74HC4067/74HCT4067
16-Channel Analog Multiplexer/Demultiplexer

GENERAL DESCRIPTION

The 74HC4067 and 74HCT4067 devices are digitally controlled analog switches that include four address inputs (S0 to S3), sixteen individual I/O channels (Y0 to Y15), a common I/O pin (Z) and an active-low enable control input ($\overline{EN}$).

The 74HC4067 and 74HCT4067 are single-pole/16-throw (SP16T) analog switches, where one terminal is linked to an individual input/output (Y0 to Y15), and the other pins are connected to the common input/output (Z).

When pin $\overline{EN}$ is active low, one of the sixteen switches is chosen through the configuration of pins S0 to S3, setting it in a low-impedance on-state. All other unselected switches are in a high-impedance off-state. Conversely, when pin $\overline{EN}$ is active high, all switches are in the high-impedance off-state, regardless of the state of pins S0 to S3.

The analog inputs/outputs (Y0 to Y15 and Z) can vary between V_{CC} as the upper limit and GND as the lower limit.

The 74HC4067 and 74HCT4067 are available in a Green SOIC-24 package. They operate over an ambient temperature range of -40℃ to +125℃.

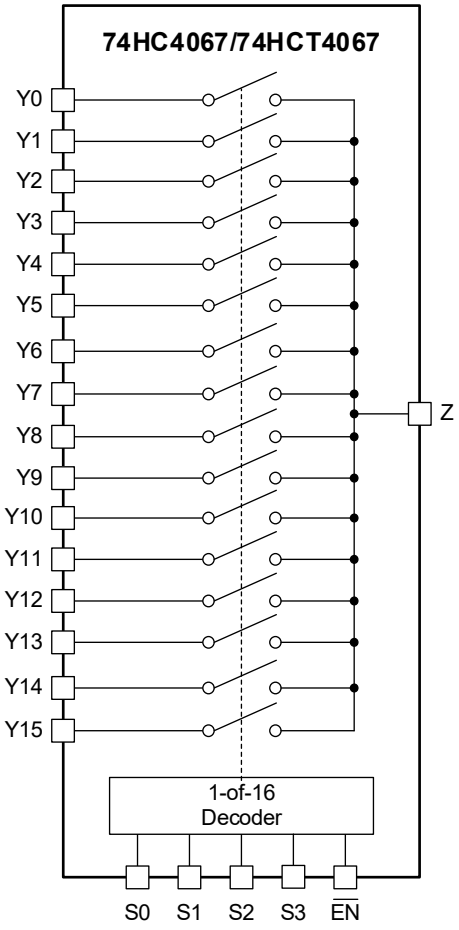
APPLICATIONS

Industrial, Telecom, Medical Equipment
Computing Equipment

FEATURES

- **Wide Supply Voltage Range:**
  - **74HC4067: 2V to 12V**
  - **74HCT4067: 4.5V to 5.5V**
- **Low On-Resistance:**
  - **220Ω (TYP) at V_{CC} = 2V**
  - **86Ω (TYP) at V_{CC} = 5V**
  - **60Ω (TYP) at V_{CC} = 10V**
- **Integrated Break-Before-Make Function**
- **-40℃ to +125℃ Operating Temperature Range**
- **Available in a Green SOIC-24 Package**

LOGIC DIAGRAM

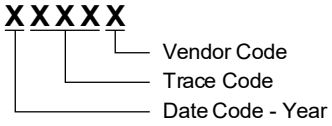


PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
74HC4067	SOIC-24	-40℃ to +125℃	74HC4067XS24G/TR	74HC4067XS24 XXXXX	Tape and Reel, 1500
74HCT4067	SOIC-24	-40℃ to +125℃	74HCT4067XS24G/TR	74HCT4067XS24 XXXXX	Tape and Reel, 1500

MARKING INFORMATION

NOTE: XXXXX = Date Code, Trace Code and Vendor Code.



Green (RoHS & HSF): SG Micro Corp defines "Green" to mean Pb-Free (RoHS compatible) and free of halogen substances. If you have additional comments or questions, please contact your SGMICRO representative directly.

ABSOLUTE MAXIMUM RATINGS

Supply Voltage Range, V_{CC} ..... -0.5V to 13.2V
Input Voltage Range, V_I ..... -0.5V to MIN(13.2V, V_{CC} + 0.5V)
Switch Voltage Range, V_{SW} -0.5V to MIN(13.2V, V_{CC} + 0.5V)
Input Clamp Current, I_{IK} (1) (V_I < -0.5V or V_I > V_{CC} + 0.5V)
..... ±20mA
Switch Clamp Current, I_{SK} (1) (V_{SW} < -0.5V or V_{SW} > V_{CC} + 0.5V)
..... ±20mA
Switch Current, I_{SW} (V_{SW} = -0.5V to V_{CC} + 0.5V) ..... ±25mA
Supply Current, I_{CC} 50mA
Ground Current, I_{GND} ..... -50mA
Junction Temperature (2) ..... +150℃
Storage Temperature Range ..... -65℃ to +150℃
Lead Temperature (Soldering, 10s) ..... +260℃
ESD Susceptibility (3) (4)
HBM ..... ±6000V
CDM ..... ±1000V

NOTES:

1. The input and output voltage ratings may be exceeded if the input and output clamp current ratings are observed.

2. The performance capability of a high-performance integrated circuit in conjunction with its thermal environment can create junction temperatures which are detrimental to reliability.

