ELM742xxC CMOS Low power voltage comparator

■General description

ELM742xxC is a low voltage and low power comparator which can input and output signals in full range of Vdd to Vss. ELM742xxC can operate with single power source and low voltage supply (operating voltage range : VDD≥1.0V) condition. ELM742xxC provides 2 kinds of output style: N-ch opendrain and CMOS output.

■Features

- Low voltage operation : Vdd≥1.0V
- Low current consumption : Typ.1μA(Vdd=3.6V, Vout="Low")
  Typ.0.6μA(Vdd=3.6V, Vout="High")
- Operating voltage range : 1.0V≤Vdd≤7.0V
- Input voltage range : Vss to Vdd
- Output stage : N-ch open drain or CMOS output
- Package : SOT-25, SC-70-5(SOT-353)

■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	300 (SOT-25)	mW
		150 (SC-70-5)(SOT-353)	
Operating temperature	Top	-20 to +70	°C
Storage temperature	Tstg	-55 to +125	°C

■Selection guide

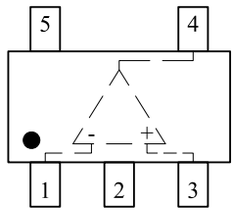
ELM742xxC-x

Symbol		
a	Output form	N : N-ch open drain
		C : CMOS
b	Package	B : SOT-25
		C : SC-70-5(SOT-353)
c	Product version	C(fixed)
d	Taping direction	S: Refer to PKG file N: Refer to PKG file

ELM742 x x C - x
↑ ↑ ↑ ↑
a b c d

■Pin configuration

TOP VIEW



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

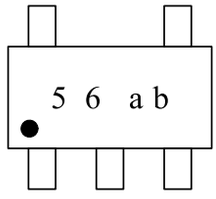
■Electrical characteristics

Vss=0V, Top=25°C

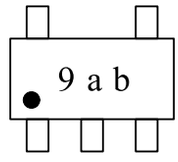
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Power supply voltage	Vdd		1.0		7.0	V
Common-mode input voltage	Vicr	Vdd=1.0 to 7.0V	Vss		Vdd	V
Input offset voltage	Vio-1	Vdd=1.0V, Vicr=0.5V	-8		8	mV
	Vio-2	Vdd=3.6V, Vicr=1.8V	-8		8	
	Vio-3	Vdd=7.0V, Vicr=3.5V	-8		8	
Input current	Iin	Vdd=1.0 to 7.0V			100	pA
Output current	IoutN-1	Vdd=1.0V, Vout=0.4V	0.4	1.5		mA
	IoutN-2	Vdd=1.5V, Vout=0.4V	4.0	6.0		
	IoutP-1	Vdd=1.0V, Vout=0.6V	0.06	0.15		mA
	IoutP-2	Vdd=1.5V, Vout=1.1V	0.35	0.45		
Current consumption	Iss-1	Vdd=3.6V, Vout:"L"		2.0	5.6	µA
	Iss-2	Vdd=7.0V, Vout:"L"		2.2	6.0	
Response time	tHL	Vdd=3.6V		30		µs
	tLH	Vdd=3.6V		30		

■Marking

SOT-25



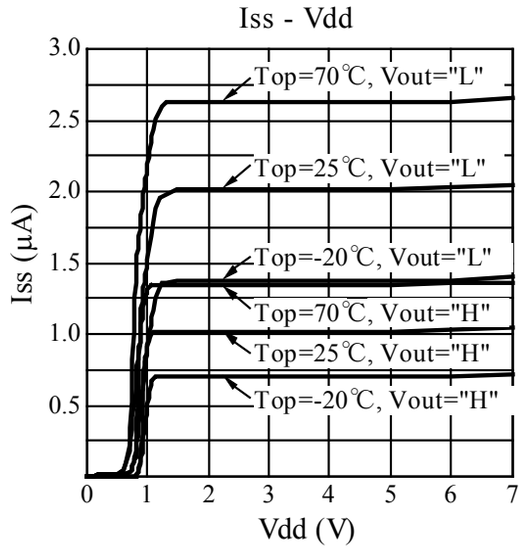
SC-70-5(SOT-353)



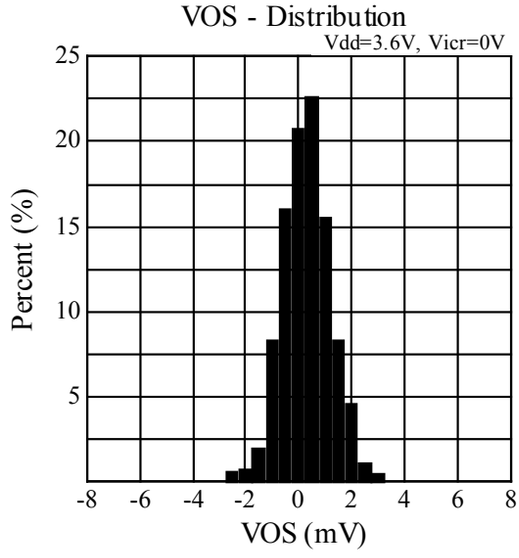
Symbol	Mark	Content
a	N : N-ch open drain	Output stage
	C : CMOS	
b	1 to 0 and A to Z(I,O,X excepted)	Assembly Lot No.

