

High Speed, Low Voltage, Dual, DPDT Analog Switch

UM3670 QFN16 3.0×3.0
UM3670A QFN16 2.6×1.8

General Description

The UM3670/3670A is a high speed, dual, dual-pole/double-throw (DPDT) analog switch operates from a single +1.8V to +5.5V power supply. The UM3670/3670A features dual 5Ω R_{ON} (TYP) DPDT switches with 300MHz bandwidth and low crosstalk. The switch offers a high-performance, low-cost solution to switch between video sources. The switch is available in Pb-free QFN16 package.

Applications

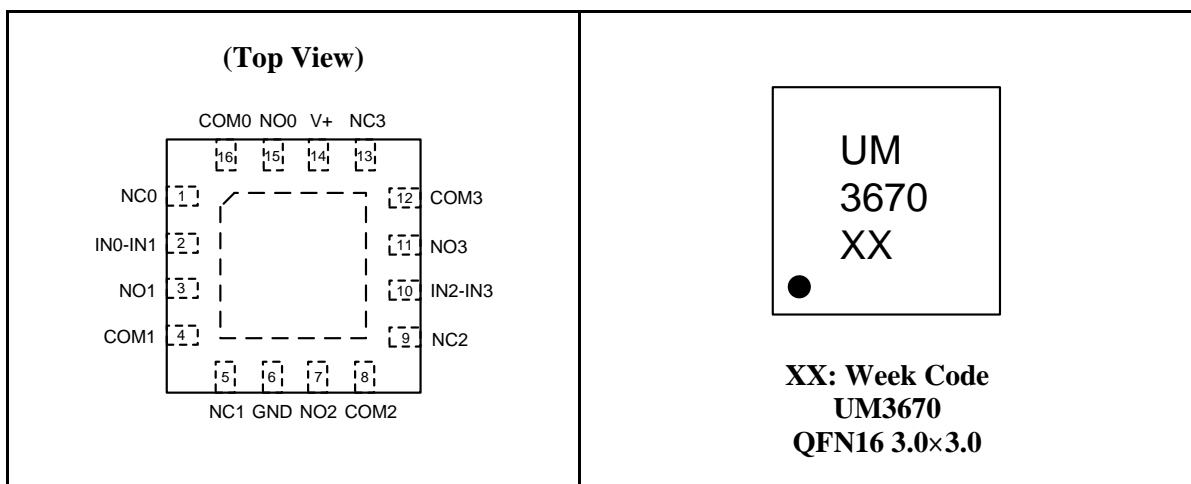
- Communication System
- Cell Phone
- Portable Instrumentation
- Audio Signal Routing
- Audio and Video Switching
- PCMCIA Cards
- Computer Peripherals
- Modems
- PDAs

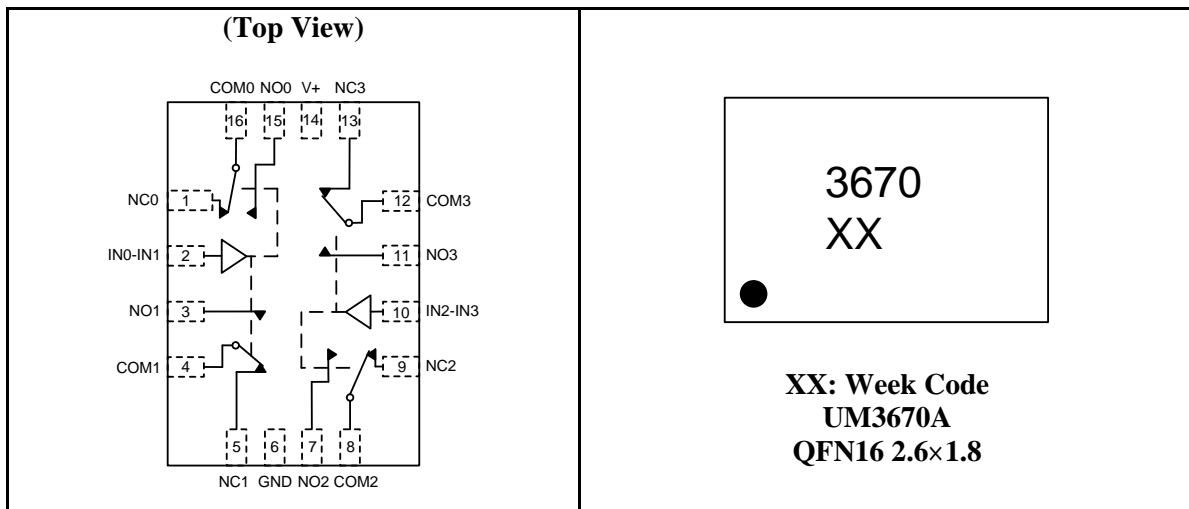
Features

- Wide Bandwidth: 300MHz
- Low On-Resistance: 5Ω (TYP)
- Single-Supply Operation: 1.8V to 5.5V
- Power OFF Protection:
When V_{CC}=0V, Input Signal can Tolerate up to 5V
- Fast Switching Time
- Rail-to-Rail Operation
- Typical Power Consumption (0.5μW)
- TTL/CMOS Compatible
- Low Crosstalk: -60dB (10MHz)
- Micro Size Package:
UM3670, QFN16 3.0×3.0
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Pin Configurations