3. For human body model (HBM), all pins comply with ANSI/ESDA/JEDEC JS-001 specifications.

4. For charged device model (CDM), all pins comply with ANSI/ESDA/JEDEC JS-002 specifications.

RECOMMENDED OPERATING CONDITIONS

For 74HC4067

Supply Voltage Range, V_{CC} ..... 2V to 12V, 5V (TYP)
Input Voltage Range, V_I ..... 0V to V_{CC}
Switch Voltage Range, V_{SW} ..... 0V to V_{CC}
Rise Time, t_R
V_{CC} = 2V ..... 1000ns (MAX)
V_{CC} = 5V ..... 500ns (MAX), 6.0ns (TYP)
V_{CC} = 10V ..... 250ns (MAX)
Fall Time, t_F
V_{CC} = 2V ..... 1000ns (MAX)
V_{CC} = 5V ..... 500ns (MAX), 6.0ns (TYP)
V_{CC} = 10V ..... 250ns (MAX)
Operating Ambient Temperature Range ..... -40℃ to +125℃

For 74HCT4067

Supply Voltage Range, V_{CC} ..... 4.5V to 5.5V, 5V (TYP)
Input Voltage Range, V_I ..... 0V to V_{CC}
Switch Voltage Range, V_{SW} ..... 0V to V_{CC}
Rise Time, t_R
V_{CC} = 5V ..... 500ns (MAX), 6.0ns (TYP)
Fall Time, t_F
V_{CC} = 5V ..... 500ns (MAX), 6.0ns (TYP)
Operating Ambient Temperature Range ..... -40℃ to +125℃

OVERSTRESS CAUTION

Stresses beyond those listed in Absolute Maximum Ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect reliability. Functional operation of the device at any conditions beyond those indicated in the Recommended Operating Conditions section is not implied.

ESD SENSITIVITY CAUTION

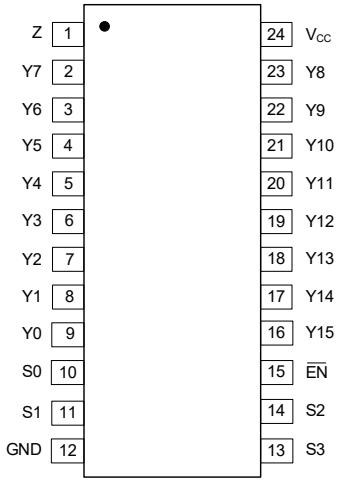
This integrated circuit can be damaged if ESD protections are not considered carefully. SGMICRO recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because even small parametric changes could cause the device not to meet the published specifications.

DISCLAIMER

SG Micro Corp reserves the right to make any change in circuit design, or specifications without prior notice.

PIN CONFIGURATION

(TOP VIEW)



SOIC-24

PIN DESCRIPTION

PIN	NAME	FUNCTION
1	Z	Common Input/Output.
2 – 9	Y7 – Y0	Individual Input/Output 7 – 0.
10	S0	Address Input 0.
11	S1	Address Input 1.
12	GND	Ground.
13	S3	Address Input 3.
14	S2	Address Input 2.
15	$\overline{EN}$	Enable Control Input (Active-Low).
16 – 23	Y15 – Y8	Individual Input/Output 15 – 8.
24	V_{CC}	Power Supply Voltage.

FUNCTION TABLE

INPUTS					CHANNEL ON
$\overline{EN}$	S3	S2	S1	S0	
L	L	L	L	L	Y0 to Z
L	L	L	L	H	Y1 to Z
L	L	L	H	L	Y2 to Z
L	L	L	H	H	Y3 to Z
L	L	H	L	L	Y4 to Z
L	L	H	L	H	Y5 to Z
L	L	H	H	L	Y6 to Z
L	L	H	H	H	Y7 to Z
L	H	L	L	L	Y8 to Z
L	H	L	L	H	Y9 to Z
L	H	L	H	L	Y10 to Z
L	H	L	H	H	Y11 to Z
L	H	H	L	L	Y12 to Z
L	H	H	L	H	Y13 to Z
L	H	H	H	L	Y14 to Z
L	H	H	H	H	Y15 to Z
H	*X*	*X*	*X*	*X*	—

NOTE: H = High Voltage Level, L = Low Voltage Level, *X* = Don't Care.

ELECTRICAL CHARACTERISTICS

(Full = -40℃ to +125℃, all typical values are measured at T_A = +25℃. V_I equals either V_{IH} or V_{IL}. V_{IS} represents the input voltage at either the Yn or Z terminal, depending on which is designated as an input. V_{OS} represents the output voltage at either the Yn or Z terminal, depending on which is designated as an output.)

PARAMETER	SYMBOL	CONDITIONS		TEMP	MIN	TYP	MAX	UNITS
On-Resistance Per Switch for 74HC4067								
On-Resistance (Peak)	R_{ON_PEAK}	V_{IS} = GND to V_{CC}, see Figure 1	V_{CC} = 2V, I_{SW} = 100μA (1)	+25℃		1600		Ω
			V_{CC} = 5V, I_{SW} = 1mA	+25℃		105	135	
				Full			170	
			V_{CC} = 10V, I_{SW} = 1mA	+25℃		65	85	
				Full			105	
On-Resistance (Rail)	R_{ON_RAIL}	V_{IS} = GND or V_{CC}, see Figure 1	V_{CC} = 2V, I_{SW} = 100μA (1)	+25℃		220	400	Ω
				Full			500	
			V_{CC} = 5V, I_{SW} = 1mA	+25℃		86	120	
				Full			160	
			V_{CC} = 10V, I_{SW} = 1mA	+25℃		60	80	
				Full			100	
On-Resistance Mismatch between Channels	ΔR_{ON}	V_{IS} = GND to V_{CC}, see Figure 1	V_{CC} = 2V	+25℃		40		Ω
			V_{CC} = 5V	+25℃		3	12	
				Full			15	
			V_{CC} = 10V	+25℃		3	12	
				Full			15	
On-Resistance Per Switch for 74HCT4067								
On-Resistance (Peak)	R_{ON_PEAK}	V_{IS} = GND to V_{CC}, see Figure 1	V_{CC} = 5V, I_{SW} = 1mA	+25℃		105	135	Ω
				Full			170	
On-Resistance (Rail)	R_{ON_RAIL}	V_{IS} = GND or V_{CC}, see Figure 1	V_{CC} = 5V, I_{SW} = 1mA	+25℃		86	120	Ω
				Full			160	
On-Resistance Mismatch between Channels	ΔR_{ON}	V_{IS} = GND to V_{CC}, see Figure 1	V_{CC} = 5V	+25℃		3	12	Ω
				Full			15	

NOTE:

1. When the supply voltage (V_{CC} - GND) nears 2V, the on-resistance of analog switch becomes highly non-linear. Consequently, it is advisable to utilize these devices for transmitting digital signals at such supply voltages.

