

1. DESCRIPTION

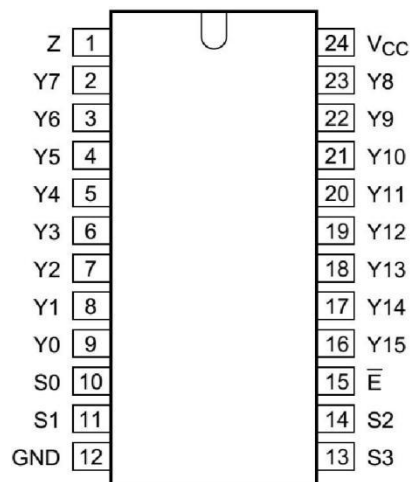
XL4067 and XL4067-SS are digitally controlled analog switching multiplexer/resolver with low on-resistance, very low cut-off leakage current, and internal address decoding features. The on-resistance remains relatively stable throughout the input signal range, and the circuit can be used for digital or analog applications.

XL4067 and XL4067-SS are 16-channel multiplexer/resolver with a suppressor and four binary input control terminals A~D. Any switch in the 16 channels can be selected through the corresponding switch selection.

2. FEATURES

- Low turn-off leakage current
- Channel resistance matching
- Low static power consumption Low-current Standby mode
- Crosstalk between low channels
- Wide operating voltage range: 2~10V
- Low noise
- Package option: XL4067 (SOP24), XL4067-SS (SSOP24)

3. PIN CONFIGURATIONS



4. LIMIT PARAMETERS

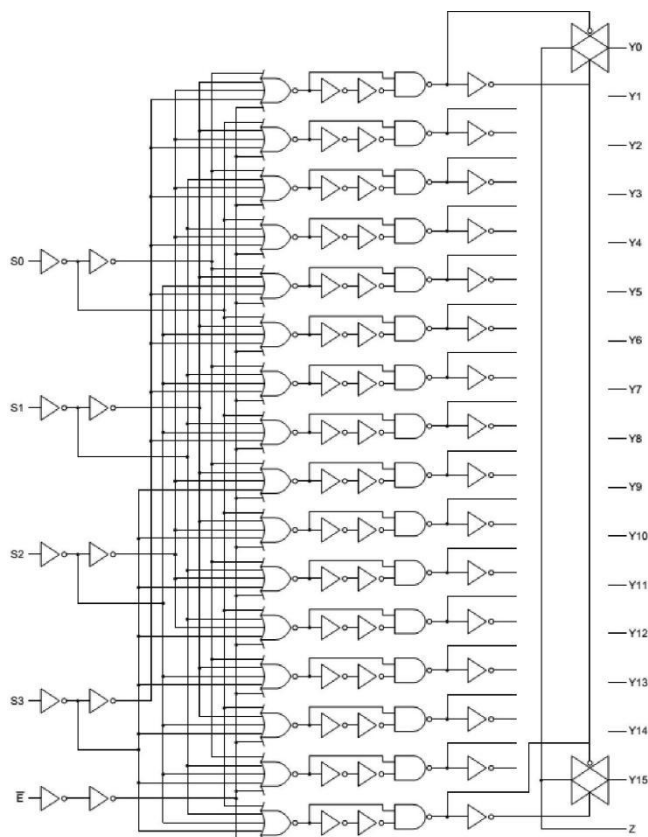
Symbol	Parameter	Typ	Unit
V_{DD}	DC voltage range	-0.5 ~ +11V	V
V_{IN}, V_{OUT}	Input or output voltage range (DC or transient)	-0.5 ~ $V_{DD}+0.5$	V
I_{IN}	Input current (DC or transient)	± 20	mA
I_{SW}	Switching current	± 25	mA
P_D	Power dissipation	500	mW
T_A	Ambient temperature range	-40to +85	°C
T_{STG}	Storage temperature range	-65 to +150	°C

5. RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Typ	Unit
V_{DD}	DC voltage range	2 ~ +10V	V
V_{IN}	Input voltage	Gnd~ V_{DD}	V
V_{SW}	Switching voltage	Gnd~ V_{DD}	V
T_A	Operating ambient temperature range	0 to +70	°C