Top View





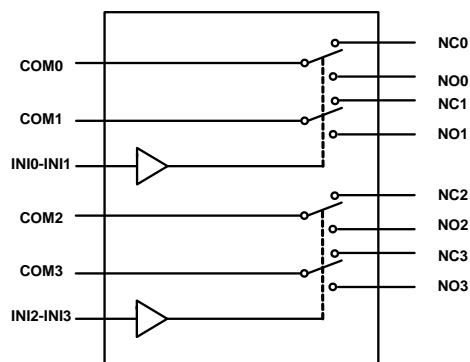
Order Information

Part Number	Packaging Type	Marking Code	Shipping Qty
UM3670	QFN16 3.0×3.0	UM3670	3000pcs/13 Inch Tape & Reel
UM3670A	QFN16 2.6×1.8	3670	3000pcs/7 Inch Tape & Reel

Pin Description

Name	Function
NC0, NC1, NC2, NC3, NO0, NO1, NO2, NO3	Analog I/O
IN0_IN1, IN2_IN3	Select Input
COM0, COM1, COM2, COM3	Analog I/O
GND	Ground
V ₊	Power Supply

Block Diagram



Function Table

IN0-IN1	Function	
	NC0&NC1	NO0&NO1
0	ON	OFF
1	OFF	ON

IN2-IN3	Function	
	NC2&NC3	NO2&NO3
0	ON	OFF
1	OFF	ON

Absolute Maximum Ratings

Symbol	Parameter	Limit	Unit
V ₊	Supply Voltage	-0.3 to +6.0	V
V _S	COM_, NC_, NO_ Input Voltage	-0.3 to +6.0	
IN	Select Input Voltage	-0.3 to +6.0	
I _O	Continuous Current	±200	mA
T _O	Operating Temperature Range	-40 to +85	°C
T _J	Junction Temperature	+150	
T _{STG}	Storage Temperature Range	-65 to +150	
T _L	Junction Lead Temperature (Soldering, 10 Seconds)	+300	
ESD	ESD Method 3015.7	>4000	V

Electrical Characteristics

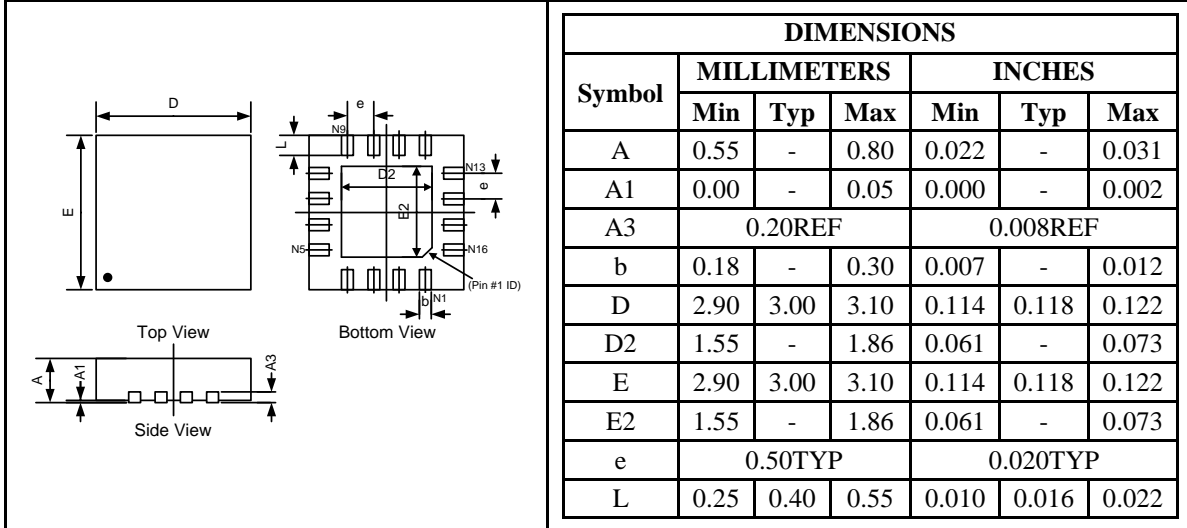
 (Over the Operating Range, V₊=+5V±10%, T_A=-40°C to +85°C.)