ELECTRICAL CHARACTERISTICS (continued)

(Full = -40℃ to +125℃, all typical values are measured at T_A = +25℃. V_{IS} represents the input voltage at either the Yn or Z terminal, depending on which is designated as an input. V_{OS} represents the output voltage at either the Yn or Z terminal, depending on which is designated as an output.)

PARAMETER	SYMBOL	CONDITIONS		TEMP	MIN	TYP	MAX	UNITS
For 74HC4067								
High-Level Input Voltage	V_{IH}	V_{CC} = 2V		Full	1.5			V
		V_{CC} = 5V		Full	3.15			
		V_{CC} = 10V		Full	6.3			
Low-Level Input Voltage	V_{IL}	V_{CC} = 2V		Full			0.5	V
		V_{CC} = 5V		Full			1.5	
		V_{CC} = 10V		Full			3.0	
Input Leakage Current	I_I	V_I = V_{CC} or GND	V_{CC} = 5V	+25℃		±0.01	±0.5	μA
				Full			±1	
			V_{CC} = 10V	+25℃		±0.01	±0.5	
				Full			±1	
Off-State Leakage Current	I_{S_OFF}	V_{CC} = 10V, V_I = V_{IH} or V_{IL}, V_{IS} = V_{CC} or GND, V_{OS} = GND or V_{CC}, see Figure 2	Per channel	+25℃		±0.01	±0.5	μA
				Full			±1	
			All channels	+25℃		±0.01	±0.5	
				Full			±1	
On-State Leakage Current	I_{S_ON}	V_{CC} = 10V, V_I = V_{IH} or V_{IL}, V_{IS} = V_{CC} or GND, V_{OS} = floating or V_{IS} = floating, V_{OS} = V_{CC} or GND, see Figure 3		+25℃		±0.01	±0.5	μA
				Full			±1	
Supply Current	I_{CC}	V_I = V_{CC} or GND, V_{IS} = GND or V_{CC}, V_{OS} = V_{CC} or GND	V_{CC} = 5V	+25℃		0.01	0.5	μA
				Full			5	
			V_{CC} = 10V	+25℃		0.01	15	
				Full			100	
For 74HCT4067								
High-Level Input voltage	V_{IH}	V_{CC} = 4.5V to 5.5V		Full	2			V
Low-Level Input Voltage	V_{IL}	V_{CC} = 4.5V to 5.5V		Full			0.8	V
Input Leakage Current	I_I	V_{CC} = 5.5V, V_I = V_{CC} or GND		+25℃		±0.01	±0.5	μA
				Full			±1	
Off-State Leakage Current	I_{S_OFF}	V_{CC} = 5.5V, V_I = V_{IH} or V_{IL}, V_{IS} = V_{CC} or GND, V_{OS} = GND or V_{CC}, see Figure 2	Per channel	+25℃		±0.01	±0.5	μA
				Full			±1	
			All channels	+25℃		±0.01	±0.5	
				Full			±1	
On-State Leakage Current	I_{S_ON}	V_{CC} = 5.5V, V_I = V_{IH} or V_{IL}, V_{IS} = V_{CC} or GND, V_{OS} = floating or V_{IS} = floating, V_{OS} = V_{CC} or GND, see Figure 3		+25℃		±0.01	±0.5	μA
				Full			±1	
Supply Current	I_{CC}	V_{CC} = 4.5V to 5.5V, V_I = V_{CC} or GND, V_{IS} = GND or V_{CC}, V_{OS} = V_{CC} or GND		+25℃		0.01	0.5	μA
				Full			5	
Additional Supply Current	ΔI_{CC}	V_{CC} = 4.5V to 5.5V, per input pin, V_I = V_{CC} - 2.1V, other inputs at V_{CC} or GND	Pin $\overline{EN}$	+25℃		22	30	μA
				Full			35	
			Pins Sn	+25℃		22	30	
				Full			35	

DYNAMIC CHARACTERISTICS

(See Figure 7 for test circuit. Full = -40℃ to +125℃, all typical values are measured at T_A = +25℃. GND = 0V, $t_R = t_F$ = 6ns, C_L = 50pF. V_{IS} represents the input voltage at either the Yn or Z terminal, depending on which is designated as an input. V_{OS} represents the output voltage at either the Yn or Z terminal, depending on which is designated as an output.)

PARAMETER	SYMBOL	CONDITIONS		TEMP	MIN (1)	TYP	MAX (1)	UNITS
For 74HC4067								
Propagation Delay (2) (3)	t_{PD}	Yn to Z, see Figure 8	V_{CC} = 2V	Full	1.0	24	41.2	ns
			V_{CC} = 5V	Full	0.5	5.0	8.4	
			V_{CC} = 10V	Full	0.5	3.0	5.0	
		Z to Yn, see Figure 8	V_{CC} = 2V	Full	1.0	20	32.3	
			V_{CC} = 5V	Full	0.5	4.5	7.3	
			V_{CC} = 10V	Full	0.5	3.0	4.8	
Turn-Off Time (4)	t_{OFF}	$\overline{EN}$ to Yn, see Figure 9	V_{CC} = 2V	Full	1.0	69	113	ns
			V_{CC} = 5V	Full	1.0	23	36.6	
			V_{CC} = 10V	Full	1.0	18	27.3	
		Sn to Yn, see Figure 9	V_{CC} = 2V	Full	1.0	73	122	
			V_{CC} = 5V	Full	1.0	24	38.8	
			V_{CC} = 10V	Full	1.0	19	28.5	
		$\overline{EN}$ to Z, see Figure 9	V_{CC} = 2V	Full	1.0	69	114	
			V_{CC} = 5V	Full	1.0	25	38.9	
			V_{CC} = 10V	Full	1.0	20	29.5	
		Sn to Z, see Figure 9	V_{CC} = 2V	Full	1.0	74	124	
			V_{CC} = 5V	Full	1.0	26	41.1	
			V_{CC} = 10V	Full	1.0	20	30.6	
Turn-On Time (5)	t_{ON}	$\overline{EN}$ to Yn, see Figure 9	V_{CC} = 2V	Full	1.0	145	238	ns
			V_{CC} = 5V	Full	1.0	34	59.7	
			V_{CC} = 10V	Full	1.0	23	40.1	
		Sn to Yn, see Figure 9	V_{CC} = 2V	Full	1.0	152	256	
			V_{CC} = 5V	Full	1.0	36	64.3	
			V_{CC} = 10V	Full	1.0	24	42.5	
		$\overline{EN}$ to Z, see Figure 9	V_{CC} = 2V	Full	1.0	144	243	
			V_{CC} = 5V	Full	1.0	34	61.2	
			V_{CC} = 10V	Full	1.0	23	40.9	
		Sn to Z, see Figure 9	V_{CC} = 2V	Full	1.0	156	262	
			V_{CC} = 5V	Full	1.0	37	65.8	
			V_{CC} = 10V	Full	1.0	24	43.2	

