



AiPTS3A4741

0.9-Ω Low-Voltage Single-Supply 2-Channel SPST Analog Switch

Product Specification

Specification Revision History:

Version	Date	Description
2025-08-A0	2025-08	New
2026-05-A1	2026-05	Modify parameters



Contents

1、General Description.....	1
2、Block Diagram And Pin Description	2
2.1、Block Diagram	2
2.2、Pin Configurations.....	2
2.3、Pin Description.....	2
2.4、Functional Table.....	2
3、Electrical Parameter	3
3.1、Absolute Maximum Ratings.....	3
3.2、Recommended Operating Conditions.....	3
3.3、Electrical Characteristics.....	3
3.3.1、Parameter Characteristics 1	3
3.3.2、Parameter Characteristics 2	5
4、Testing Circuit	6
5、Package Information	7
5.1、MSOP8.....	7
6、Statements And Notes	8
6.1、The name and content of Hazardous substances or Elements in the product	8
6.2、Notes	8

**1、 General Description**

AiPTS3A4741 is a 0.9-Ω low-voltage single-supply 2-channel SPST analog switch. It supports rail-to-rail signal transmission, and the switch is controlled by the enable pin (IN), which is active HIGH.

Features:

- Supply voltage range: 1.8V to 3.6V
- ON Resistance: typical 0.9Ω (3V power supply); typical 1.5Ω (1.8V power supply)
- CMOS low power consumption
- Operating temperature: -40℃ to +125℃
- Package form: MSOP8

Ordering Information:**Reel packing specifications:**

Part number	Packaging form	Marking code	Reel quantity	Boxed reel quantity	Notes	Moisture sensitivity level
AiPTS3A4741MA8.TR	MSOP8	TS3A4741	5000PCS/reel	10000PCS/box	Dimensions of plastic enclosure: 3.0mm×3.0mm Pin spacing: 0.65mm	MSL3

Note: If the physical information is inconsistent with the ordering information, please refer to the actual product.



2、Block Diagram And Pin Description

2.1、Block Diagram

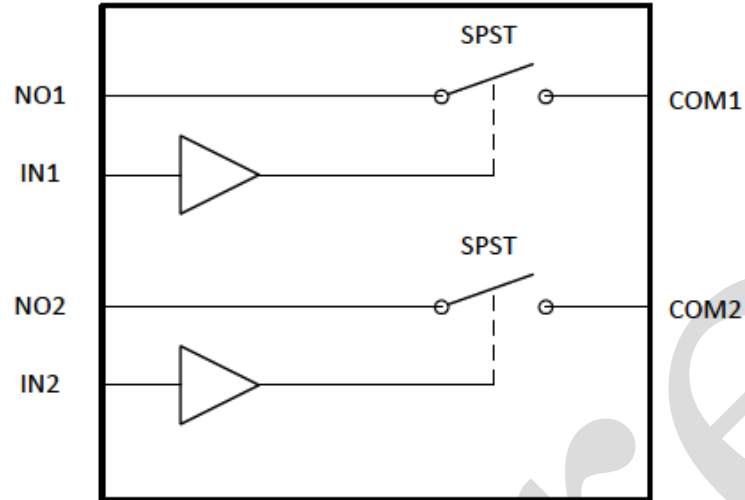
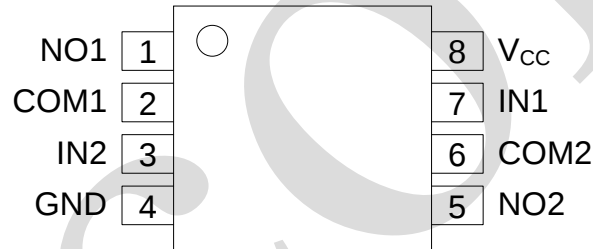


Figure 1. Logic Diagram

2.2、Pin Configurations



2.3、Pin Description

Pin No.	Pin Name	Description
1	NO1	input/output
2	COM1	input/output
3	IN2	output enable control (active HIGH)
4	GND	ground (0V)
5	NO2	input/output
6	COM2	input/output
7	IN1	output enable control (active HIGH)
8	V _{CC}	supply voltage

2.4、Functional Table

Input	Channel ON
IN	
L	OFF
H	ON

Note: H=HIGH voltage level; L=LOW voltage level.



