![Chipsmall logo]

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

QUICKSWITCH® PRODUCTS
HIGH-SPEED CMOS
QUICKSWITCH
8-BIT BUS SWITCH

IDTQS3244

FEATURES:
- Enhanced N channel FET with no inherent diode to Vcc
- 5Ω bidirectional switches connect inputs to outputs
- Pin compatible with 74F244, 74FCT244, and 74FCT244T
- Zero propagation delay, zero ground bounce
- Undershoot clamp diodes on all switch and control inputs
- Available in QSOP, SOIC, and TSSOP packages

APPLICATIONS:
- Hot-swapping, hot-docking
- Voltage translation (5V to 3.3V)
- Power conservation
- Capacitance reduction and isolation
- Logic replacement (data processing)
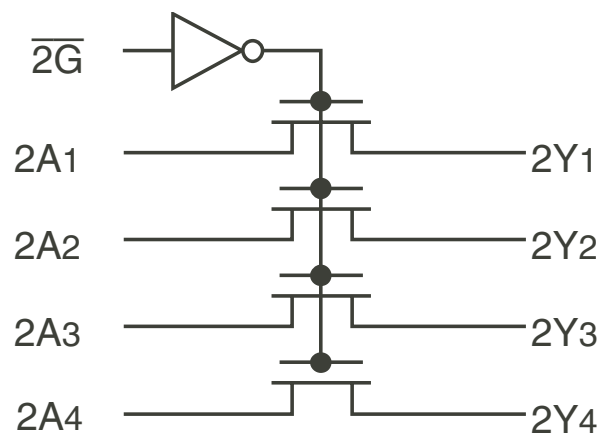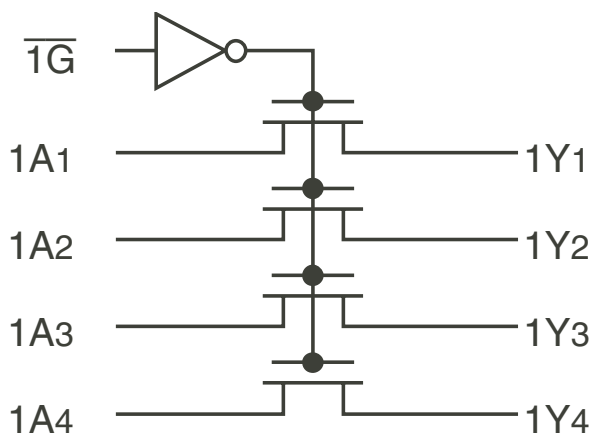- Clock gating
- Bus switching and isolation

DESCRIPTION:
The QS3244 provides a set of eight high-speed CMOS TTL-compatible bus switches in a pinout compatible with 74FCT244, 74F244, 74ALS/AS/LS244 8-bit drivers. The low ON resistance (5Ω) of the 3244 allows inputs to be connected to outputs without adding propagation delay and without generating additional ground bounce noise. The two enable ($\overline{xG}$) signals turn the switches on similar to the $\overline{xG}$ signals of the 74'244.
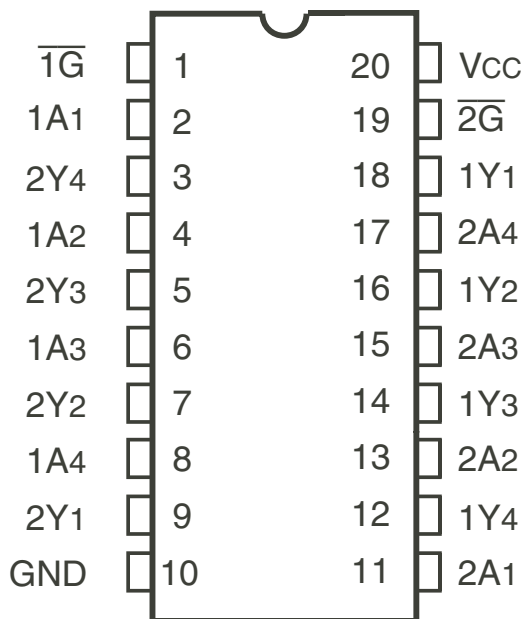
QuickSwitch devices provide an order of magnitude faster speed than conventional logic devices.

