74HC4852-Q100; 74HCT4852-Q100

Dual 4-channel analog multiplexer/demultiplexer with injection-current effect control

Rev. 2 — 28 April 2020 Product data sheet

1. General description

The 74HC4852-Q100; 74HCT4852-Q100 are dual single-pole quad-throw analog switches (SP4T) suitable for use in analog or digital 4:1 multiplexer/demultiplexer applications. Each switch features four independent inputs/outputs (nY0, nY1, nY2 and nY3) and a common input/output (nZ). A digital enable input ($\overline{E}$) and two digital select inputs (S0 & S1) are common to both switches. When $\overline{E}$ is HIGH, the switches are turned off. The device features injection-current effect control. This allows signals at disabled analog input channels to exceed the supply voltage without affecting the signal of the enabled analog channel, eliminating the need for external diode/resistor networks typically used to keep the analog channel signals within the supply-voltage range. Inputs include clamp diodes. This enables the use of current limiting resistors to interface inputs to voltages in excess of V_{CC}.

This product has been qualified to the Automotive Electronics Council (AEC) standard Q100 (Grade 1) and is suitable for use in automotive applications.

2. Features

- Automotive product qualification in accordance with AEC-Q100 (Grade 1)
  - Specified from -40 °C to +85 °C and from -40 °C to +125 °C
- Injection-current cross coupling < 1 mV/mA
- Wide supply voltage range from 2.0 V to 6.0 V for 74HC4852-Q100
- ESD protection:
  - MIL-STD-883, method 3015 exceeds 2000 V
  - HBM JESD22-A114F exceeds 2000 V
  - MM JESD22-A115-A exceeds 200 V (C = 200 pf, R = 0 Ω)
- Latch-up performance exceeds 100 mA per JESD 78 Class II level A
- Low ON-state resistance:
  - 400 Ω (typical) at V_{CC} = 2.0 V
  - 215 Ω (typical) at V_{CC} = 3.0 V
  - 120 Ω (typical) at V_{CC} = 3.3 V
  - 76 Ω (typical) at V_{CC} = 4.5 V
  - 59 Ω (typical) at V_{CC} = 6.0 V
- DHVQFN package with Side-Wettable Flanks enabling Automatic Optical Inspection (AOI) of solder joints

3. Applications

- Analog multiplexing and demultiplexing
- Digital multiplexing and demultiplexing
- Signal gating
- Automotive application

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4. Ordering information

Table 1. Ordering information

Type number	Package			
	Temperature range	Name	Description	Version
74HC4852D-Q100	-40 °C to +125 °C	SO16	plastic small outline package; 16 leads; body width 3.9 mm	SOT109-1
74HCT4852D-Q100				
74HC4852PW-Q100	-40 °C to +125 °C	TSSOP16	plastic thin shrink small outline package; 16 leads; body width 4.4 mm	SOT403-1
74HCT4852PW-Q100				
74HC4852BQ-Q100	-40 °C to +125 °C	DHVQFN16	plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 16 terminals; body 2.5 × 3.5 × 0.85 mm	SOT763-1
74HCT4852BQ-Q100				