Symbol	Parameter	Test Conditions	Limits (-40°C to 85°C)			Unit
			Min	Typ	Max	
DC ELECTRICAL CHARACTERISTICS						
V _{ANALOG}	Analog Signal Range		0		V+	V
R _{ON}	On-Resistance	V ₊ =4.5V, V _I =1.0V, I _{ON} =13mA		5	9	Ω
		V ₊ =4.5V, V _I =2.0V, I _{ON} =26mA		5	10	Ω
I _{CC}	Quiescent Power Supply Current	V ₊ =5.5V, V _{IN} =GND or 5V		0.1	1	μA
I _{CCT}	Transience Power Supply Current	V ₊ =4.3V, V _{IN} =1.8V		11	20	μA
Δ I _{CC}	Supply Current per Input @ TTL HIGH	V ₊ =5.5V, V _{IN} =3.4V		6	15	μA
I _{IH}	Input High Current	V ₊ =5.5V, V _{IN} =V ₊			±1	μA
I _{IL}	Input Low Current	V ₊ =5.5V, V _{IN} =GND			±1	μA
I _O	Analog Output Leakage Current	0≤NO, NC or COM≤V ₊ , Switch OFF			±1	μA
V _{IH}	Input High Voltage		2			V
V _{IL}	Input Low Voltage				0.8	V
V _H	Input Hysteresis at Control Pins			200		mV
DYNAMIC CHARACTERISTICS						
t _{ON}	Turn On Time	R _L =50Ω, C _L =20pF		15	20	ns
t _{OFF}	Turn Off Time	R _L =50Ω, C _L =20pF		6	10	ns
V _{ISO}	Off Isolation	R _L =50Ω, f=10MHz		-55		dB
V _{CT}	Crosstalk	R _L =50Ω, f=10MHz		-60		dB
BW	-3dB Bandwidth	R _L =50Ω		300		MHz
C _{IN}	Input/Enable Capacitance	V _{IN} =0V, f=1MHz		6		pF
C _{OFF}	Switch Off Capacitance	V _{IN} =0V, f=1MHz		9		pF
C _{ON}	Switch On Capacitance	V _{IN} =0V, f=1MHz		18		pF

