

ELM743xxA CMOS Low power voltage dual comparator

Preliminary

■General description

ELM743xxA is a low voltage and low power dual comparator which can input and output signals in full range of Vdd to Vss. ELM743xxA can operate with single power source and low voltage supply (operating voltage range: Vdd ≥ 1.2V) condition. ELM743xxA provides 2 kinds of output style: N-ch opendrain and CMOS output.

■Features

- Low voltage operation : Vdd ≥ 1.2V
- Low current consumption : Typ. 2μA (Vdd = 3.6V, VoutA = VoutB = Low)
Typ. 1.2μA (Vdd = 3.6V, VoutA = VoutB = High)
- Operating voltage range : 1.2V ≤ Vdd ≤ 7.0V
- Input voltage range : Vss to Vdd
- Output stage : N-ch open drain or CMOS output selectable
- Package : TSON8-2×2, MSOP-8

■Application

- Battery-operated devices
- Micropower signal processing
- Low voltage analog circuits

■Maximum absolute ratings

Parameter	Symbol	Limit	Unit
Power supply voltage	Vdd	Vss-0.3 to +8.0	V
Input voltage	Vin	Vss-0.3 to Vdd+0.3	V
Output voltage	Vout	N-ch : Vss-0.3 to +8.0	V
		CMOS : Vss-0.3 to Vdd+0.3	
Power dissipation	Pd	200 (TSON8-2×2)	mW
		250 (MSOP-8)	
Operating temperature	Top	-20 to +70	°C
Storage temperature	Tstg	-55 to +125	°C

■Selection guide

ELM743xxA-x

Symbol		
a	Output form	N : N-ch open drain
		C : CMOS
b	Package	M : TSON8-2×2
		N : MSOP-8
c	Product version	A (fixed)
d	Taping direction	S: Refer to PKG file
		N: Refer to PKG file

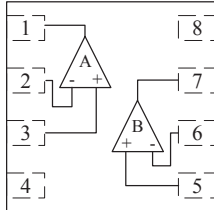
ELM743 x x A - x
 ↑ ↑ ↑ ↑
 a b c d

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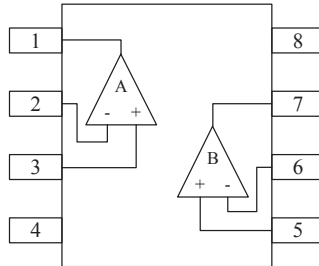
Preliminary

■Pin configuration

TSON8-2×2(TOP VIEW)



MSOP-8(TOP VIEW)



Pin No.	Pin name
1	OUTA
2	IN-A
3	IN+A
4	VSS
5	IN+B
6	IN-B
7	OUTB
8	VDD

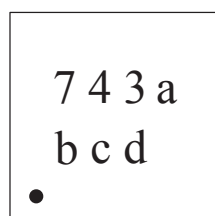
■Electrical characteristics

V_{ss}=0V, T_{op}=25°C

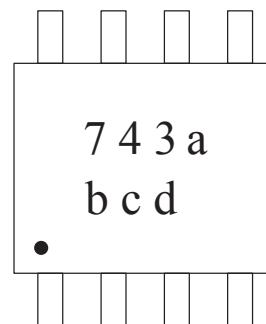
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Power supply voltage	V _{dd}		1.2		7.0	V
Common-mode input voltage	V _{icr}	V _{dd} =1.2 to 7.0V	V _{ss}		V _{dd}	V
Input offset voltage	V _{io-1}	V _{dd} =1.2V, V _{icr} =0.6V	-8		8	mV
	V _{io-2}	V _{dd} =3.6V, V _{icr} =1.8V	-8		8	
	V _{io-3}	V _{dd} =7.0V, V _{icr} =3.5V	-8		8	
Input current	I _{in}	V _{dd} =1.2 to 7.0V			100	pA
Output current	I _{outN-1}	V _{dd} =1.2V, V _{out} =0.4V	1.8	4.0		mA
	I _{outN-2}	V _{dd} =1.5V, V _{out} =0.4V	4.0	6.0		
	I _{outP-1}	V _{dd} =1.2V, V _{out} =0.6V	0.15	0.30		mA
	I _{outP-2}	V _{dd} =1.5V, V _{out} =1.1V	0.35	0.45		
Current consumption	I _{ss-1}	V _{dd} =3.6V, V _{out} :"L"		2.0	5.6	μA
	I _{ss-2}	V _{dd} =7.0V, V _{out} :"L"		2.2	6.0	μA
Response time	t _{HL}	V _{dd} =3.6V		30		μs
	t _{LH}	V _{dd} =3.6V		30		μs