5. Functional diagram

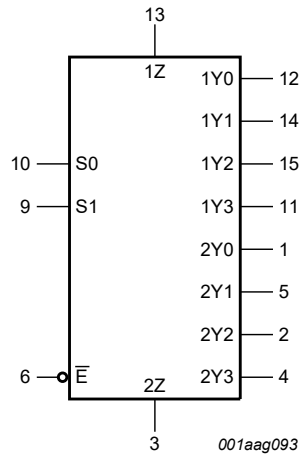


Fig. 1. Logic symbol

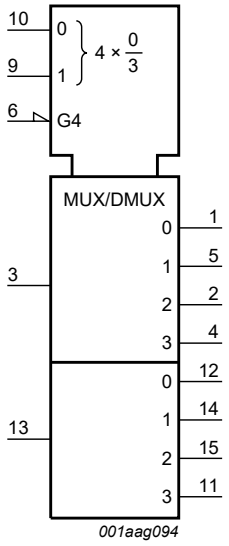


Fig. 2. IEC logic symbol

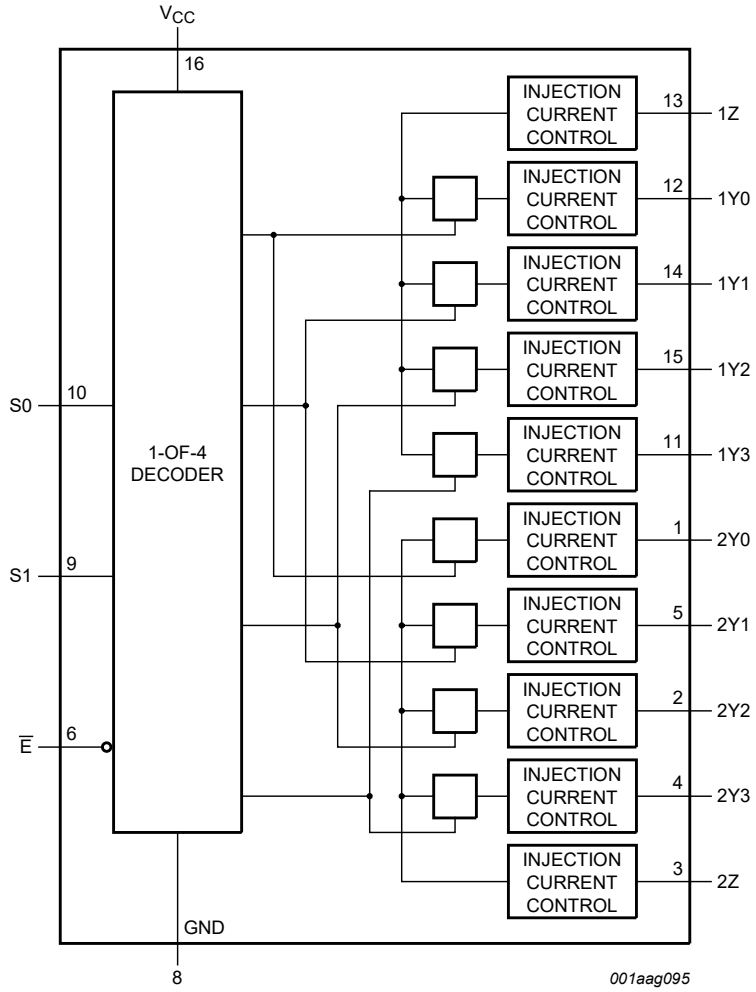


Fig. 3. Functional diagram

6. Pinning information

6.1. Pinning

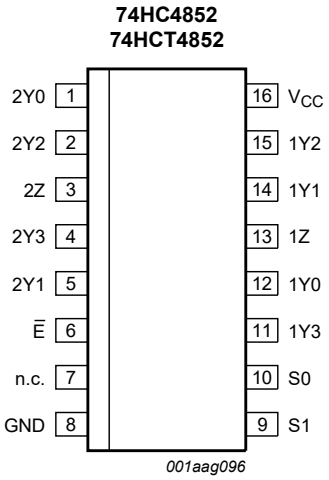
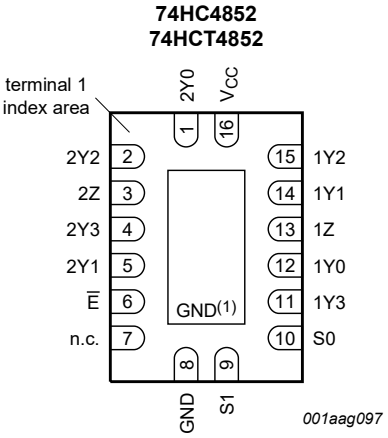


Fig. 4. Pin configuration SOT109-1 (SO16) and SOT403-1 (TSSOP16)



Transparent top view

(1) This is not a ground pin. There is no electrical or mechanical requirement to solder the pad. In case soldered, the solder land should remain floating or connected to GND.

Fig. 5. Pin configuration SOT763-1 (DHVQFN16)

6.2. Pin description

Table 2. Pin description

Symbol	Pin	Description
2Y0	1	independent input/output
2Y2	2	independent input/output
2Z	3	common input/output
2Y3	4	independent input/output
2Y1	5	independent input/output
$\overline{E}$	6	enable input (active LOW)
n.c.	7	not connected
GND	8	ground (0 V)
S1	9	select input
S0	10	select input
1Y3	11	independent input/output
1Y0	12	independent input/output
1Z	13	common input/output
1Y1	14	independent input/output
1Y2	15	independent input/output
V_{CC}	16	supply voltage

7. Functional description

Table 3. Function table

H = HIGH voltage level; L = LOW voltage level; X = don't care.

Input			Channel ON
$\overline{E}$	S1	S0	
L	L	L	nY0 to nZ
L	L	H	nY1 to nZ
L	H	L	nY2 to nZ
L	H	H	nY3 to nZ
H	X	X	-

8. Limiting values

Table 4. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134). Voltages are referenced to GND (ground = 0 V).

Symbol	Parameter	Conditions	Min	Max	Unit
V_{CC}	supply voltage		-0.5	+7.0	V
V_I	input voltage	[1]	-0.5	V_{CC} + 0.5	V
V_{SW}	switch voltage	[2]	-0.5	V_{CC} + 0.5	V
I_{IK}	input clamping current	V_I < -0.5 V or V_I > V_{CC} + 0.5 V	-	±20	mA
I_{SK}	switch clamping current	V_{SW} < -0.5 V or V_{SW} > V_{CC} + 0.5 V	-	±20	mA
I_{SW}	switch current	V_{SW} > -0.5 V or V_{SW} < V_{CC} + 0.5 V	-	±25	mA
I_{CC}	supply current		-	50	mA
I_{GND}	ground current		-50	-	mA
T_{stg}	storage temperature		-65	+150	°C
P_{tot}	total power dissipation	T_{amb} = -40 °C to +125 °C [3]	-	500	mW

[1] The minimum and maximum input voltage rating may be exceeded if the input clamping current rating is observed.
[2] The minimum and maximum switch voltage rating may be exceeded if the switch clamping current rating is observed.
[3] For SOT109-1 (SO16) package: P_{tot} derates linearly with 12.4 mW/K above 110 °C.
For SOT403-1 (TSSOP16) package: P_{tot} derates linearly with 8.5 mW/K above 91 °C.
For SOT763-1 (DHVQFN16) package: P_{tot} derates linearly with 11.2 mW/K above 106 °C.

9. Recommended operating conditions

Table 5. Recommended operating conditions

Symbol	Parameter	Conditions	74HC4852-Q100			74HCT4852-Q100			Unit
			Min	Typ	Max	Min	Typ	Max	
V_{CC}	supply voltage		2.0	-	6.0	4.5	5.0	5.5	V
V_I	input voltage		0	-	V_{CC}	0	-	V_{CC}	V
V_{SW}	switch voltage		0	-	V_{CC}	0	-	V_{CC}	V
T_{amb}	ambient temperature		-40	-	+125	-40	-	+125	°C
$\Delta t/\Delta V$	input transition rise and fall rate	V_{CC} = 2.0 V	-	6.0	1 000	-	-	-	ns/V
		V_{CC} = 3.0 V	-	6.0	800	-	-	-	ns/V
		V_{CC} = 3.3 V	-	6.0	800	-	-	-	ns/V
		V_{CC} = 4.5 V	-	6.0	500	-	6.0	500	ns/V
		V_{CC} = 6.0 V	-	6.0	400	-	-	-	ns/V

10. Static characteristics

Table 6. R_{ON} resistance

At recommended operating conditions; voltages are referenced to GND (ground 0 V); For test circuit see Fig. 8.