The QS3244 is characterized for operation at -40°C to +85°C.

FUNCTIONAL BLOCK DIAGRAM

INDUSTRIAL TEMPERATURE RANGE

FEBRUARY 2011

DSC-5722/9

PIN CONFIGURATION

```
        ┌─────∪─────┐
  1G ─┤ 1        20 ├─ VCC
 1A1 ─┤ 2        19 ├─ 2G
 2Y4 ─┤ 3        18 ├─ 1Y1
 1A2 ─┤ 4        17 ├─ 2A4
 2Y3 ─┤ 5        16 ├─ 1Y2
 1A3 ─┤ 6        15 ├─ 2A3
 2Y2 ─┤ 7        14 ├─ 1Y3
 1A4 ─┤ 8        13 ├─ 2A2
 2Y1 ─┤ 9        12 ├─ 1Y4
 GND ─┤ 10       11 ├─ 2A1
        └───────────┘
```

QSOP/ SOIC/ TSSOP
TOP VIEW

ABSOLUTE MAXIMUM RATINGS[1]

Symbol	Description	Max	Unit
V_{TERM}[2]	Supply Voltage to Ground	–0.5 to +7	V
V_{TERM}[3]	DC Switch Voltage Vs	–0.5 to +7	V
V_{TERM}[3]	DC Input Voltage V_{IN}	–0.5 to +7	V
V_{AC}	AC Input Voltage (pulse width ≤20ns)	–3	V
I_{OUT}	DC Output Current	120	mA
P_{MAX}	Maximum Power Dissipation (T_A = 85°C)	0.5	W
T_{STG}	Storage Temperature	–65 to +150	°C

NOTES:
1. Stresses greater than those listed under ABSOLUTE MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.
2. V_{CC} terminals.
3. All terminals except V_{CC}.

CAPACITANCE (T_A = +25°C, f = 1MHz, V_{IN} = 0V, V_{OUT} = 0V)

Pins	Typ.	Max.[1]	Unit
Control Inputs	3	5	pF
Quickswitch Channels (Switch OFF)	5	7	pF

NOTE:
1. This parameter is guaranteed but not production tested.

PIN DESCRIPTION

Pin Names	Description
1G, 2G	Output Enable
Ax, Yx	Data I/Os

FUNCTION TABLE[1]

1G	2G	1A, 1Y I/Os	2A, 2Y I/Os
H	H	Disconnected	Disconnected
L	H	1Ax = 1Yx	Disconnected
H	L	Disconnected	2Ax = 2Yx
L	L	1Ax = 1Yx	2Ax = 2Yx

NOTE:
1. H = HIGH Voltage Level
   L = LOW Voltage Level

DC ELECTRICAL CHARACTERISTICS OVER OPERATING RANGE

Following Conditions Apply Unless Otherwise Specified:
Industrial: T_A = –40°C to +85°C, V_{CC} = 5V ± 5%

Symbol	Parameter	Test Conditions	Min.	Typ.[1]	Max.	Unit
V_{IH}	Input HIGH Voltage	Guaranteed Logic HIGH for Control Inputs	2	—	—	V
V_{IL}	Input LOW Voltage	Guaranteed Logic LOW for Control Inputs	—	—	0.8	V
I_{IN}	Input Leakage Current (Control Inputs)	$0V \leq V_{IN} \leq V_{CC}$	—	—	±1	µA
I_{OZ}	Off-State Current (Hi-Z)	$0V \leq V_{OUT} \leq V_{CC}$, Switches OFF	—	—	±1	µA
R_{ON}	Switch ON Resistance	V_{CC} = Min., V_{IN} = 0V, I_{ON} = 30mA	—	5	7	Ω
		V_{CC} = Min., V_{IN} = 2.4V, I_{ON} = 15mA	—	10	12	
V_P	Pass Voltage[2]	$V_{IN} = V_{CC}$ = 5V, I_{OUT} = -5µA	3.7	4	4.2	V

