

ELM742B Low voltage comparator

■General description

ELM742B is low voltage and low power CMOS comparator which makes it easy to design power circuits; ELM742B is able to extend battery life because of single power source, low voltage supply operating range ($V_{dd} \geq +1.0V$) and low power consumption also.

With N-ch open drain output, ELM742B is able to introduce depletion transistors to differential input stages and drive TTL and CMOS logic IC. ELM742B also covers wide input voltage range ($V_{ss}+0.1V$ to $V_{dd}-0.2V$).

■Features

- Low voltage operation : $V_{dd} \geq +1.0V$
- Low current consumption : Typ. $I_{dd} = 0.6\mu A$ ($V_{dd} = 1.5V$)
- Operation voltage range : $1.0V \leq V_{dd} \leq 7.0V$
- Input voltage range : $V_{ss}+0.1V$ to $V_{dd}-0.2V$
- Output stage : N-ch open drain
- Package : SOT-25

■Application

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

■Maximum absolute ratings

Parameter	Symbol	Limit	Unit
Power supply voltage	V_{dd}	10	V
Input voltage	V_{in}	$V_{ss}-0.3$ to $V_{dd}+0.3$	V
Output voltage	V_{out}	10	V
Output current	I_{out}	30	mA
Power dissipation	P_d	300	mW
Operating temperature	T_{op}	-20 to +70	°C
Storage temperature	T_{stg}	-55 to +125	°C

■Selection guide

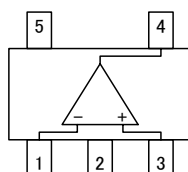
ELM742B-x

Symbol		
a	Product version	B
b	Taping direction	S : Refer to PKG file N : Refer to PKG file

ELM742 B - x
 ↑ ↑
 a b

■Pin configuration

SOT-25 (TOP VIEW)



Pin No.	Pin name
1	IN-
2	VDD
3	IN+
4	OUT
5	VSS

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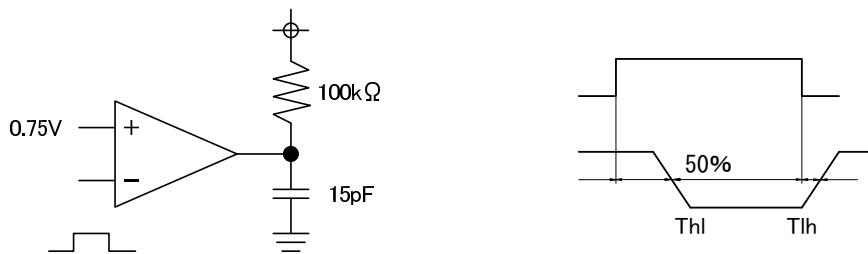
■Electrical characteristics

V_{SS}=0V, T_{op}=25°C

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Power supply voltage	V _{dd}		1.0		7.0	V	
Common-mode input voltage	V _{icr}	V _{dd} =1.0 to 7.0V	V _{SS} +0.1		V _{dd} -0.2	V	
Input offset voltage	V _{io-1}	V _{dd} =1.0 to 3.6V			8	mV	
	V _{io-2}	V _{dd} =1.0 to 7.0V			12	mV	
Input current	I _{in}	V _{dd} =1.0 to 7.0V			100	pA	
Output current	I _{out-1}	V _{dd} =1.0V, V _{ol} =0.4V	30.0	50.0		μA	1
	I _{out-2}	V _{dd} =1.5V, V _{ol} =0.4V	0.6	0.8		mA	1
Current consumption	I _{ss-1}	V _{dd} =1.5V, V _{out} :"L"		0.6	2.0	μA	1
	I _{ss-2}	V _{dd} =3.6V, V _{out} :"L"		4.5	8.0	μA	1
	I _{ss-3}	V _{dd} =7.0V, V _{out} :"L"		20.0	35.0	μA	
Response time	T _{hl}	R _L =100kΩ, C _L =15pF V _{dd} =1.5V		60		μs	2
	T _{lh}	R _L =100kΩ, C _L =15pF V _{dd} =1.5V		40		μs	2

Note 1 . Refer to typical operating characteristics.

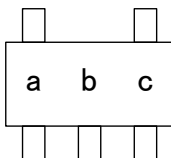
Note 2 . The relation between input and output is as follows.



* Input a 100mV step signal with 0.75 as its center

■Marking

SOT-25



No.	Mark	Content
a	A	ELM742B
b	0 to 9	Lot No.
c	0 to 9	Lot No.

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■ Typical operating characteristics