NOTES:

1. Specified by design and characterization, not production tested.

2. t_{PD} is the same as t_{PHL} and t_{PLH}.

3. Because of the higher capacitance at the Z terminal (16 switches to 1), the delay figures are higher at the Z terminal than at the Y terminal.

4. t_{OFF} is the same as t_{PHZ} and t_{PLZ}.

5. t_{ON} is the same as t_{PZH} and t_{PZL}.

DYNAMIC CHARACTERISTICS (continued)

(See Figure 7 for test circuit. Full = -40℃ to +125℃, all typical values are measured at T_A = +25℃. GND = 0V, t_R = t_F = 6ns, C_L = 50pF. V_{IS} represents the input voltage at either the Yn or Z terminal, depending on which is designated as an input. V_{OS} represents the output voltage at either the Yn or Z terminal, depending on which is designated as an output.)

PARAMETER	SYMBOL	CONDITIONS		TEMP	MIN (1)	TYP	MAX (1)	UNITS
Power Dissipation Capacitance (6)	C_{PD}	Per switch, V_I = GND to V_{CC}		+25℃		18		pF
For 74HCT4067								
Propagation Delay (2) (3)	t_{PD}	Yn to Z, see Figure 8	V_{CC} = 5V	Full	0.5	5.0	8.4	ns
		Z to Yn, see Figure 8	V_{CC} = 5V	Full	0.5	4.5	7.3	
Turn-Off Time (4)	t_{OFF}	$\overline{EN}$ to Yn, see Figure 9	V_{CC} = 5V	Full	1.0	23	36.6	ns
		Sn to Yn, see Figure 9	V_{CC} = 5V	Full	1.0	24	38.8	
		$\overline{EN}$ to Z, see Figure 9	V_{CC} = 5V	Full	1.0	25	38.9	
		Sn to Z, see Figure 9	V_{CC} = 5V	Full	1.0	26	41.1	
Turn-On Time (5)	t_{ON}	$\overline{EN}$ to Yn, see Figure 9	V_{CC} = 5V	Full	1.0	34	59.7	ns
		Sn to Yn, see Figure 9	V_{CC} = 5V	Full	1.0	36	64.3	
		$\overline{EN}$ to Z, see Figure 9	V_{CC} = 5V	Full	1.0	34	61.2	
		Sn to Z, see Figure 9	V_{CC} = 5V	Full	1.0	37	65.8	
Power Dissipation Capacitance (6)	C_{PD}	Per switch, V_I = GND to V_{CC}		+25℃		18		pF

NOTES:

1. Specified by design and characterization, not production tested.

2. t_{PD} is the same as t_{PHL} and t_{PLH}.

3. Because of the higher capacitance at the Z terminal (16 switches to 1), the delay figures are higher at the Z terminal than at the Y terminal.

4. t_{OFF} is the same as t_{PHZ} and t_{PLZ}.

5. t_{ON} is the same as t_{PZH} and t_{PZL}.

6. C_{PD} is used to determine the dynamic power dissipation (P_D in μW).

$P_D = C_{PD} \times V_{CC}^2 \times f_i + \Sigma\{(C_L + C_{SW}) \times V_{CC}^2 \times f_o\}$

where:

f_i = Input frequency in MHz.

f_o = Output frequency in MHz.

C_L = Output load capacitance in pF.

C_{SW} = Switch capacitance in pF.

V_{CC} = Supply voltage in Volts.

$\Sigma\{(C_L + C_{SW}) \times V_{CC}^2 \times f_o\}$ = Sum of outputs.

DYNAMIC CHARACTERISTICS (continued)

(T_A = +25℃, GND = 0V. V_I equals either V_{IH} or V_{IL}. V_{IS} represents the input voltage at either the Yn or Z terminal, depending on which is designated as an input. V_{OS} represents the output voltage at either the Yn or Z terminal, depending on which is designated as an output.)

PARAMETER	SYMBOL	CONDITIONS		TEMP	MIN	TYP	MAX	UNITS
For 74HC4067								
Total Harmonic Distortion	THD	R_L = 10kΩ, f_i = 1kHz, see Figure 4	V_{CC} = 5V, V_{IS_P-P} = 4.5V	+25℃		0.16		%
			V_{CC} = 10V, V_{IS_P-P} = 9.0V	+25℃		0.12		
		R_L = 10kΩ, f_i = 10kHz, see Figure 4	V_{CC} = 5V, V_{IS_P-P} = 4.5V	+25℃		0.16		%
			V_{CC} = 10V, V_{IS_P-P} = 9.0V	+25℃		0.12		
Isolation (Off-State) (1)	α_{ISO}	R_L = 50Ω, C_L = 50pF, f = 10MHz, see Figure 5	V_{CC} = 5V	+25℃		-55		dB
			V_{CC} = 10V	+25℃		-55		
-3dB Bandwidth (1)	f_{-3dB}	R_L = 50Ω, C_L = 10pF, see Figure 6	V_{CC} = 5V	+25℃		150		MHz
			V_{CC} = 10V	+25℃		200		
Switch Capacitance	C_{SW}	Individual pins Yn		+25℃		5		pF
		Common pin Z		+25℃		25		
Input Capacitance	C_I			+25℃		4		pF
For 74HCT4067								
Total Harmonic Distortion	THD	R_L = 10kΩ, f_i = 1kHz, see Figure 4	V_{CC} = 5V, V_{IS_P-P} = 4.5V	+25℃		0.16		%
		R_L = 10kΩ, f_i = 10kHz, see Figure 4	V_{CC} = 5V, V_{IS_P-P} = 4.5V	+25℃		0.16		%
Isolation (Off-State) (1)	α_{ISO}	R_L = 50Ω, C_L = 50pF, f = 10MHz, see Figure 5	V_{CC} = 5V	+25℃		-55		dB
-3dB Bandwidth (1)	f_{-3dB}	R_L = 50Ω, C_L = 10pF, see Figure 6	V_{CC} = 5V	+25℃		150		MHz
Switch Capacitance	C_{SW}	Individual pins Yn		+25℃		5		pF
		Common pin Z		+25℃		25		
Input Capacitance	C_I			+25℃		4		pF