■Marking

TSON8-2×2



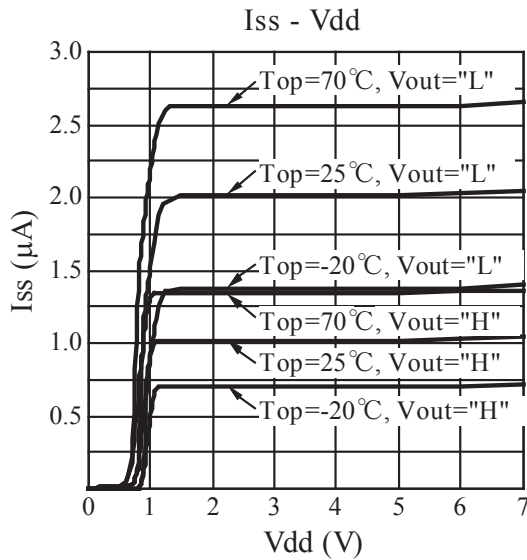
MSOP-8



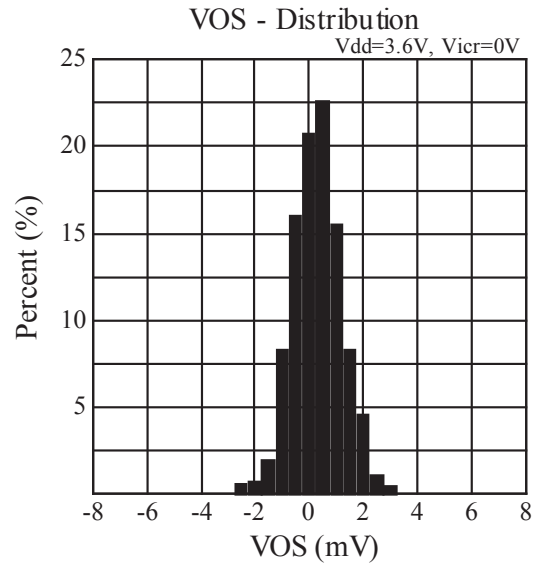
Symbol	Mark	Content
a	N : N-ch open drain	Output stage
	C : CMOS	
b, c, d	000 to 999	Assembly Lot No.