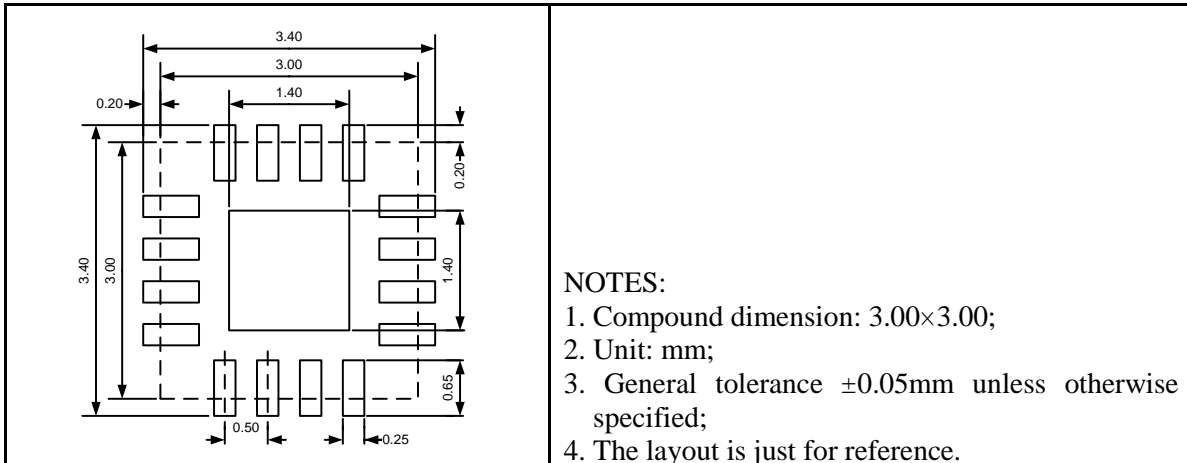
Package Information

UM3670 QFN16 3.0×3.0

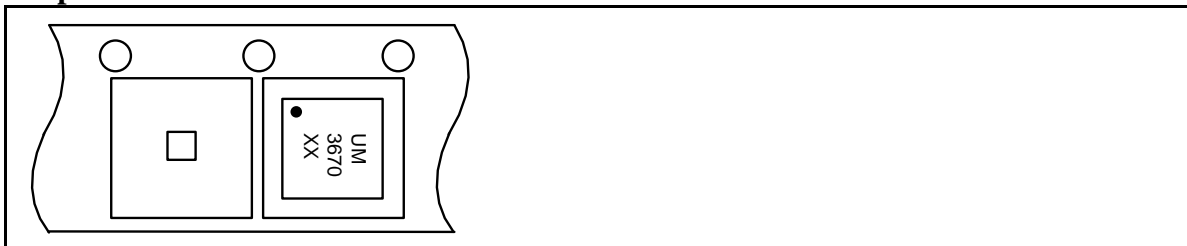
Outline Drawing



Land Pattern

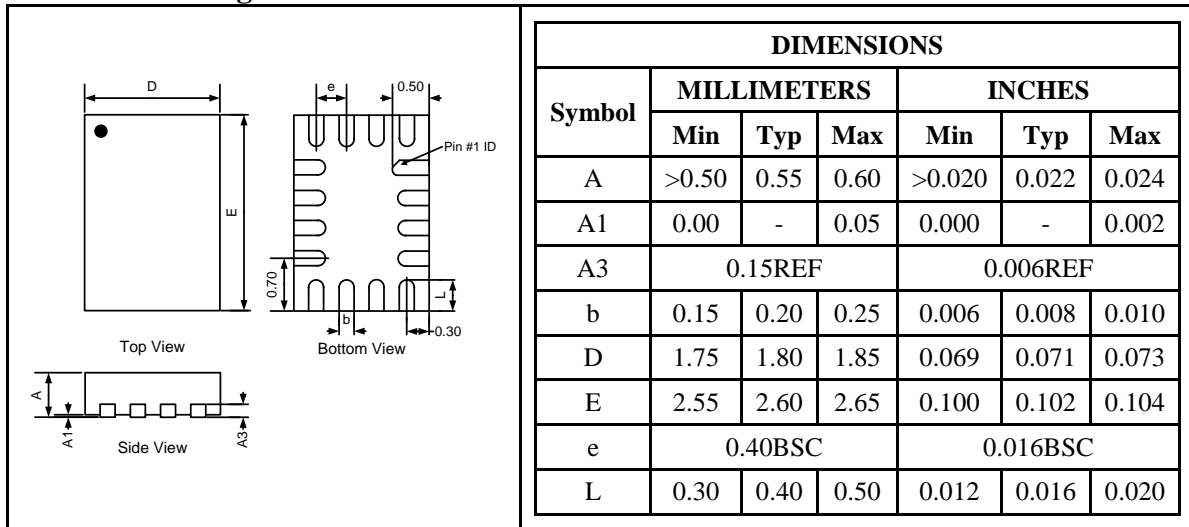


Tape and Reel Orientation

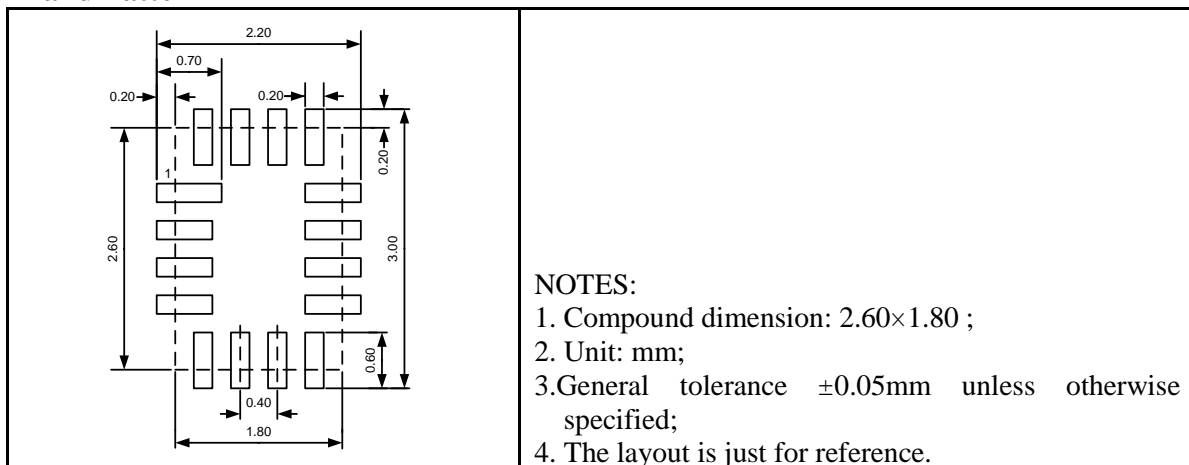


UM3670A QFN16 2.6×1.8

Outline Drawing



Land Pattern



Tape and Reel Orientation



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