3、Electrical Parameter

3.1、Absolute Maximum Ratings

Characteristic	Symbol	Conditions	Min.	Max.	Unit
supply voltage	V_{CC}	-	-0.3	+4.0	V
input voltage	V_I	input port IN	-0.3	$V_{CC} + 0.3$	V
switch voltage	V_{SW}	-	-0.3	$V_{CC} + 0.3$	V
switch current	I_{SW}	-	-	± 100	mA
supply current	I_{CC}	-	-	+100	mA
ground current	I_{GND}	-	-100	-	mA
storage temperature	T_{stg}	-	-65	+150	°C
soldering temperature	T_L	10s	260		°C
electrostatic discharge	ESD	HBM	2000		V

3.2、Recommended Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
supply voltage	V_{CC}	-	1.6	-	3.6	V
input voltage	V_I	input port IN	0	-	V_{CC}	V
switch voltage	V_{SW}	-	0	-	V_{CC}	V
ambient temperature	T_{amb}	-	-40	-	+125	°C

3.3、Electrical Characteristics

3.3.1、Parameter Characteristics 1

($V_{CC}=2.7V$ to $3.6V$, $T_{amb}=-40^{\circ}C$ to $+125^{\circ}C$, $GND=0V$, $V_{IH}=1.4V$, $V_{IL}=0.5V$, unless otherwise specified)

Parameter	Symbol	Supply voltage	Conditions	Min.	Typ.	Max.	Unit
HIGH-level input voltage	V_{IH}	2.7V to 3.6V	pin IN	1.4	—	—	V
LOW-level input voltage	V_{IL}	2.7V to 3.6V	pin IN	—	—	0.5	V
input leakage current	I_{IN}	3.6V	pin IN; $V_I=GND$ or V_{CC}	-1	—	1	uA
supply current	I_{CC}	3.6V	$V_I=GND$ or V_{CC}	—	—	2	uA
ON resistance	R_{ON}	2.7V	$I_{COM}=-100mA$; $V_{NO}, V_{NC}=1.5V$	—	0.9	2	Ω
ON resistance mismatch between channels	ΔR_{ON}	2.7V	$I_{COM}=-100mA$; $V_{NO}, V_{NC}=1.5V$	—	0.09	0.25	Ω
ON resistance flatness	$R_{ON(flat)}$	2.7V	$I_{COM}=-100mA$; $V_{NO}, V_{NC}=1V, 1.5V, 2V$	—	0.23	0.5	Ω
NO port OFF-state leakage current	$I_{NO(OFF)}$	3.6V	$V_{COM}=0.3V, 3V$; $V_{NO}=3V, 0.3V$	-1	—	-1	uA
COM port OFF-state leakage current	$I_{COM(OFF)}$	3.6V	$V_{COM}=0.3V, 3V$; $V_{NO}=3V, 0.3V$	-1	—	-1	uA



current							
COM port ON-state leakage current	$I_{COM(ON)}$	3.6V	$V_{COM}=0.3V, 3V;$ $V_{NO}=0.3V, 3V, \text{ or floating}$	-1	—	1	uA
ON-state time	t_{ON}	2.7V to 3.6V	$V_{NO}, V_{NC}=1.5V, R_L=50\Omega,$ $C_L=35pF, \text{ see Figure 3}$	—	4	15	ns
OFF-state time	t_{OFF}	2.7V to 3.6V	$V_{NO}, V_{NC}=1.5V, R_L=50\Omega,$ $C_L=35pF, \text{ see Figure 3}$	—	3	10	ns
NO port OFF-state leakage capacitance	$C_{NO(OFF)}$	2.7V to 3.6V	$f=1MHz$	—	15	—	pF
COM port OFF-state leakage capacitance	$C_{COM(OFF)}$	2.7V to 3.6V	$f=1MHz$	—	15	—	pF
COM port ON-state leakage capacitance	$C_{COM(ON)}$	2.7V to 3.6V	$f=1MHz$	—	43	—	pF
bandwidth	BW	2.7V to 3.6V	$R_L=50\Omega, \text{ switch ON}$	—	125	—	MHz
OFF-state isolation	O_{ISO}	2.7V to 3.6V	$R_L=50\Omega, C_L=5pF,$ $f=10MHz$	—	-40	—	dB
		2.7V to 3.6V	$R_L=50\Omega, C_L=5pF, f=1MHz$	—	-62	—	dB
channel crosstalk	X_{TALK}	2.7V to 3.6V	$R_L=50\Omega, C_L=5pF,$ $f=10MHz$	—	-73	—	dB
		2.7V to 3.6V	$R_L=50\Omega, C_L=5pF, f=1MHz$	—	-95	—	dB
total harmonic distortion	THD	2.7V to 3.6V	$f=20Hz \text{ to } 20kHz,$ $V_{COM}=2V_{P-P}, R_L=32\Omega$	—	0.04	—	%
		2.7V to 3.6V	$f=20Hz \text{ to } 20kHz,$ $V_{COM}=2V_{P-P}, R_L=600\Omega$	—	0.003	—	%



3.3.2、Parameter Characteristics 2

($V_{CC}=1.65V$ to $1.95V$, $T_{amb}=-40^{\circ}C$ to $+125^{\circ}C$, $GND=0V$, $V_{IH}=1V$, $V_{IL}=0.4V$, unless otherwise specified)

