFF leakage current	$I_{COM(OFF)}$	$V_{COM} = 0.5\text{ V}$ , $V_{NO} \text{ or } V_{NC} = 2.2\text{ V}$ , or $V_{COM} = 2.2\text{ V}$ , $V_{NO} \text{ or } V_{NC} = 0.5\text{ V}$ , Switch OFF, See Figure 14	25°C Full	2.7 V	-100	-2	100	nA
NO, NC ON leakage current	$I_{NO(ON)}$ , $I_{NC(ON)}$	$V_{NO} \text{ or } V_{NC} = 0.5\text{ V}$ , $V_{COM} = \text{Open}$ , or $V_{NO} \text{ or } V_{NC} = 2.2\text{ V}$ , $V_{COM} = \text{Open}$ , Switch ON, See Figure 15	25°C Full	2.7 V	-100	4	100	nA
COM ON leakage current	$I_{COM(ON)}$	$V_{COM} = 0.5\text{ V}$ , $V_{NO} \text{ or } V_{NC} = \text{Open}$ , or $V_{COM} = 2.2\text{ V}$ , $V_{NO} \text{ or } V_{NC} = \text{Open}$ , Switch ON, See Figure 15	25°C Full	2.7 V	-100	-2	100	nA
<b>Digital Control Inputs (IN, EN)</b>								
Input logic high	$V_{IH}$		Full				$V_+ \times 0.7$	5.5 V
Input logic low	$V_{IL}$		Full		0		$V_+ \times 0.3$	V
Input leakage current	$I_{IH}$ , $I_{IL}$	$V_I = 5.5\text{ V or }0$	25°C Full	2.7 V	-0.1	0.05	0.1	$\mu\text{A}$
					-1		1	

(1) The algebraic convention, whereby the most negative value is a minimum and the most positive value is a maximum



**TS5A2053**  
**SINGLE-CHANNEL 10-Ω SPDT ANALOG SWITCH**  
**WITH ENABLE**

SCDS183 – JANUARY 2005

**Electrical Characteristics for 1.8-V Supply<sup>(1)</sup>**

V<sub>+</sub> = 1.65 V to 1.95 V, T<sub>A</sub> = -40°C to 85°C (unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	T <sub>A</sub>	V <sub>+</sub>	MIN	TYP	MAX	UNIT
<b>Analog Switch</b>								
Analog signal range	V <sub>COM</sub> , V <sub>NO</sub> , V <sub>NC</sub>				0		V <sub>+</sub>	V
ON-state resistance	r <sub>on</sub>	0 ≤ (V <sub>NO</sub> or V <sub>NC</sub> ) ≤ V <sub>+</sub> , I <sub>COM</sub> = -4 mA, Switch ON, See Figure 13	25°C	1.65 V	85		90	Ω
			Full		105			
ON-state resistance match between channels	Δr <sub>on</sub>	V <sub>NO</sub> or V <sub>NC</sub> = 1.15 V, I <sub>COM</sub> = -4 mA, Switch ON, See Figure 13	25°C	1.65 V	2		4	Ω
			Full		7.5			
ON-state resistance flatness	r <sub>on(flat)</sub>	0 ≤ (V <sub>NO</sub> or V <sub>NC</sub> ) ≤ V <sub>+</sub> , I <sub>COM</sub> = -4 mA, Switch ON, See Figure 13	25°C	1.65 V	76		85	Ω
			Full		100			
NO, NC OFF leakage current	I <sub>NO(OFF)</sub> , I <sub>NC(OFF)</sub>	V <sub>NO</sub> or V <sub>NC</sub> = 0.3 V, V <sub>COM</sub> = 1.65 V, or V <sub>NO</sub> or V <sub>NC</sub> = 1.65 V, V <sub>COM</sub> = 0.3 V, Switch OFF, See Figure 14	25°C	1.95 V	-20	3.5	20	μA
			Full		-20		20	
COM OFF leakage current	I <sub>COM(OFF)</sub>	V <sub>COM</sub> = 0.3 V, V <sub>NO</sub> = 1.65 V, or V <sub>COM</sub> = 1.65 V, V <sub>NO</sub> = 0.3 V, Switch OFF, See Figure 14	25°C	1.95 V	-10	1	10	μA
			Full		-1		1	
NO, NC ON leakage current	I <sub>NO(ON)</sub> , I <sub>NC(ON)</sub>	V <sub>NO</sub> or V <sub>NC</sub> = 0.3 V, V <sub>COM</sub> = Open, or V <sub>NO</sub> or V <sub>NC</sub> = 1.65 V, V <sub>COM</sub> = Open, Switch ON, See Figure 15	25°C	1.95 V	-10	4	10	μA
			Full		20		20	
COM ON leakage current	I <sub>COM(ON)</sub>	V <sub>COM</sub> = 0.3 V, V <sub>NO</sub> or V <sub>NC</sub> = Open, or V <sub>COM</sub> = 1.65 V, V <sub>NO</sub> or V <sub>NC</sub> = Open, Switch ON, See Figure 15	25°C	1.95 V	-5	1	5	μA
			Full		-10		10	
<b>Digital Control Inputs (IN, EN)</b>								
Input logic high	V <sub>IH</sub>		Full		V <sub>+</sub> × 0.65		5.5	V
Input logic low	V <sub>IL</sub>		Full		0	V <sub>+</sub> × 0.35		V
Input leakage current	I <sub>IH</sub> , I <sub>IL</sub>	V <sub>I</sub> = 5.5 V or 0	25°C	1.95 V	-0.1	0.05	0.1	μA
			Full		-1		1	