■ Typical operating characteristics

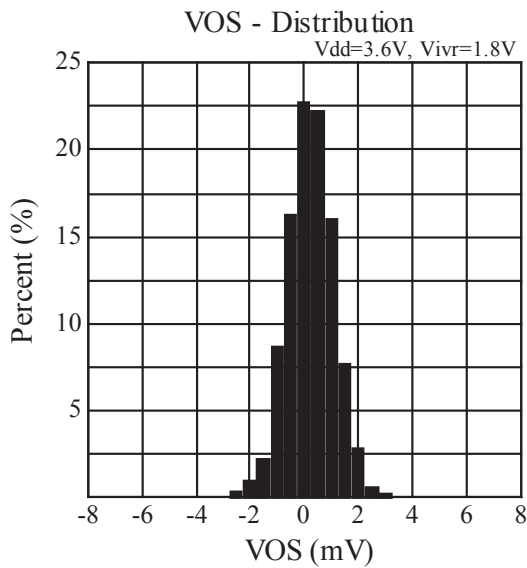
Iss-Vdd



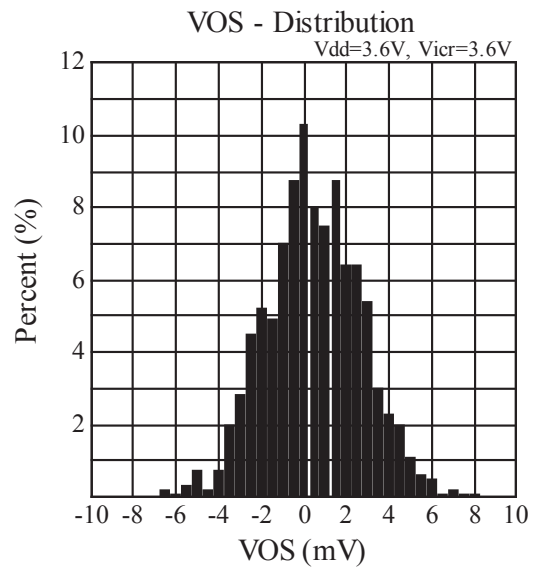
Offset voltage distribution ($V_{icr}=V_{ss}$)



Offset voltage distribution ($V_{icr}=V_{dd}/2$)



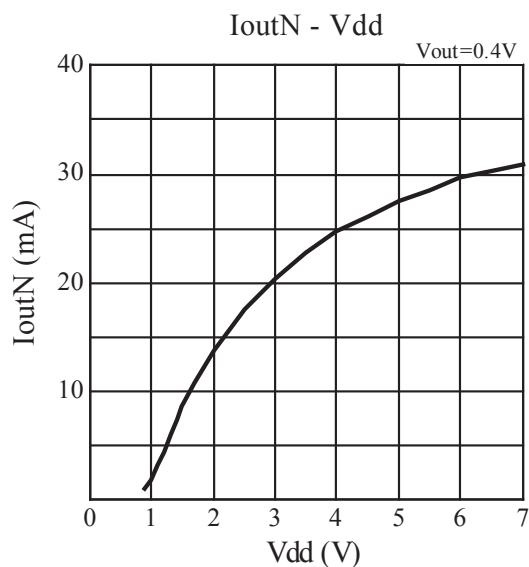
Offset voltage distribution ($V_{icr}=V_{dd}$)



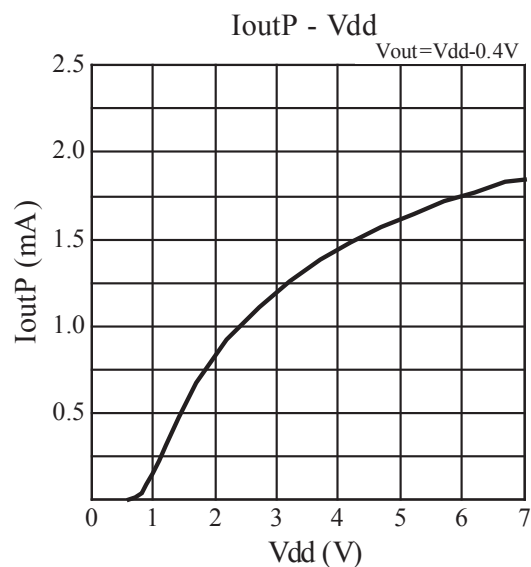
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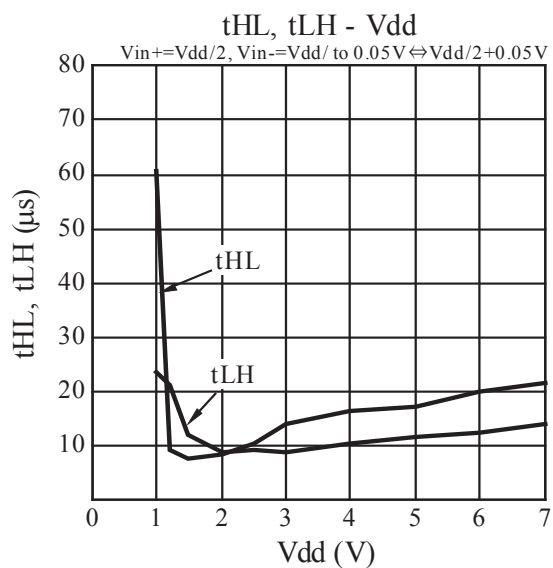
$I_{outN}-V_{dd}$ ($V_{out}=0.4V$)



$I_{outP}-V_{dd}$ ($V_{out}=V_{dd}$ to $0.4V$)



$t_{HL}, t_{LH}-V_{dd}$



$t_{HL}, t_{LH}-Top$ ($V_{dd}=3.6V$)