■Typical operating characteristics

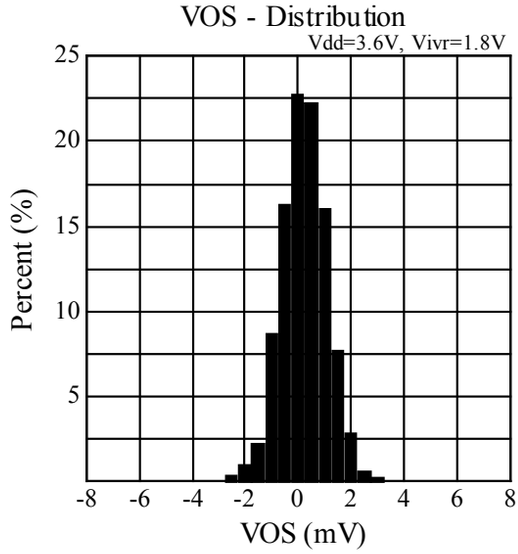
Iss-Vdd



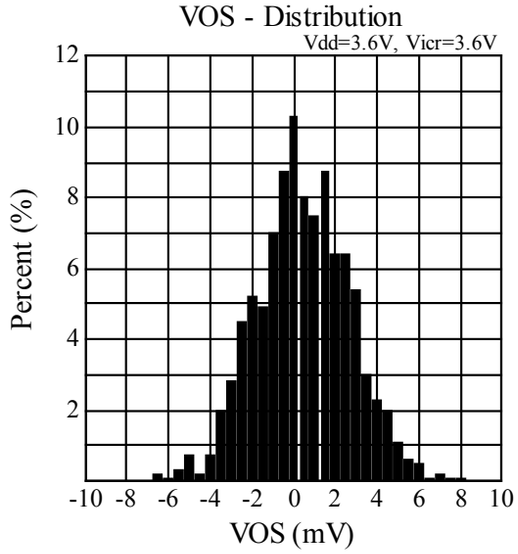
Offset voltage distribution (Vicr=Vss)



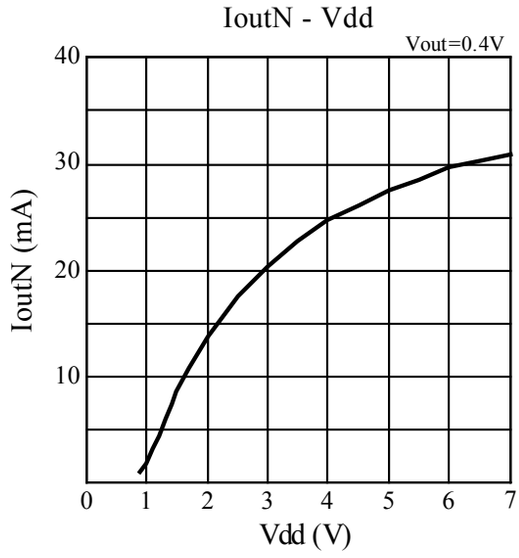
Offset voltage distribution (Vicr=Vdd/2)



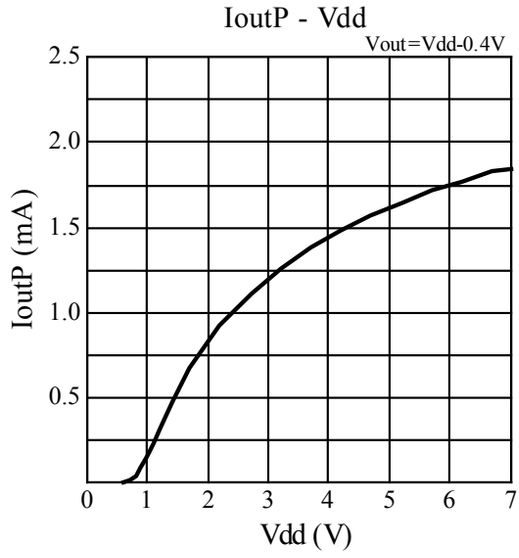
Offset voltage distribution (Vicr=Vdd)



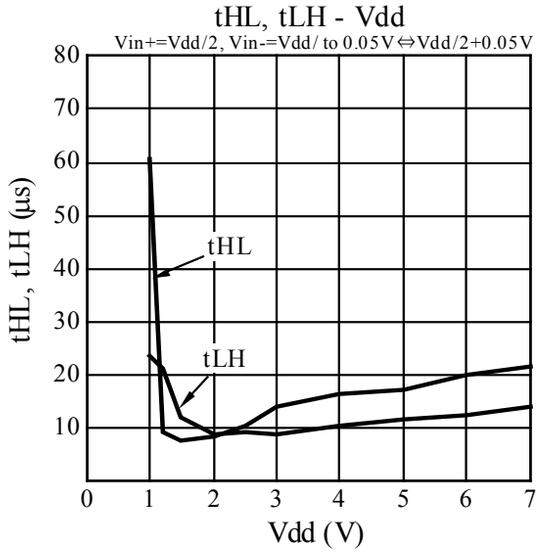
IoutN-Vdd (Vout=0.4V)



IoutP-Vdd (Vout=Vdd to 0.4V)



tHL, tLH-Vdd



tHL, tLH-Top (Vdd=3.6V)