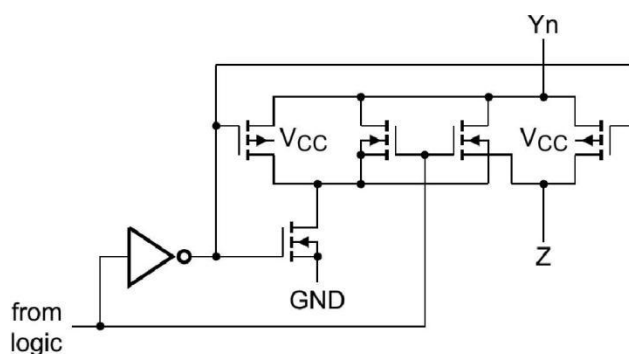
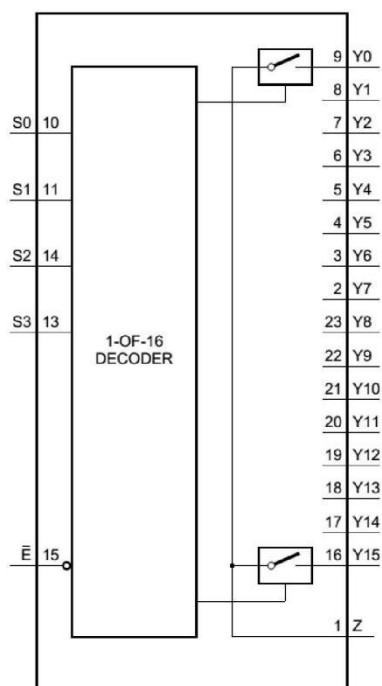
Truth table					
Control input					Select passage
S0	S1	S2	S3	E	
X	X	X	X	H	-
L	L	L	L	L	Y0
H	L	L	L	L	Y1
L	H	L	L	L	Y2
H	H	L	L	L	Y3
L	L	H	L	L	Y4
H	L	H	L	L	Y5
L	H	H	L	L	Y6
H	H	H	L	L	Y7
L	L	L	H	L	Y8
H	L	L	H	L	Y9
L	H	L	H	L	Y10
H	H	L	H	L	Y11
L	L	H	H	L	Y12
H	L	H	H	L	Y13
L	H	H	H	L	Y14
H	H	H	H	L	Y15

Internal logic circuit



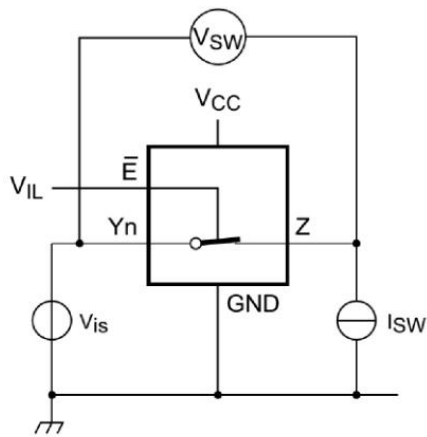
Schematic diagram (single path)

Functional block diagram:



Electrical characteristics: static parameter

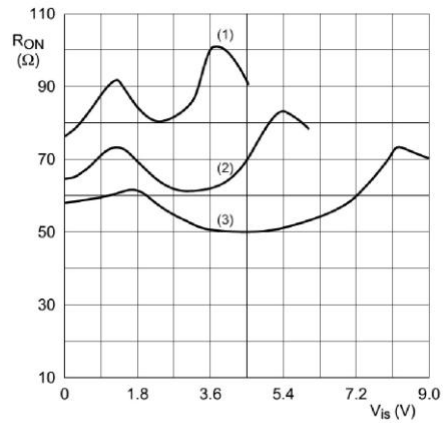
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{on} (Peak)$	Resistance in the on state (Peak)	$V_{is} = V_{cc} \text{ to Gnd}$	-	-	-	-
		$V_{cc}=4.5V; I_{sw}=1000\mu A$	-	110	180	Ω
		$V_{cc}=6.0V; I_{sw}=1000\mu A$	-	95	160	Ω
		$V_{cc}=9.0V; I_{sw}=1000\mu A$	-	75	130	Ω
$R_{on} (Rail)$	Resistance in the on state (Rail)	$V_{is} = \text{Gnd to } V_{cc}$	-	-	-	-
		$V_{cc}=4.5V; I_{sw}=1000\mu A$	-	90	160	Ω
		$V_{cc}=6.0V; I_{sw}=1000\mu A$	-	80	140	Ω
		$V_{cc}=9.0V; I_{sw}=1000\mu A$	-	70	120	Ω
V_{IH}	High level input voltage	$V_{cc}=2.0V$	1.5	1.2	-	V
		$V_{cc}=4.5V$	3.15	2.4	-	V
		$V_{cc}=6.0V$	4.2	3.2	-	V
		$V_{cc}=9.0V$	6.3	4.7	-	V
V_{IL}	Low-level input voltage	$V_{cc}=2.0V$	-	0.8	0.5	V
		$V_{cc}=4.5V$	-	2.1	1.35	V
		$V_{cc}=6.0V$	-	3.2	1.80	V
		$V_{cc}=9.0V$	-	4.3	2.70	V
I_I	Input leakage current	$V_i = V_{cc} \text{ or GND}$	-	-	-	-
		$V_{cc}=6.0V$	-	-	± 0.1	μA
		$V_{cc}=10.0V$	-	-	± 0.2	μA
$I_{S(OFF)}$	Off leakage current	$V_{cc}=10.0V; V_i = V_{ih} \text{ or } V_{il}$ $ V_{sw} = V_{cc} - GND$	-	-	-	-
		Per channel	-	-	± 0.1	μA
		All channels	-	-	± 0.8	μA
$I_{S(ON)}$	Open leakage current	$V_{cc}=10.0V; V_i = V_{ih} \text{ or } V_{il}$ $ V_{sw} = V_{cc} - GND$	-	-	± 0.8	μA
I_{CC}	Supply current	$V_i = V_{cc} \text{ or Gnd}; V_{is} = GND \text{ or } V_{cc}$	-	-	-	-
		$V_{os} = V_{cc} \text{ or Gnd}$	-	-	-	-
		$V_{cc}=6.0V$	-	-	8.0	μA
		$V_{cc}=10.0V$	-	-	16.0	μA