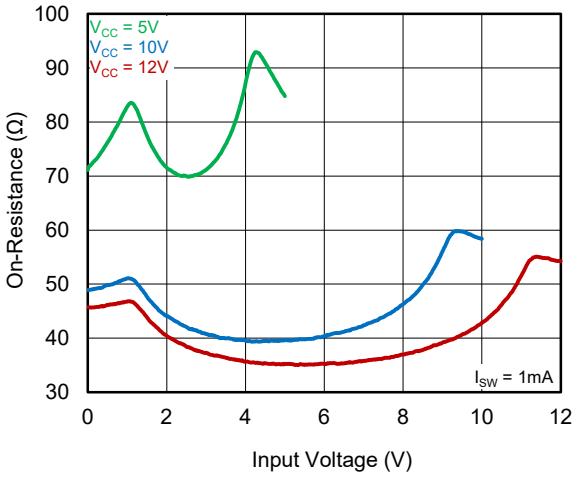
NOTE:

1. Set input voltage V_{IS} = 0dBm (0dBm = 1mW for 50Ω).

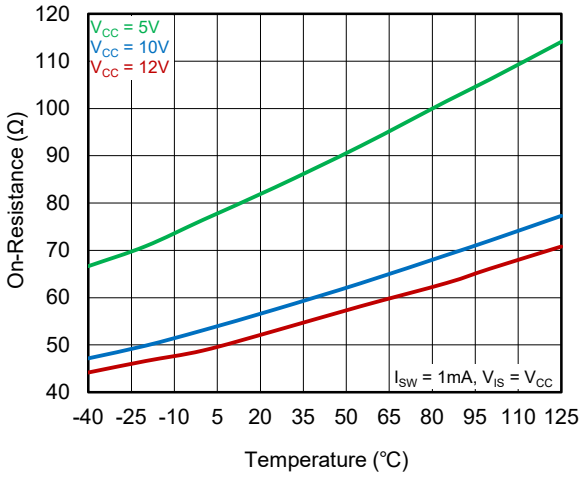
TYPICAL PERFORMANCE CHARACTERISTICS

T_A = +25℃, unless otherwise noted.