Symbol	Parameter	Conditions	25 °C			-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Typ	Max	Min	Max	Min	Max	
74HC4852-Q100										
$R_{ON(peak)}$	ON resistance (peak)	V_I = V_{CC} to GND; $\overline{E}$ = V_{IL}								
		V_{CC} = 2.0 V; I_{SW} = 2 mA	-	400	650	-	670	-	700	Ω
		V_{CC} = 3.0 V; I_{SW} ≤ 2 mA	-	215	330	-	360	-	380	Ω
		V_{CC} = 3.3 V; I_{SW} ≤ 2 mA	-	120	270	-	305	-	345	Ω
		V_{CC} = 4.5 V; I_{SW} ≤ 2 mA	-	76	210	-	240	-	270	Ω
		V_{CC} = 6.0 V; I_{SW} ≤ 2 mA	-	59	195	-	220	-	250	Ω
ΔR_{ON}	ON resistance mismatch between channels	V_I = 0.5 x V_{CC}; $\overline{E}$ = V_{IL}								
		V_{CC} = 2.0 V; I_{SW} = 2 mA	-	4	10	-	15	-	20	Ω
		V_{CC} = 3.0 V; I_{SW} ≤ 2 mA	-	2	8	-	12	-	16	Ω
		V_{CC} = 3.3 V; I_{SW} ≤ 2 mA	-	2	8	-	12	-	16	Ω
		V_{CC} = 4.5 V; I_{SW} ≤ 2 mA	-	2	8	-	12	-	16	Ω
		V_{CC} = 6.0 V; I_{SW} ≤ 2 mA	-	3	9	-	13	-	18	Ω
74HCT4852-Q100										
$R_{ON(peak)}$	ON resistance (peak)	V_I = V_{CC} to GND; $\overline{E}$ = V_{IL}								
		V_{CC} = 4.5 V; I_{SW} ≤ 2 mA	-	76	210	-	240	-	270	Ω
ΔR_{ON}	ON resistance mismatch between channels	V_I = 0.5 x V_{CC}; $\overline{E}$ = V_{IL}								
		V_{CC} = 4.5 V; I_{SW} ≤ 2 mA	-	2	8	-	12	-	16	Ω

Table 7. Injection current coupling

At recommended operating conditions; voltages are referenced to GND (ground 0 V); For test circuit see Fig. 9.

Symbol	Parameter	Conditions	74HC4852-Q100			74HCT4852-Q100			Unit
			Min	Typ[1]	Max	Min	Typ[1]	Max	
T_{amb} = -40 °C to +125 °C									
ΔV_O	output voltage variation	$\lvert I_{SW}\rvert \le 1$ mA; $R_S \le 3.9$ kΩ [2][3]							
		V_{CC} = 3.3 V	-	0.05	1	-	-	-	mV
		V_{CC} = 5.0 V	-	0.03	1	-	0.03	1	mV
		$\lvert I_{SW}\rvert \le 10$ mA; $R_S \le 3.9$ kΩ							
		V_{CC} = 3.3 V	-	0.55	5	-	-	-	mV
		V_{CC} = 5.0 V	-	0.27	5	-	0.27	5	mV
		$\lvert I_{SW}\rvert \le 1$ mA; $R_S \le 20$ kΩ							
		V_{CC} = 3.3 V	-	0.04	2	-	-	-	mV
		V_{CC} = 5.0 V	-	0.03	2	-	0.03	2	mV
		$\lvert I_{SW}\rvert \le 10$ mA; $R_S \le 20$ kΩ							
		V_{CC} = 3.3 V	-	0.56	20	-	-	-	mV
		V_{CC} = 5.0 V	-	0.48	20	-	0.48	20	mV

[1] Typical values are measured at T_{amb} = 25 °C.
[2] ΔV_O here is the maximum variation of output voltage of an enabled analog channel when current is injected into any disabled channel.
[3] I_{SW} = total current injected into all disabled channels.

Table 8. Static characteristics

At recommended operating conditions; voltages are referenced to GND (ground 0 V).

Symbol	Parameter	Conditions	25 °C			-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Typ	Max	Min	Max	Min	Max	
74HC4852-Q100										
V_{IH}	HIGH-level input voltage	control inputs								
		V_{CC} = 2.0 V	1.5	-	-	1.5	-	1.5	-	V
		V_{CC} = 3.0 V	2.1	-	-	2.1	-	2.1	-	V
		V_{CC} = 3.3 V	2.3	-	-	2.3	-	2.3	-	V
		V_{CC} = 4.5 V	3.15	-	-	3.15	-	3.15	-	V
		V_{CC} = 6.0 V	4.2	-	-	4.2	-	4.2	-	V
V_{IL}	LOW-level input voltage	control inputs								
		V_{CC} = 2.0 V	-	-	0.5	-	0.5	-	0.5	V
		V_{CC} = 3.0 V	-	-	0.9	-	0.9	-	0.9	V
		V_{CC} = 3.3 V	-	-	1.0	-	1.0	-	1.0	V
		V_{CC} = 4.5 V	-	-	1.35	-	1.35	-	1.35	V
		V_{CC} = 6.0 V	-	-	1.8	-	1.8	-	1.8	V
I_I	input leakage current	control inputs; V_I = GND or V_{CC}								
		V_{CC} = 6.0 V	-	-	±0.1	-	±0.1	-	±1.0	μA
$I_{S(OFF)}$	OFF-state leakage current	$\overline{E}$ = V_{IH}; V_I = GND or V_{CC}; V_O = V_{CC} or GND; V_{CC} = 6.0 V; see Fig. 6								
		nYn; per channel	-	-	±0.1	-	±0.5	-	±1.0	μA
		nZ; all channels	-	-	±0.2	-	±2.0	-	±4.0	μA