Parameter	Symbol	Supply voltage	Conditions	Min.	Typ.	Max.	Unit
HIGH-level input voltage	V_{IH}	1.65V to 1.95V	pin IN	1.0	—	—	V
LOW-level input voltage	V_{IL}	1.65V to 1.95V	pin IN	—	—	0.4	V
input leakage current	I_{IN}	1.95V	pin IN; $V_I=GND$ or V_{CC}	-1	—	1	μA
supply current	I_{CC}	1.95V	$V_I=GND$ or V_{CC}	—	—	2	μA
ON resistance	R_{ON}	1.8V	$I_{COM}=-10mA$; V_{NO} , $V_{NC}=0.9V$	—	1.5	3.6	Ω
ON resistance mismatch between channels	ΔR_{ON}	1.8V	$I_{COM}=-10mA$; V_{NO} , $V_{NC}=0.9V$	—	0.09	0.25	Ω
ON resistance flatness	$R_{ON(Flat)}$	1.8V	$I_{COM}=-10mA$; $0 \leq V_{NO}$, $V_{NC} \leq V_{CC}$	—	0.7	1.5	Ω
NO port OFF-state leakage current	$I_{NO(OFF)}$	1.95V	$V_{COM}=0.15V$, 1.65V; $V_{NO}=1.8V$, 0.15V	-1	—	-1	μA
COM port OFF-state leakage current	$I_{COM(OFF)}$	1.95V	$V_{COM}=0.15V$, 1.65V; $V_{NO}=1.8V$, 0.15V	-1	—	-1	μA
COM port ON-state leakage current	$I_{COM(ON)}$	1.95V	$V_{COM}=0.15V$, 1.65V; $V_{NO}=0.15V$, 1.65V, or floating	-1	—	1	μA
开启时间	t_{ON}	1.65V to 1.95V	V_{NO} , $V_{NC}=1.5V$, $R_L=50\Omega$, $C_L=35pF$, see Figure 3	—	6	20	ns
关断时间	t_{OFF}	1.65V to 1.95V	V_{NO} , $V_{NC}=1.5V$, $R_L=50\Omega$, $C_L=35pF$, see Figure 3	—	5	13	ns
ON-state time	$C_{NO(OFF)}$	1.65V to 1.95V	$f=1MHz$	—	15	—	pF
OFF-state time	$C_{COM(OFF)}$	1.65V to 1.95V	$f=1MHz$	—	15	—	pF
NO port OFF-state leakage capacitance	$C_{COM(ON)}$	1.65V to 1.95V	$f=1MHz$	—	43	—	pF
bandwidth	BW	1.65V to 1.95V	$R_L=50\Omega$, switch ON	—	123	—	MHz
OFF-state isolation	O_{ISO}	1.65V to 1.95V	$R_L=50\Omega$, $C_L=5pF$, $f=10MHz$	—	-61	—	dB
		1.65V to 1.95V	$R_L=50\Omega$, $C_L=5pF$, $f=100MHz$	—	-36	—	dB
channel crosstalk	X_{TALK}	1.65V to 1.95V	$R_L=50\Omega$, $C_L=5pF$, $f=10MHz$	—	-95	—	dB
		1.65V to 1.95V	$R_L=50\Omega$, $C_L=5pF$, $f=100MHz$	—	-73	—	dB
total	THD	1.65V to 1.95V	$f=20Hz$ to $20kHz$,	—	0.14	—	%



harmonic distortion			$V_{COM}=2V_{P-P}$, $R_L=32\Omega$				
		1.65V to 1.95V	$f=20\text{Hz to }20\text{kHz}$, $V_{COM}=2V_{P-P}$, $R_L=600\Omega$	—	0.013	—	%