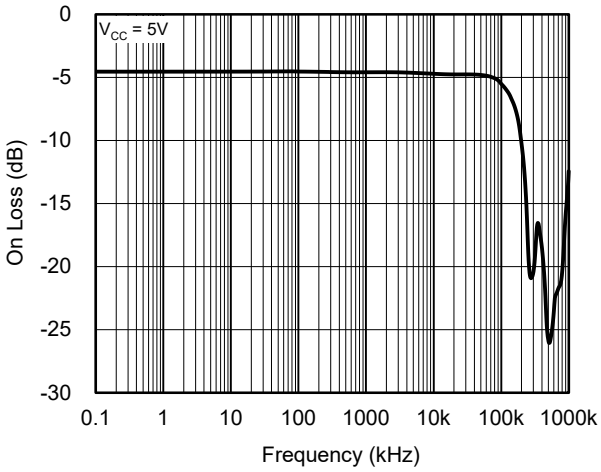
On-Resistance vs. Input Voltage



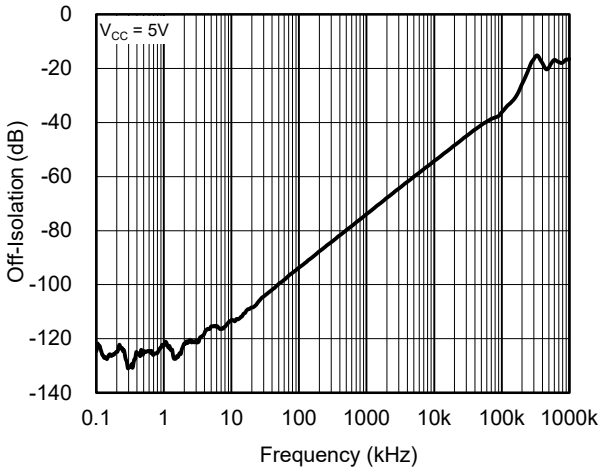
On-Resistance vs. Temperature



On Loss vs. Frequency



Off-Isolation vs. Frequency



TEST CIRCUITS

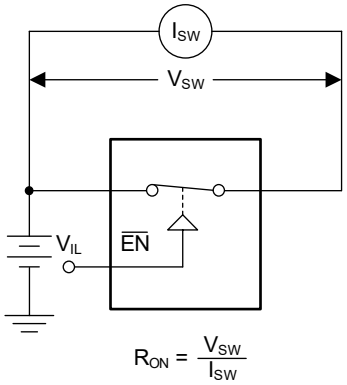


Figure 1. Test Circuit for Measuring On-Resistance

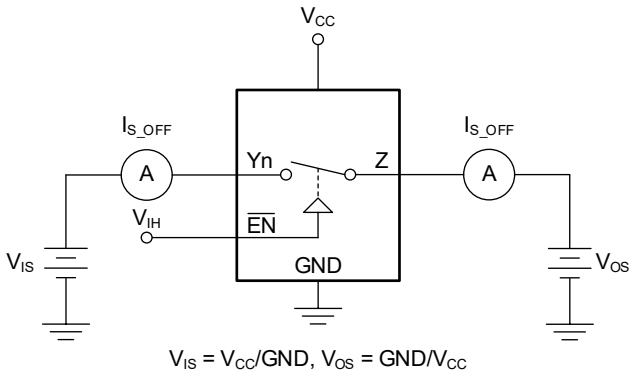


Figure 2. Test Circuit for Measuring Off-State Leakage Current

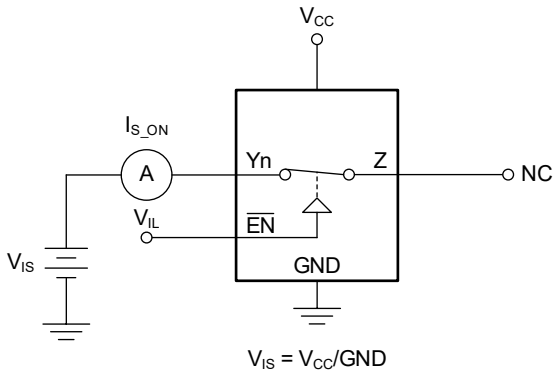


Figure 3. Test Circuit for Measuring On-State Leakage Current

TEST CIRCUITS (continued)

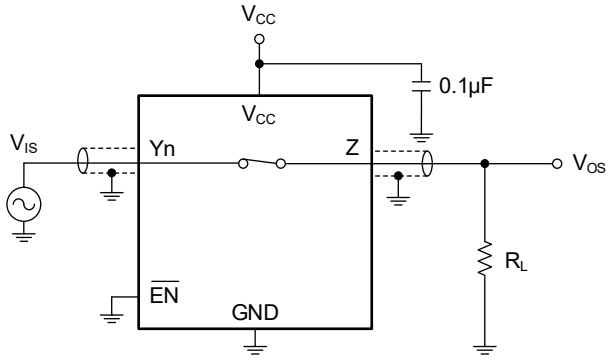
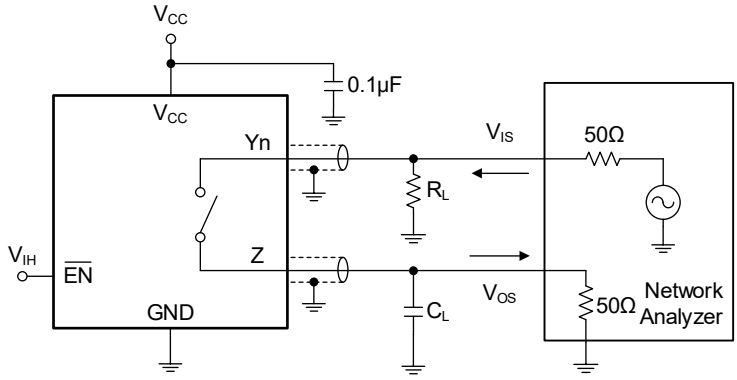


Figure 4. Test Circuit for Measuring Total Harmonic Distortion



Off-Isolation = $20\log(V_{OS}/V_{IS})$

Figure 5. Test Circuit for Measuring Isolation (Off-State)

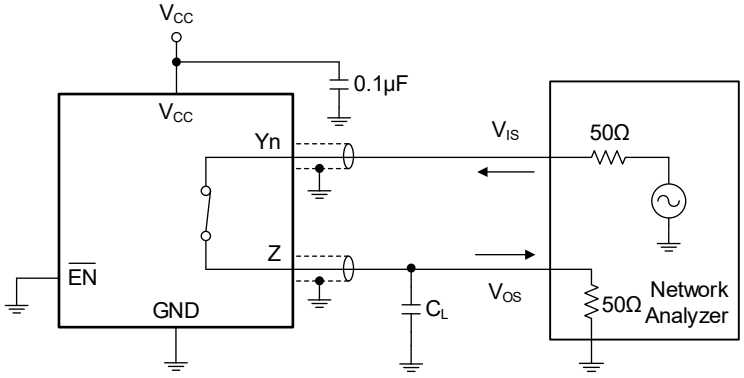
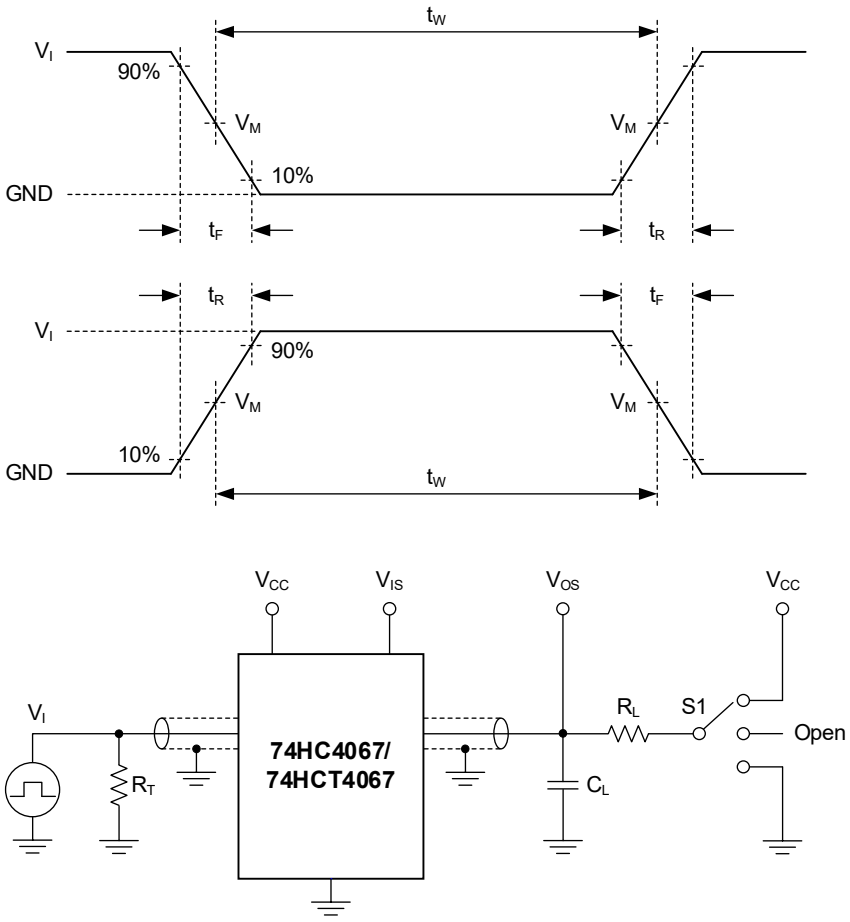


Figure 6. Test Circuit for Measuring -3dB Bandwidth

TEST CIRCUITS (continued)



Test conditions are given in Table 1.