Symbol	Parameter	Conditions	25 °C			-40 °C to +85 °C		-40 °C to +125 °C		
			Min	Typ	Max	Min	Max	Min	Max	Unit
$I_{S(ON)}$	ON-state leakage current	$\overline{E}$ = V_{IL}; V_I = GND or V_{CC}; V_O = V_{CC} or GND; V_{CC} = 6.0 V; see Fig. 7	-	-	±0.1	-	±0.5	-	±1.0	µA
I_{CC}	supply current	V_I = GND or V_{CC}								
		V_{CC} = 6.0 V	-	-	2.0	-	5.0	-	20.0	µA
C_I	input capacitance	S0, S1, S2 and $\overline{E}$	-	2	10	-	10	-	10	pF
C_{sw}	switch capacitance	nZ; OFF-state	-	15	40	-	40	-	40	pF
		nYn; OFF-state	-	3	15	-	15	-	15	pF
74HCT4852-Q100										
V_{IH}	HIGH-level input voltage	control inputs								
		V_{CC} = 4.5 V to 5.5 V	2.0	-	-	2.0	-	2.0	-	V
V_{IL}	LOW-level input voltage	control inputs								
		V_{CC} = 4.5 V to 5.5 V	-	-	0.8	-	0.8	-	0.8	V
I_I	input leakage current	control inputs; V_I = GND or V_{CC}								
		V_{CC} = 5.5 V	-	-	±0.1	-	±0.1	-	±1.0	µA
$I_{S(OFF)}$	OFF-state leakage current	$\overline{E}$ = V_{IH}; V_I = GND or V_{CC}; V_O = V_{CC} or GND; V_{CC} = 5.5 V; see Fig. 6								
		per channel	-	-	±0.1	-	±0.5	-	±1.0	µA
		all channels	-	-	±0.2	-	±2.0	-	±4.0	µA
$I_{S(ON)}$	ON-state leakage current	$\overline{E}$ = V_{IL}; V_I = GND or V_{CC}; V_O = V_{CC} or GND; V_{CC} = 5.5 V; see Fig. 7	-	-	±0.1	-	±0.5	-	±1.0	µA
I_{CC}	supply current	V_I = GND or V_{CC}								
		V_{CC} = 5.5 V	-	-	2.0	-	5.0	-	20.0	µA
ΔI_{CC}	additional supply current	control inputs; V_I = V_{CC} - 2.1 V; other inputs at V_{CC} or GND; V_{CC} = 4.5 V to 5.5 V; I_O = 0 A	-	-	300	-	370	-	370	µA
C_I	input capacitance	S0, S1, S2 and $\overline{E}$	-	2	10	-	10	-	10	pF
C_{sw}	switch capacitance	nZ; OFF-state	-	9	40	-	40	-	40	pF
		nYn; OFF-state	-	3	15	-	15	-	15	pF

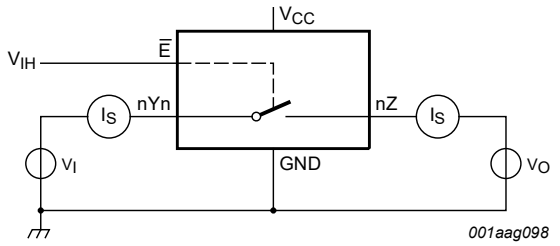
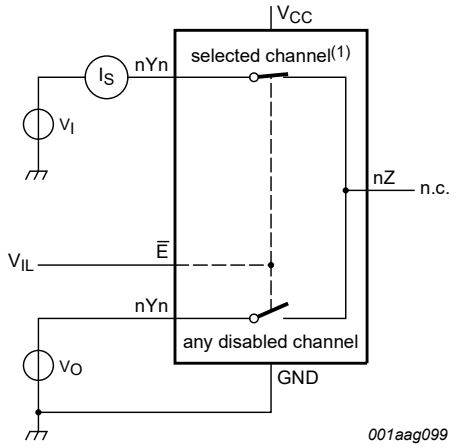
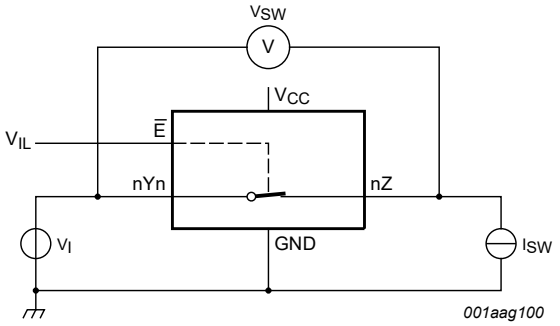


Fig. 6. Test circuit for measuring OFF-state leakage current



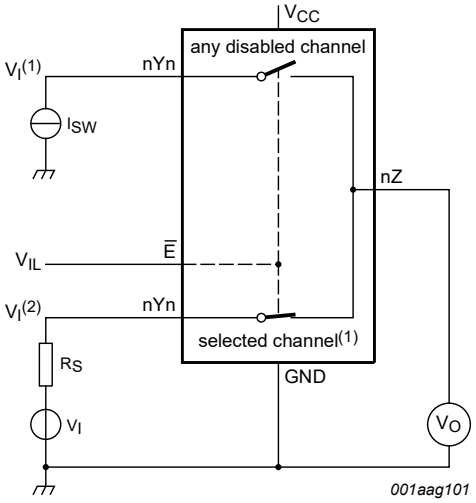
(1) Channel is selected by S0 and S1.

Fig. 7. Test circuit for measuring ON-state leakage current



$R_{ON} = V_{SW} / I_{SW}$.

Fig. 8. Test circuit for measuring ON resistance



(1) Channel is selected by S0 and S1.

$V_I^{(1)} < GND$ or $V_I^{(1)} > V_{CC}$.

$GND < V_I^{(2)} < V_{CC}$.

Fig. 9. Test circuit for injection current coupling

11. Dynamic characteristics

Table 9. Dynamic characteristics

At recommended operating conditions; voltages are referenced to GND (ground 0 V); for test circuit see Fig. 14.