$V_{is} = 0 \text{ V to } (V_{CC} - \text{GND})$

$$R_{ON} = \frac{V_{SW}}{I_{SW}}$$

Ron test circuit



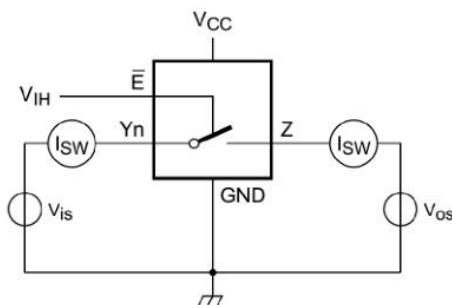
$V_{is} = 0 \text{ V to } (V_{CC} - \text{GND})$

(1) $V_{CC} = 4.5 \text{ V}$

(2) $V_{CC} = 6.0 \text{ V}$

(3) $V_{CC} = 9.0 \text{ V}$

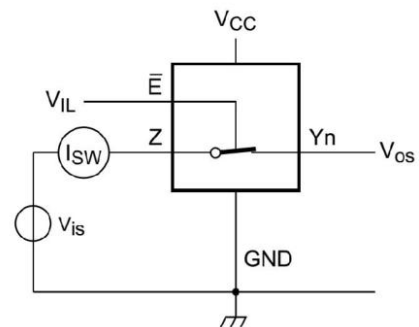
Relationship between Ron and Vis



$V_{is} = V_{CC} \text{ and } V_{os} = \text{GND}$

$V_{is} = \text{GND} \text{ and } V_{os} = V_{CC}$

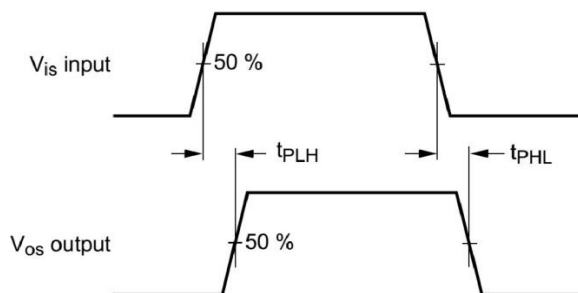
Off leakage current test circuit



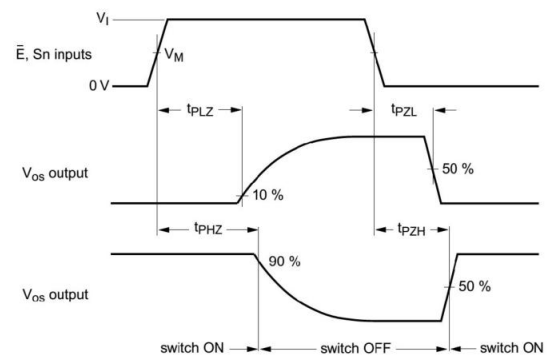
$V_{is} = V_{CC} \text{ and } V_{os} = \text{open}$