Definitions test circuit:

R_L: Load resistance.

C_L: Load capacitance (includes jig and probe).

R_T: Termination resistance (equals to output impedance Z_O of the pulse generator).

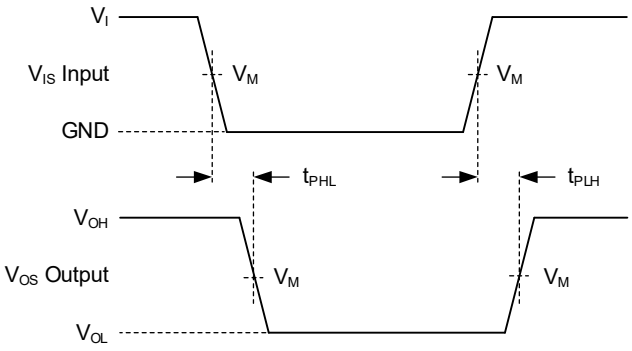
S1: Test selection switch.

Figure 7. Test Circuit for Measuring Switching Times

Table 1. Test Conditions

TEST	INPUT				OUTPUT		S1 POSITION
	CONTROL $\overline{EN}$	ADDRESS Sn	SWITCH Yn (Z)	t_R, t_F	SWITCH Z (Yn)		
	V_I	V_I	V_{IS}		C_L	R_L	
t_{PHL}, t_{PLH}	GND	GND or V_{CC}	GND to V_{CC}	≤ 6ns	50pF	—	Open
t_{PHZ}, t_{PZH}	GND to V_{CC}	GND to V_{CC}	V_{CC}	≤ 6ns	50pF	1kΩ	GND
t_{PLZ}, t_{PZL}	GND to V_{CC}	GND to V_{CC}	GND	≤ 6ns	50pF	1kΩ	V_{CC}

WAVEFORMS

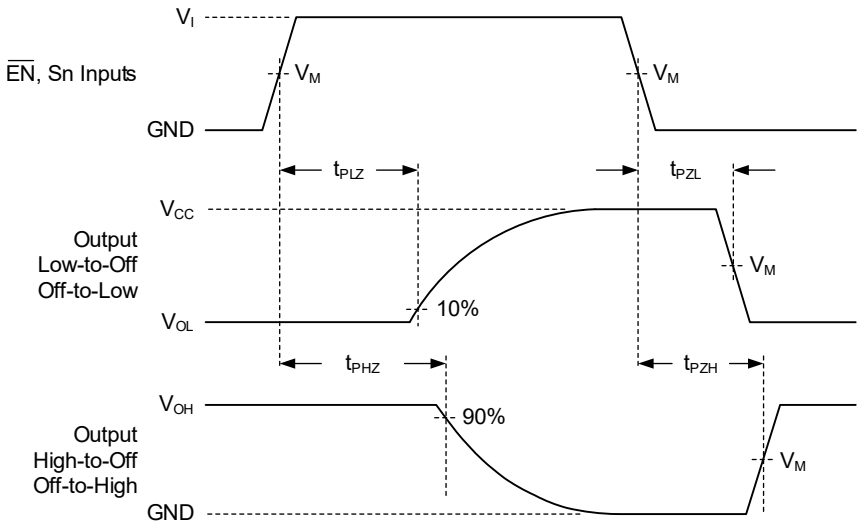


Test conditions are given in Table 1.

Measurement points are given in Table 2.

Logic levels: V_{OL} and V_{OH} are typical output voltage levels that occur with the output load.

Figure 8. Input (V_{IS}) to Output (V_{OS}) Propagation Delay Times



Test conditions are given in Table 1.

Measurement points are given in Table 2.

Logic levels: V_{OL} and V_{OH} are typical output voltage levels that occur with the output load.

Figure 9. Turn-On and Turn-Off Times

Table 2. Measurement Points

TYPE	INPUT		OUTPUT
	V_I	V_M (1)	V_M
74HC4067	V_{CC}	0.5 × V_{CC}	0.5 × V_{CC}
74HCT4067	3.0 V	1.3V	1.3V

NOTE:

1. The measurement points should be V_{IH} or V_{IL} when the input rising or falling time exceeds 6ns.

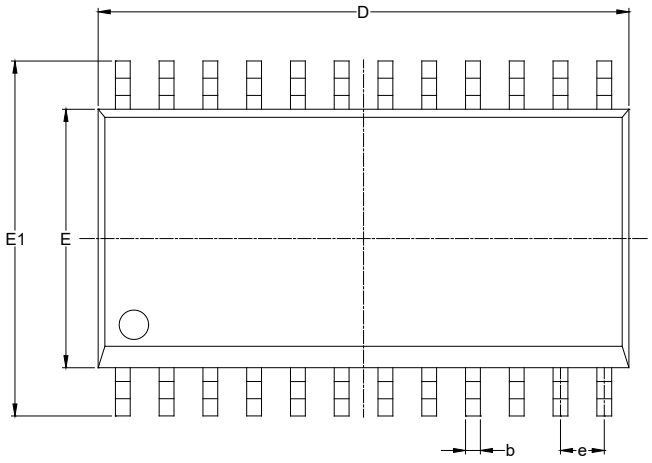
REVISION HISTORY

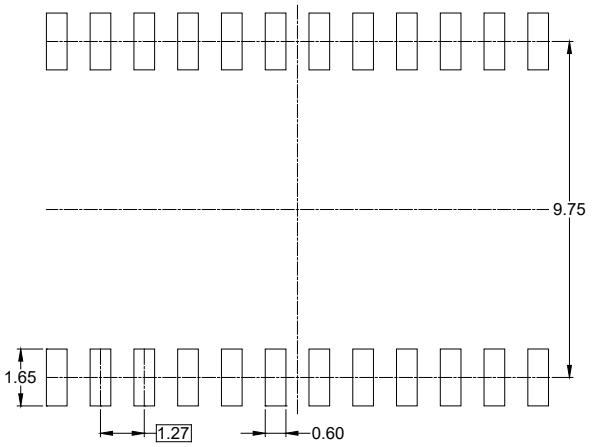
NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Changes from Original to REV.A (SEPTEMBER 2025)	Page
Changed from product preview to production data	All

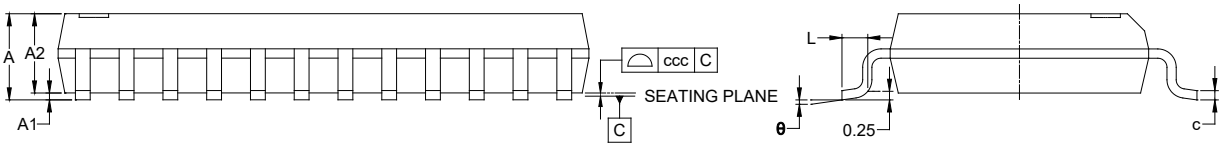
PACKAGE OUTLINE DIMENSIONS

SOIC-24





RECOMMENDED LAND PATTERN (Unit: mm)

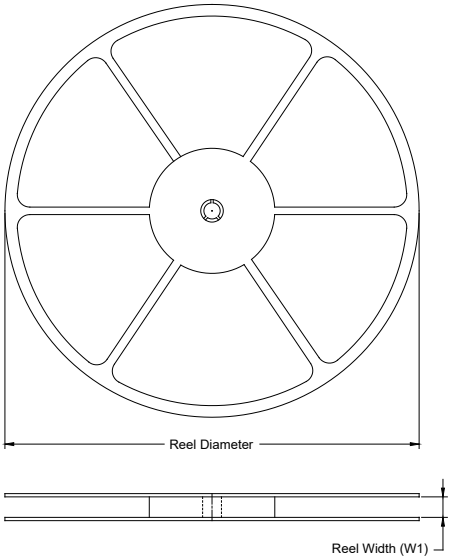


Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	-	-	2.650
A1	0.100	-	0.300
A2		2.300 REF	
b	0.310	-	0.510
c	0.200	-	0.330
D	15.300	-	15.500
E	7.400	-	7.600
E1	10.000	-	10.600
e		1.270 BSC	
L	0.400	-	1.270
θ	0°	-	8°
ccc		0.100	

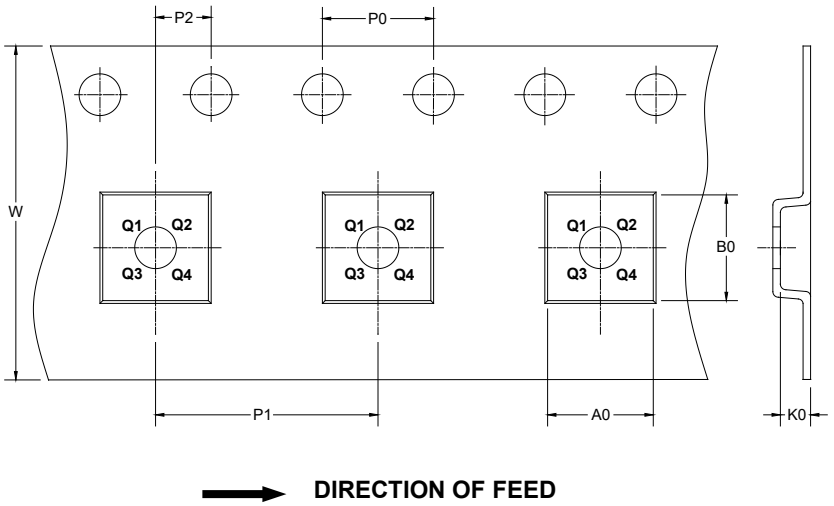
NOTES:
1. This drawing is subject to change without notice.
2. The dimensions do not include mold flashes, protrusions or gate burrs.
3. Reference JEDEC MS-013.

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



DIRECTION OF FEED

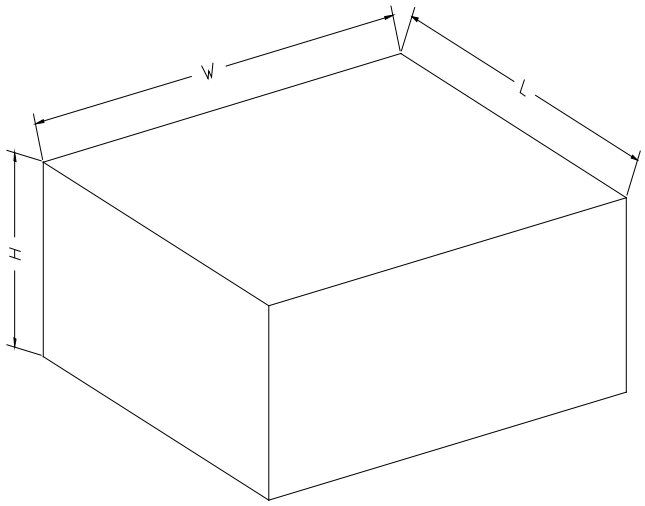
NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
SOIC-24	13"	24.4	10.80	15.90	3.00	4.0	12.0	2.0	24.0	Q1

DD0001

CARTON BOX DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF CARTON BOX

Reel Type	Length (mm)	Width (mm)	Height (mm)	Pizza/Carton
13″	386	280	370	5

DD0002