Symbol	Parameter	Conditions	25 °C			-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Typ	Max	Min	Max	Min	Max	
74HC4852-Q100										
t_{pd}	propagation delay	nZ, nYn to nYn, nZ; see Fig. 10 [1]								
		V_{CC} = 2.0 V	2.2	9.3	33	2.2	34	2.2	35	ns
		V_{CC} = 3.0 V	2.2	4.9	16.5	1.9	18	1.9	19.5	ns
		V_{CC} = 3.3 V	2.0	4.4	15.0	1.6	16.5	1.6	18.5	ns
		V_{CC} = 4.5 V	1.6	3.2	11.6	1.1	12.5	1.1	13.5	ns
		V_{CC} = 6.0 V	1.5	2.5	10.2	0.9	11	0.9	12	ns
		Sn to nZ, nYn; see Fig. 11 [1]								
		V_{CC} = 2.0 V	7.7	16.8	38	6.3	40	6.3	42	ns
		V_{CC} = 3.0 V	4.9	8.8	20	3.9	21.5	3.9	23	ns
		V_{CC} = 3.3 V	4.4	7.9	17.5	3.4	19	3.4	22	ns
		V_{CC} = 4.5 V	3.2	5.8	14	2.3	15	2.3	17	ns
		V_{CC} = 6.0 V	2.4	4.8	12.6	1.6	14.5	1.6	16.5	ns
t_{en}	enable time	$\overline{E}$ to nZ, nYn; see Fig. 12 [2]								
		V_{CC} = 2.0 V	10.5	20.5	47.5	8.5	52.5	8.5	57.5	ns
		V_{CC} = 3.0 V	6.2	10.6	45	5.2	50	5.2	55	ns
		V_{CC} = 3.3 V	5.6	9.4	42.5	4.6	47.5	4.6	52.5	ns
		V_{CC} = 4.5 V	4.2	6.9	40	3	45	3	50	ns
		V_{CC} = 6.0 V	3.2	5.6	39	2.2	40	2.2	40	ns
t_{dis}	disable time	$\overline{E}$ to nZ, nYn; see Fig. 12 [3]								
		V_{CC} = 2.0 V	39.5	75.4	100	39.3	105	39	115	ns
		V_{CC} = 3.0 V	35.2	69.5	90	35.5	100	35	110	ns
		V_{CC} = 3.3 V	34.6	68.1	85	34.6	95	34.5	105	ns
		V_{CC} = 4.5 V	28.5	63	80	28.2	90	28	100	ns
		V_{CC} = 6.0 V	14.4	57.9	78	13.5	80	13.0	80	ns
C_{PD}	power dissipation capacitance	per channel; see Fig. 13 [4]								
		V_{CC} = 3.3 V	-	42	-	-	-	-	-	pF
		V_{CC} = 5.0 V	-	47	-	-	-	-	-	pF

Symbol	Parameter	Conditions	25 °C			-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Typ	Max	Min	Max	Min	Max	
74HCT4852-Q100										
t_{pd}	propagation delay	nZ, nYn to nYn, nZ; see Fig. 10 [1]								
		V_{CC} = 4.5 V	1.6	3.5	11.5	1.1	12.5	1.1	13.5	ns
		Sn to nZ, nYn; see Fig. 11 [1]								
		V_{CC} = 4.5 V	3.2	7.6	13	2.3	15	1.6	17	ns
t_{en}	enable time	$\overline{E}$ to nZ, nYn; see Fig. 12 [2]								
		V_{CC} = 4.5 V	4.2	8.3	25	3.0	30	3.0	35	ns
t_{dis}	disable time	$\overline{E}$ to nZ, nYn; see Fig. 12 [3]								
		V_{CC} = 4.5 V	28.5	61.8	80	28.2	90	28.0	100	ns
C_{PD}	power dissipation capacitance	per channel; see Fig. 13 [4]								
		V_{CC} = 5.0 V	-	47	-	-	-	-	-	pF

[1] t_{pd} is the same as t_{PLH} and t_{PHL}.
[2] t_{en} is the same as t_{PZH} and t_{PZL}.
[3] t_{dis} is the same as t_{PLZ} and t_{PHZ}.
[4] C_{PD} is used to determine the dynamic power dissipation (P_D in µW):
$P_D = C_{PD} \times V_{CC}^2 \times f_i + \sum\{(C_L + C_{sw}) \times V_{CC}^2 \times f_o\}$ where:
f_i = input frequency in MHz;
f_o = output frequency in MHz;
$\sum\{(C_L + C_{sw}) \times V_{CC}^2 \times f_o\}$ = sum of outputs;
C_L = output load capacitance in pF;
C_{sw} = switch capacitance in pF;
V_{CC} = supply voltage in V.