4、Testing Circuit

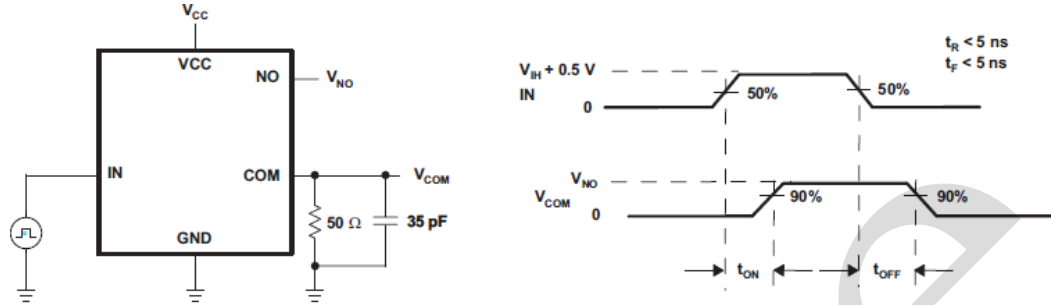
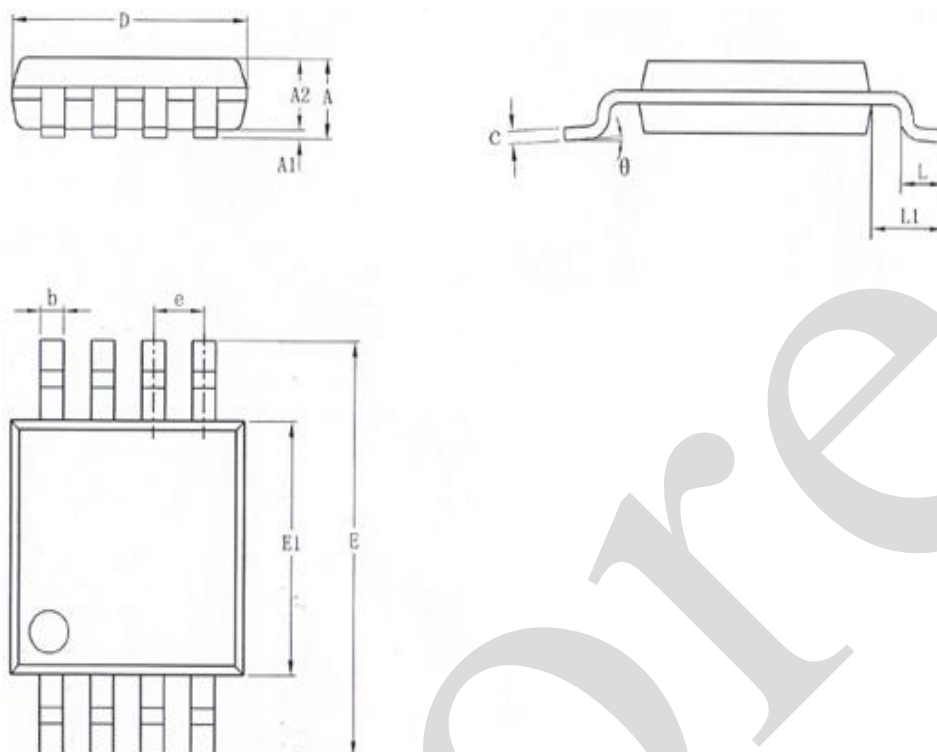


Figure 3. ON/OFF-state time



5、Package Information

5.1、MSOP8



2023/12/A	Dimensions In Millimeters	
Symbol	Min	Max
A	—	1.10
A1	0.05	0.15
A2	0.75	0.95
b	0.22	0.38
c	0.08	0.23
D	2.90	3.10
E	4.70	5.10
E1	2.90	3.10
e	0.65	
L	0.40	0.80
L1	0.95	
θ	0°	8°



6、Statements And Notes

6.1、The name and content of Hazardous substances or Elements in the product

Part name	Hazardous substances or Elements									
	Lead and lead compounds	Mercury and mercury compounds	Cadmium and cadmium compounds	Hexavalent chromium compounds	Polybrominated biphenyls	Polybrominated biphenyl ethers	Dibutyl phthalate	Butylbenzyl phthalate	Di-2-ethylhexyl phthalate	Diisobutyl phthalate
Lead frame	○	○	○	○	○	○	○	○	○	○
Plastic resin	○	○	○	○	○	○	○	○	○	○
Chip	○	○	○	○	○	○	○	○	○	○
The lead	○	○	○	○	○	○	○	○	○	○
Plastic sheet installed	○	○	○	○	○	○	○	○	○	○
explanation	○: Indicates that the content of hazardous substances or elements in the detection limit of the following the SJ/T11363-2006 standard. ×: Indicates that the content of hazardous substances or elements exceeding the SJ/T11363-2006 Standard limit requirements.									

6.2、Notes

We recommend you to read this chapter carefully before using this product.

The information in this chapter is provided for reference only and i-Core disclaims any express or implied warranties, including but not limited to applicability, special application or non-infringement of third party rights.

This product is not suitable for critical equipment such as life-saving, life-sustaining or safety equipment. It is also not suitable for applications that may result in personal injury, death, or serious property or environmental damage due to product malfunction or failure. I-Core will not be liable for any damages incurred by the customers at their own risk for such applications.

The customer is responsible for conducting all necessary tests i-Core's application to avoid failure in the application or the application of the customer's third party users. I-Core does not accept any liability.

The Company reserves the right to change or improve the information published in this chapter at any time. The information in this chapter are subject to change without notice. We recommend the customer to consult our sales staff before purchasing.

Please obtain related materials from i-Core's regular channels and we are not responsible for its content if it is provided by sources other than our company.

In case of any conflict between the Chinese and English version, the version is subject to the Chinese one.