(1) The algebraic convention, whereby the most negative value is a minimum and the most positive value is a maximum



New data sheet 1.8V supply



**TS5A2053**  
**SINGLE-CHANNEL 10-Ω SPDT ANALOG SWITCH**  
**WITH ENABLE**

SCDS183 – JANUARY 2005

**Electrical Characteristics for 1.8-V Supply<sup>(1)</sup>**

$V_+ = 1.65\text{ V to }1.95\text{ V}$ ,  $T_A = -40^\circ\text{C to }85^\circ\text{C}$  (unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	$T_A$	$V_+$	MIN	TYP	MAX	UNIT
<b>Analog Switch</b>								
Analog signal range	$V_{COM}, V_{NO}, V_{NC}$				0		$V_+$	V
ON-state resistance	$r_{on}$	$0 \leq (V_{NO} \text{ or } V_{NC}) \leq V_+$ , $I_{COM} = -4\text{ mA}$ , Switch ON, See Figure 13	25°C	1.65 V	85			$\Omega$
			Full		120			
ON-state resistance match between channels	$\Delta r_{on}$	$V_{NO} \text{ or } V_{NC} = 1.15\text{ V}$ , $I_{COM} = -4\text{ mA}$ , Switch ON, See Figure 13	25°C	1.65 V	2			$\Omega$
			Full		7.5			
ON-state resistance flatness	$r_{on(flat)}$	$0 \leq (V_{NO} \text{ or } V_{NC}) \leq V_+$ , $I_{COM} = -4\text{ mA}$ , Switch ON, See Figure 13	25°C	1.65 V	76			$\Omega$
			Full		100			
NO, NC OFF leakage current	$I_{NO(OFF)}, I_{NC(OFF)}$	$V_{NO} \text{ or } V_{NC} = 0.3\text{ V}$ , $V_{COM} = 1.65\text{ V}$ , or $V_{NO} \text{ or } V_{NC} = 1.65\text{ V}$ , $V_{COM} = 0.3\text{ V}$ , Switch OFF, See Figure 14	25°C	1.95 V	-100	3.5	100	nA
			Full		-200	200		
COM OFF leakage current	$I_{COM(OFF)}$	$V_{COM} = 0.3\text{ V}, V_{NO} = 1.65\text{ V}$ , or $V_{COM} = 1.65\text{ V}, V_{NO} = 0.3\text{ V}$ , Switch OFF, See Figure 14	25°C	1.95 V	-100	1	100	nA
			Full		-200	200		
NO, NC ON leakage current	$I_{NO(ON)}, I_{NC(ON)}$	$V_{NO} \text{ or } V_{NC} = 0.3\text{ V}$ , $V_{COM} = \text{Open}$ , or $V_{NO} \text{ or } V_{NC} = 1.65\text{ V}$ , $V_{COM} = \text{Open}$ , Switch ON, See Figure 15	25°C	1.95 V	-100	4	100	nA
			Full		-200	200		
COM ON leakage current	$I_{COM(ON)}$	$V_{COM} = 0.3\text{ V}$ , $V_{NO} \text{ or } V_{NC} = \text{Open}$ , or $V_{COM} = 1.65\text{ V}$ , $V_{NO} \text{ or } V_{NC} = \text{Open}$ , Switch ON, See Figure 15	25°C	1.95 V	-100	1	100	nA
			Full		-200	200		
<b>Digital Control Inputs (IN, EN)</b>								
Input logic high	$V_{IH}$		Full		$V_+ \times 0.65$		5.5	V
Input logic low	$V_{IL}$		Full		0		$V_+ \times 0.35$	V
Input leakage current	$I_{IH}, I_{IL}$	$V_I = 5.5\text{ V or }0$	25°C	1.95 V	-0.1	0.05	0.1	$\mu\text{A}$
			Full		-1	1		

<sup>(1)</sup> The algebraic convention, whereby the most negative value is a minimum and the most positive value is a maximum

Device Type	Current Literature #	New Literature #
TS5A2053	SCDS183	SCDS183A

**Reason for Change:**

Datasheet corrections to multiple parameters in order to more accurately reflect char data. There have been no changes to the die or the process that will affect the current electrical performance of this device.

**Product Affected:**

TS5A2053DCTR	TS5A2053DCTRE6	TS5A2053DCUR
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**Anticipate (positive/negative) impact on Fit, Form, Function & Reliability:**

Texas Instruments does not anticipate a negative impact on Fit, Form, Function and Reliability.

**Product Identification:**

There is no change to product identification.

For questions regarding this notice, emails can be sent to the regional contacts shown below or your local Field Sales Representative.

<b>Location</b>	<b>E-Mail</b>
USA	<a href="mailto:PCNAmericasContact@list.ti.com">PCNAmericasContact@list.ti.com</a>
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Asia Pacific	<a href="mailto:PCNAsiaContact@list.ti.com">PCNAsiaContact@list.ti.com</a>
Japan	<a href="mailto:PCNJapanContact@list.ti.com">PCNJapanContact@list.ti.com</a>