11.1. Waveforms

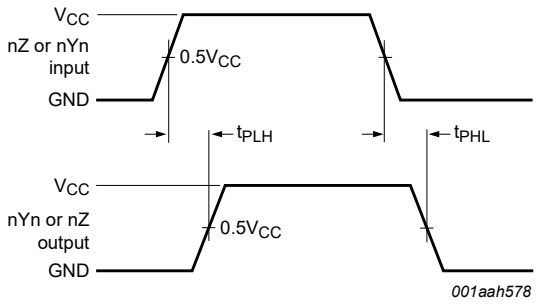
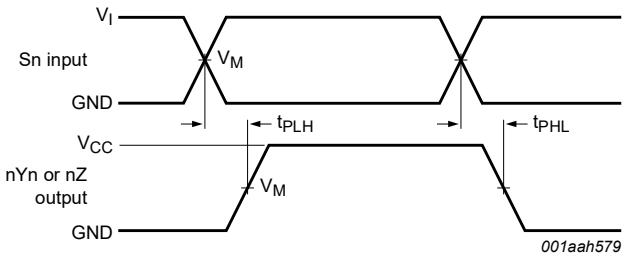
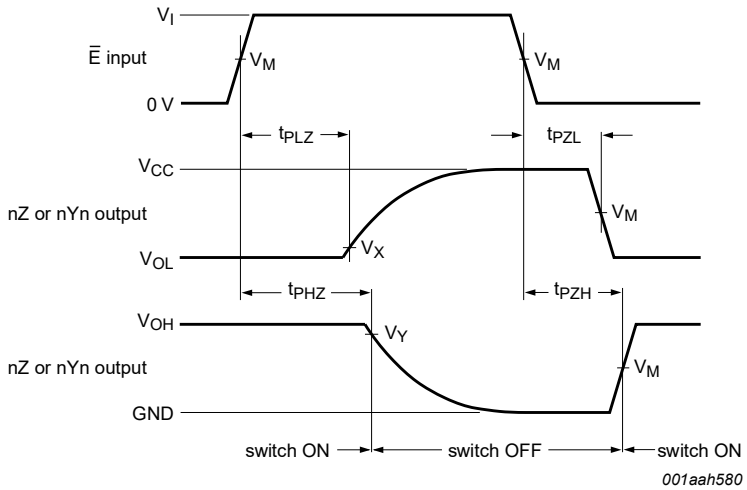


Fig. 10. Input (nZ, nYn) to output (nYn, nZ) propagation delays



Measurement points are given in Table 10.

Fig. 11. Input (Sn) to output (nYn, nZ) propagation delays



Measurement points are shown in Table 10.

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

Fig. 12. Enable and disable times

Table 10. Measurement points

Type	Input		Output		
	V_M	V_I	V_M	V_X	V_Y
74HC4852-Q100	$0.5V_{CC}$	V_{CC}	$0.5V_{CC}$	$V_{OL} + 0.1(V_{CC} - V_{OL})$	$0.9V_{OH}$
74HCT4852-Q100	1.3 V	3.0 V	$0.5V_{CC}$	$V_{OL} + 0.1(V_{CC} - V_{OL})$	$0.9V_{OH}$

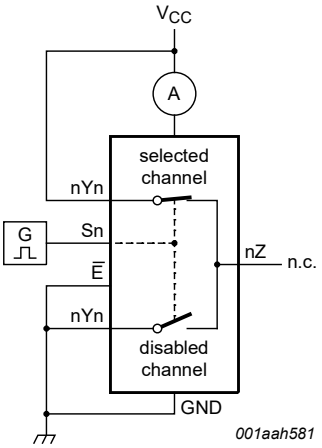
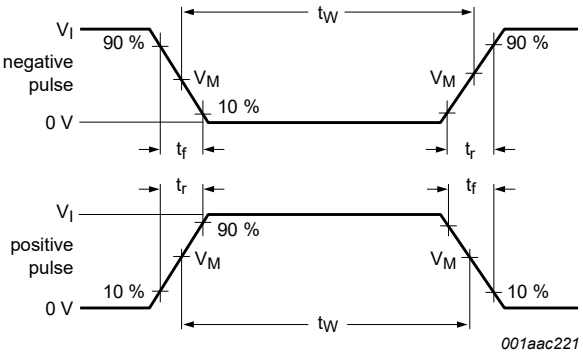
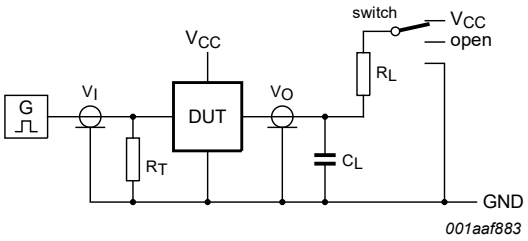


Fig. 13. Test circuit for measuring power dissipation capacitance



a. Input pulse definition



Definitions for test circuit:

R_L = load resistance.

C_L = load capacitance including jig and probe capacitance.

R_T = termination resistance should be equal to the output impedance Z_o of the pulse generator.

b. Test circuit

Test data is given in Table 11.