NOTES:

1. Typical values are at V_{CC} = 5V and T_A = 25°C.
2. Pass voltage is guaranteed but not production tested.

TYPICAL ON RESISTANCE vs V_{IN} AT V_{CC} = 5V
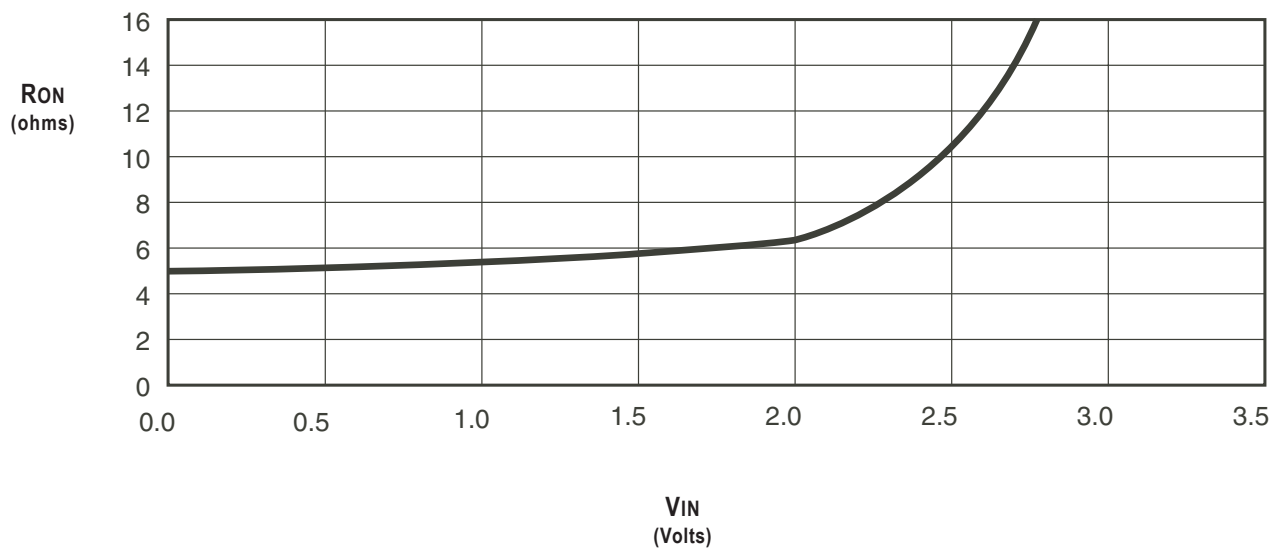
POWER SUPPLY CHARACTERISTICS

Symbol	Parameter	Test Conditions[1]	Max.	Unit
I_{CCQ}	Quiescent Power Supply Current	V_{CC} = Max., V_{IN} = GND or V_{CC}, f = 0	3	µA
ΔI_{CC}	Power Supply Current per Control Input HIGH[2]	V_{CC} = Max., V_{IN} = 3.4V, f = 0	2.5	mA
I_{CCD}	Dynamic Power Supply Current per MHz[3]	V_{CC} = Max., A and Y Pins Open, Control Inputs Toggling @ 50% Duty Cycle	0.25	mA/MHz

NOTES:
1. For conditions shown as Min. or Max., use the appropriate values specified under DC Electrical Characteristics.
2. Per TTL-driven input (V_{IN} = 3.4V, control inputs only). A and Y pins do not contribute to ΔI_{CC}.
3. This current applies to the control inputs only and represents the current required to switch internal capacitance at the specified frequency. The A and Y inputs generate no significant AC or DC currents as they transition. This parameter is guaranteed but not production tested.