$V_{is} = \text{GND} \text{ and } V_{os} = \text{open}$

Open leakage current test circuit



Delay from input Vis to output Vos



On or off time

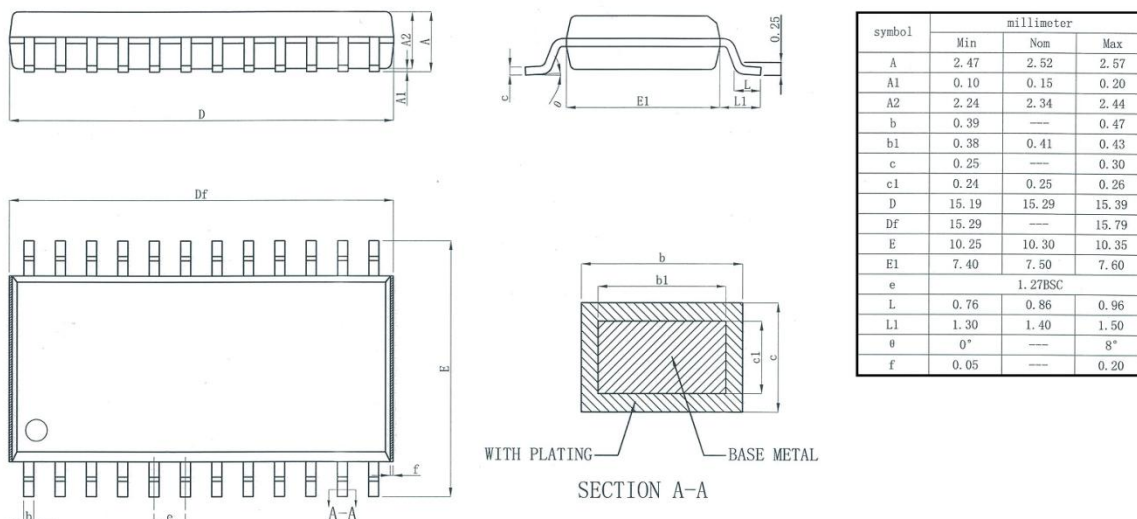
6. ORDERING INFORMATION

Ordering Information

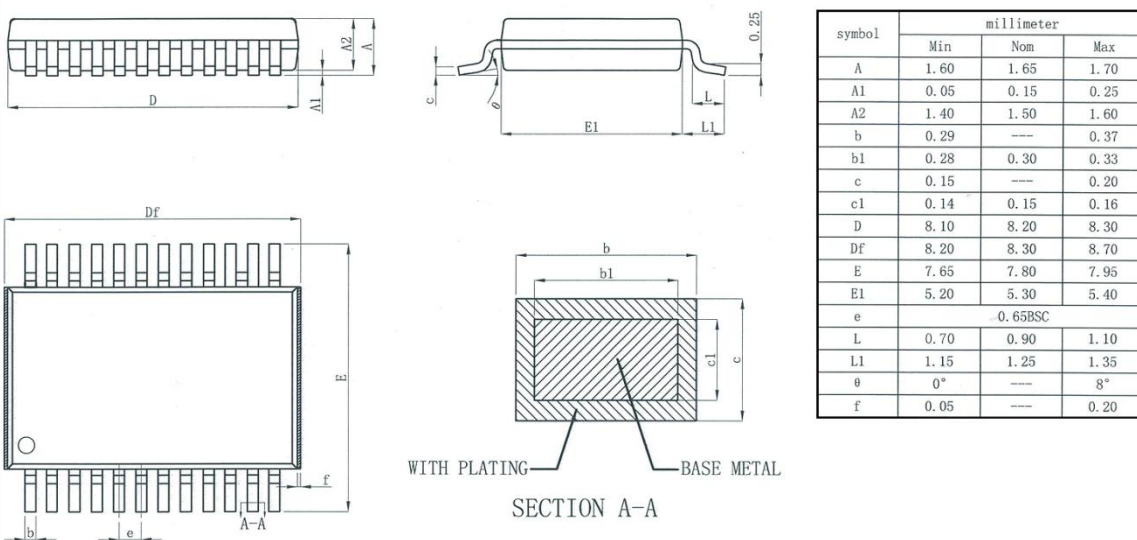
Part Number	Device Marking	Package Type	Body size (mm)	Temperature (°C)	MSL	Transport Media	Package Quantity
XL4067	XL4067	SOP24	15.29 * 7.50	- 40 to 85	MSL3	T&R	2000
XL4067-SS	XL4067-SS	SSOP24	8.20 * 5.30	- 40 to 85	MSL3	Tube 50	2500

7. DIMENSIONAL DRAWINGS

SOP24



SSOP24



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