Fig. 14. Input pulse definition and test circuit

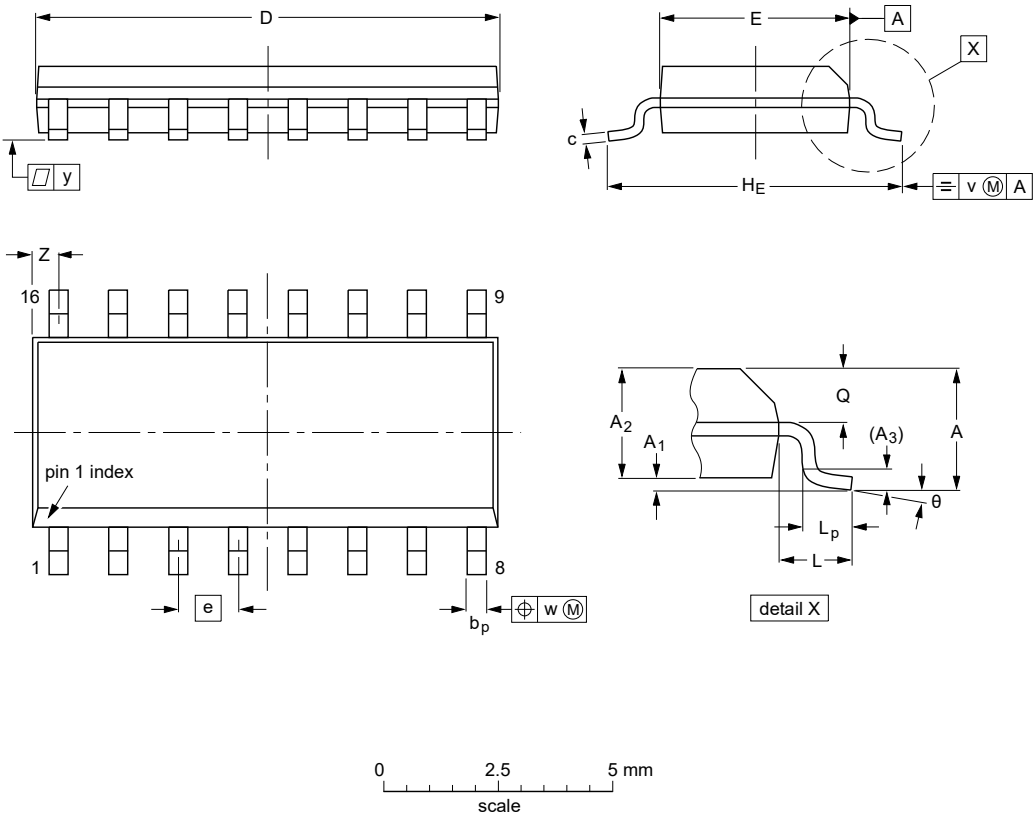
Table 11. Test data

Test	Input			Output		S1 position
	Control $\overline{E}$, Sn	Switch nYn (nZ)	t_r, t_f	Switch nZ (nYn)		
	V_I[1]	V_I		C_L	R_L	
t_{PHL}, t_{PLH}	V_{CC}	V_{CC}	6 ns	50 pF	-	open
t_{PHZ}, t_{PZH}	V_{CC}	V_{CC}	6 ns	50 pF	10 kΩ	GND
t_{PLZ}, t_{PZL}	V_{CC}	V_{CC}	6 ns	50 pF	10 kΩ	V_{CC}
C_{PD}	V_{CC}	V_{CC}	6 ns	0 pF	-	open

[1] For 74HCT4852-Q100: input voltage V_I = 3.0 V.

12. Package outline

SO16: plastic small outline package; 16 leads; body width 3.9 mm **SOT109-1**



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A_1	A_2	A_3	b_p	c	$D^{(1)}$	$E^{(1)}$	e	H_E	L	L_p	Q	v	w	y	$Z^{(1)}$	θ
mm	1.75	0.25 0.10	1.45 1.25	0.25	0.49 0.36	0.25 0.19	10.0 9.8	4.0 3.8	1.27	6.2 5.8	1.05	1.0 0.4	0.7 0.6	0.25	0.25	0.1	0.7 0.3	8° 0°
inches	0.069	0.010 0.004	0.057 0.049	0.01	0.019 0.014	0.0100 0.0075	0.39 0.38	0.16 0.15	0.05	0.244 0.228	0.041	0.039 0.016	0.028 0.020	0.01	0.01	0.004	0.028 0.012	

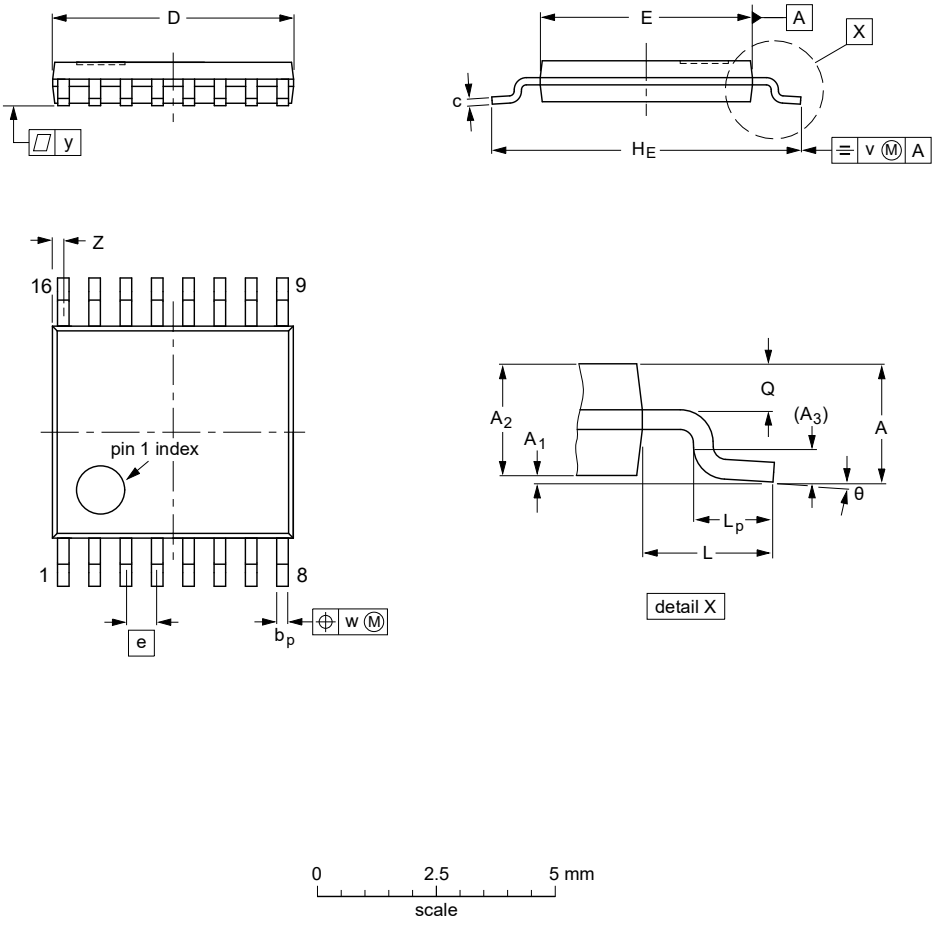
Note

1. Plastic or metal protrusions of 0.15 mm (0.006 inch) maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT109-1	076E07	MS-012				~~99-12-27~~ 03-02-19

Fig. 15. Package outline SOT109-1 (SO16)

TSSOP16: plastic thin shrink small outline package; 16 leads; body width 4.4 mm **SOT403-1**