SWITCHING CHARACTERISTICS OVER OPERATING RANGE
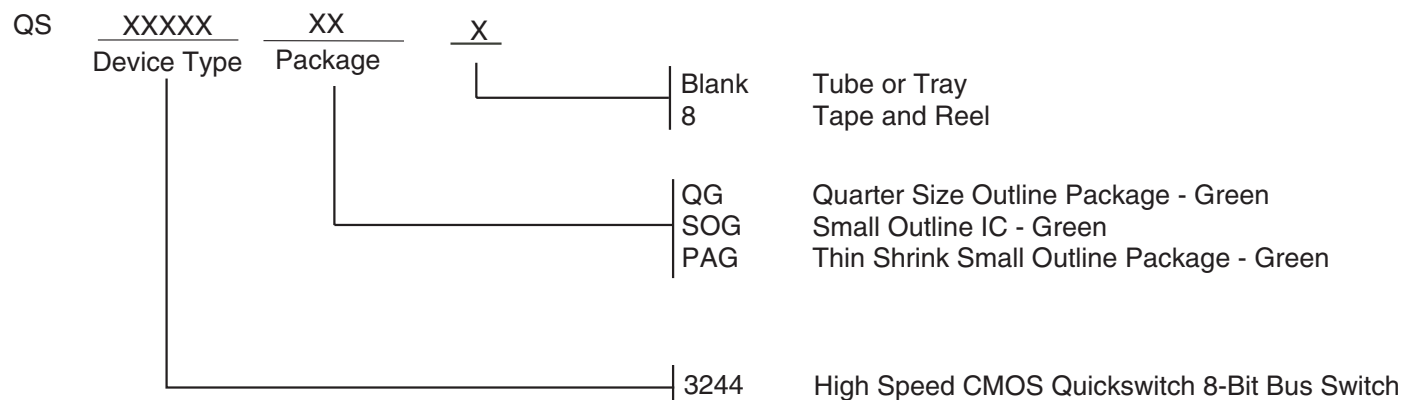
T_A = -40°C to +85°C, V_{CC} = 5V ± 5%

C_{LOAD} = 50pF, R_{LOAD} = 500Ω unless otherwise noted.

Symbol	Parameter	Min. [1]	Typ.	Max.	Unit
t_{PLH} t_{PHL}	Data Propagation Delay[2] Ax to Yx	—	—	0.25[3]	ns
t_{PZL} t_{PZH}	Switch Turn-On Delay $\overline{1G}$, $\overline{2G}$ to Yx	0.5	—	5.6	ns
t_{PLZ} t_{PHZ}	Switch Turn-Off Delay[2] $\overline{1G}$, $\overline{2G}$ to Yx	0.5	—	5.2	ns

NOTES:
1. Minimums are guaranteed but not production tested.
2. This parameter is guaranteed but not production tested.
3. The bus switch contributes no propagation delay other than the RC delay of the ON resistance of the switch and the load capacitance. The time constant for the switch alone is of the order of 0.25ns at C_L = 50pF. Since this time constant is much smaller than the rise and fall times of typical driving signals, it adds very little propagation delay to the system. Propagation delay of the bus switch, when used in a system, is determined by the driving circuit on the driving side of the switch and its interaction with the load on the driven side.

ORDERING INFORMATION

QS   XXXXX   XX   X
 Device Type Package

Blank	Tube or Tray
8	Tape and Reel

QG	Quarter Size Outline Package - Green
SOG	Small Outline IC - Green
PAG	Thin Shrink Small Outline Package - Green

3244	High Speed CMOS Quickswitch 8-Bit Bus Switch

Datasheet Document History

02/14/2011   Pg. 5   Updated the ordering information by removing the "IDT" notation, non RoHS part and by adding Tape and Reel information.