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A_1	A_2	A_3	b_p	c	D (1)	E (2)	e	H_E	L	L_p	Q	v	w	y	Z (1)	θ
mm	1.1	0.15 0.05	0.95 0.80	0.25	0.30 0.19	0.2 0.1	5.1 4.9	4.5 4.3	0.65	6.6 6.2	1	0.75 0.50	0.4 0.3	0.2	0.13	0.1	0.40 0.06	8° 0°

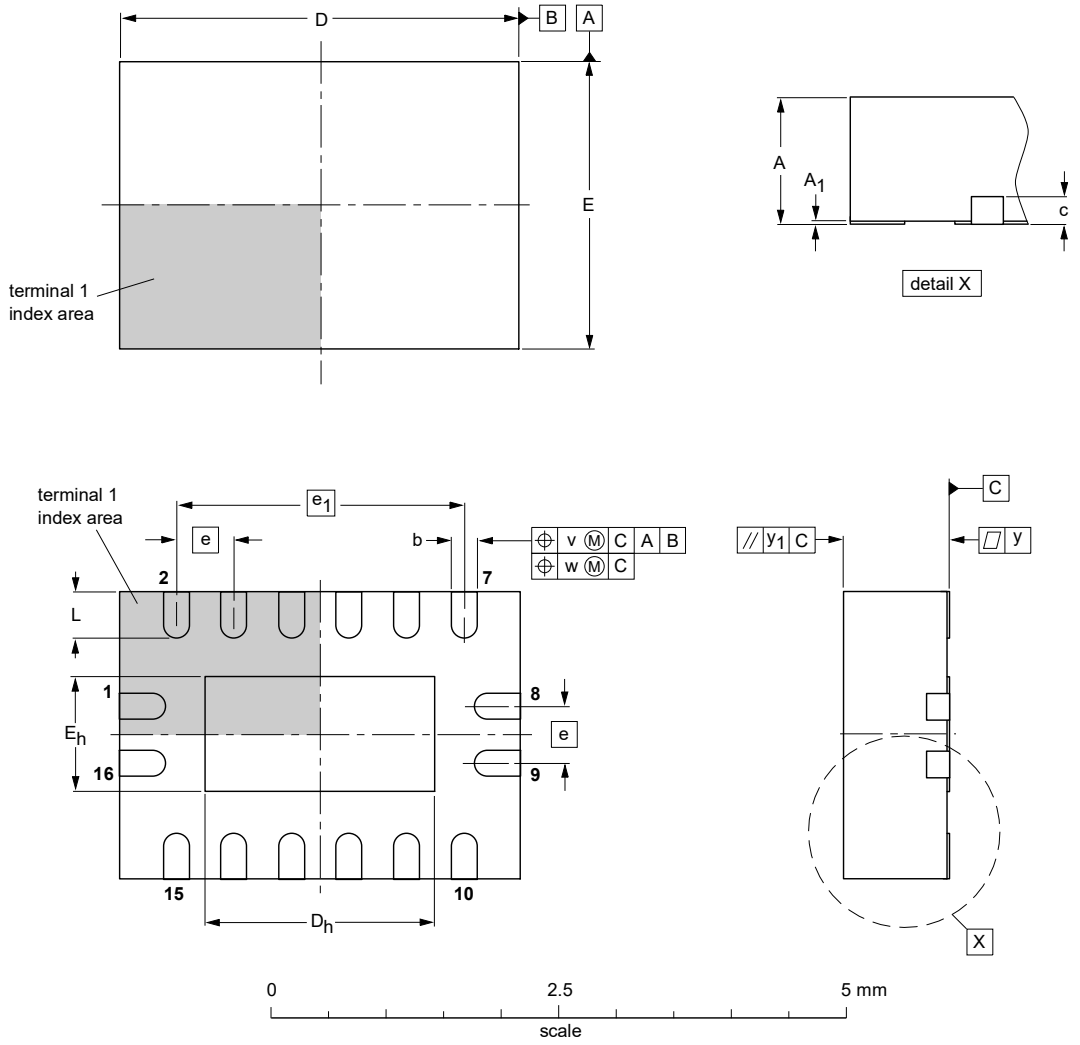
Notes

1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.
2. Plastic interlead protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT403-1		MO-153				~~99-12-27~~ 03-02-18

Fig. 16. Package outline SOT403-1 (TSSOP16)

DHVQFN16: plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 16 terminals; body 2.5 x 3.5 x 0.85 mm **SOT763-1**



DIMENSIONS (mm are the original dimensions)

UNIT	$A^{(1)}$ max.	A_1	b	c	$D^{(1)}$	D_h	$E^{(1)}$	E_h	e	e_1	L	v	w	y	y_1
mm	1	0.05 0.00	0.30 0.18	0.2	3.6 3.4	2.15 1.85	2.6 2.4	1.15 0.85	0.5	2.5	0.5 0.3	0.1	0.05	0.05	0.1

Note

1. Plastic or metal protrusions of 0.075 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT763-1	- - -	MO-241	- - -			~~02-10-17~~ 03-01-27

Fig. 17. Package outline SOT763-1 (DHVQFN16)

13. Abbreviations

Table 12. Abbreviations

Acronym	Description
CDM	Charged Device Model
CMOS	Complementary Metal Oxide Semiconductor
DUT	Device Under Test
ESD	ElectroStatic Discharge
HBM	Human Body Model
MIL	Military
MM	Machine Model

14. Revision history

Table 13. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
74HC_HCT4852_Q100 v.4	20200428	Product data sheet	-	74HC4852_Q100 v.1
Modifications:	• General description: updated. • Features updated. • Table 4: Derating values for P_{tot} total power dissipation have been updated.			
74HC4852_Q100 v.1	20120712	Product data sheet	-	-

15. Legal information

Data sheet status

Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.
[2] The term 'short data sheet' is explained in section "Definitions".
[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the internet at https://www.nexperia.com.

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