



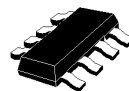
74V2G384

DUAL HIGH SPEED BUS SWITCH

- HIGH SPEED: $t_{PD} = 0.5\text{ns}$ (TYP.) at $V_{CC} = 5\text{V}$
- LOW POWER DISSIPATION:
 $I_{CC} = 1\mu\text{A}$ (MAX.) at $T_A = 25^\circ\text{C}$
- LOW "ON" RESISTANCE at $V_{CC}=5.0\text{V}$:
 $R_{ON} = 7\Omega$ (TYP), $V_{IN}=0\text{V}$, $I_{IO}=30\text{mA}$
 $R_{ON} = 20\Omega$ (TYP), $V_{IN}=2.4\text{V}$, $I_{IO}=10\text{mA}$
- OPERATING VOLTAGE RANGE:
 V_{CC} (OPR.) = 3.0V TO 5.5V
- 5V TOLERANT ON CONTROL PIN
- HIGH NOISE IMMUNITY:
 $V_{NIH} = V_{NIL} = 28\% V_{CC}$ (MIN.)

DESCRIPTION

The 74V2G384 is an advanced high-speed CMOS DUAL HIGH SPEED BUS SWITCH fabricated in silicon gate $C^2\text{MOS}$ technology. It's designed to operate from 3V to 5.5V, making this device ideal for portable applications. It's offers 7Ω Resistance typical value at $V_{CC}=4.5\text{V}$. Additional key feature



SOT23-8L

ORDER CODES

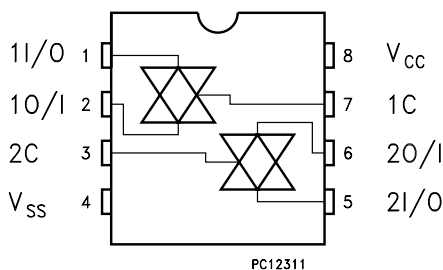
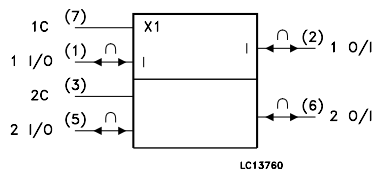
PACKAGE	T & R
SOT23-8L	74V2G384STR

are fast switching speed ($t_{ON}=3.8\text{ns}$, $t_{OFF}=3.3\text{ns}$ Typical) and Low Power Consumption.

The OE input is provided to control the switch; the switch is ON when the OE input is held low and OFF when OE is held high.

It's available in the commercial and extended temperature range in SOT23-8L package.

PIN CONNECTION AND IEC LOGIC SYMBOLS



[illegible]

PIN No	SYMBOL	NAME AND FUNCTION
1, 5	1I/O, 2I/O	Independent Input/Output
2, 6	1O/I, 2O/I	Independent Output/Input
7, 3	$\overline{1OE}, \overline{2OE}$	Enable Input (Active HIGH)
4	GND	Ground (0V)
8	V _{CC}	Positive Supply Voltage

$\overline{\text{OE}}$	SWITCH FUNCTION
L	ON
H	OFF *

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	-0.5 to +7.0	V
V_I	DC Input Voltage	-0.5 to $V_{CC} + 0.5$	V
V_{IC}	DC Control Input Voltage	-0.5 to +7.0	V
V_O	DC Output Voltage	-0.5 to $V_{CC} + 0.5$	V
I_{IK}	DC Input Diode Current	± 20	mA
I_{IK}	DC Control Input Diode Current	- 20	mA
I_{OK}	DC Output Diode Current	± 20	mA
I_O	DC Output Current	± 50	mA
I_{CC} or I_{GND}	DC V_{CC} or Ground Current	± 50	mA
T_{stg}	Storage Temperature	-65 to +150	°C
T_L	Lead Temperature (10 sec)	300	°C

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	3 to 5.5	V
V_I	Input Voltage	0 to V_{CC}	V
V_{IC}	Control Input Voltage	0 to 5.5	V
V_O	Output Voltage	0 to V_{CC}	V
T_{op}	Operating Temperature	-55 to 125	°C
dt/dv	Input Rise and Fall Time (note 1) $V_{CC} = 5.0V$	0 to 20	ns/V

DC SPECIFICATIONS

Symbol	Parameter	Test Condition		Value						Unit	
		V _{CC} (V)		T _A = 25°C			-40 to 85°C		-55 to 125°C		
				Min.	Typ.	Max.	Min.	Max.	Min.		Max.
V _{IH}	High Level Input Voltage	2.0		1.5			1.5		1.5		V
		3.0 to 5.5		0.7V _{CC}			0.7V _{CC}		0.7V _{CC}		
V _{IL}	Low Level Input Voltage	2.0				0.5		0.5		0.5	V
		3.0 to 5.5				0.3V _{CC}		0.3V _{CC}		0.3V _{CC}	
R _{ON}	ON Resistance	3.0	V _{IC} = V _{IL} V _{I/O} = GND I _{I/O} ≤ 30 mA		9			13		20	Ω
		4.5	V _{IC} = V _{IL} V _{I/O} = GND I _{I/O} ≤ 30 mA		7			10		15	Ω
R _{ON}	ON Resistance	3.0	V _{IC} = V _{IL} V _{I/O} = 1.5V I _{I/O} ≤ 10 mA		32			60		80	Ω
		4.5	V _{IC} = V _{IL} V _{I/O} = 2.4V I _{I/O} ≤ 10 mA		20			40		60	Ω
I _{OFF}	Input/Output Leakage Current (SWITCH OFF)	5.5	V _{OS} = V _{CC} to GND V _{IS} = V _{CC} to GND V _{IC} = V _{IH}			±0.1		± 1		± 10	μA
I _{IN}	Control Input Leakage Current	0 to 5.5	V _{IC} = 5.5V or GND			± 0.1		± 1.0		± 1.0	μA
I _{CC}	Quiescent Supply Current	5.5	V _I = V _{CC} or GND			1		10		20	μA

AC ELECTRICAL CHARACTERISTICS (C_L = 50pF, Input t_r = t_f = 3ns)

Symbol	Parameter	Test Condition		Value						Unit	
		V _{CC} (V)		T _A = 25°C			-40 to 85°C		-55 to 125°C		
				Min.	Typ.	Max.	Min.	Max.	Min.		Max.
t _{PD}	Delay Time	3.3 ^(*)	t _r = t _f = 6ns		0.8	1.2		1.5		2.0	ns
		5.0 ^(**)	t _r = t _f = 6ns		0.5	0.8		1.0		1.5	
t _{PLZ} t _{PHZ}	Output Disable Time	3.3 ^(*)	R ₁ = 500Ω V _{IN} =1.5V		8.5	12.0		14.0		16.0	ns
		5.0 ^(**)	R ₁ = 500 Ω V _{IN} =2.4V		3.8	6.5		9.0		10.0	
t _{PZL} t _{PZH}	Output Enable Time	3.3 ^(*)	R ₁ = 1KΩ V _{IN} =1.5V		7.3	12.0		14.0		16.0	ns
		5.0 ^(**)	R ₁ = 1KΩ V _{IN} =2.4V		3.3	5.0		7.5		8.5	

(*) Voltage range is 3.3V ± 0.3V

(**) Voltage range is 5.0V ± 0.5V

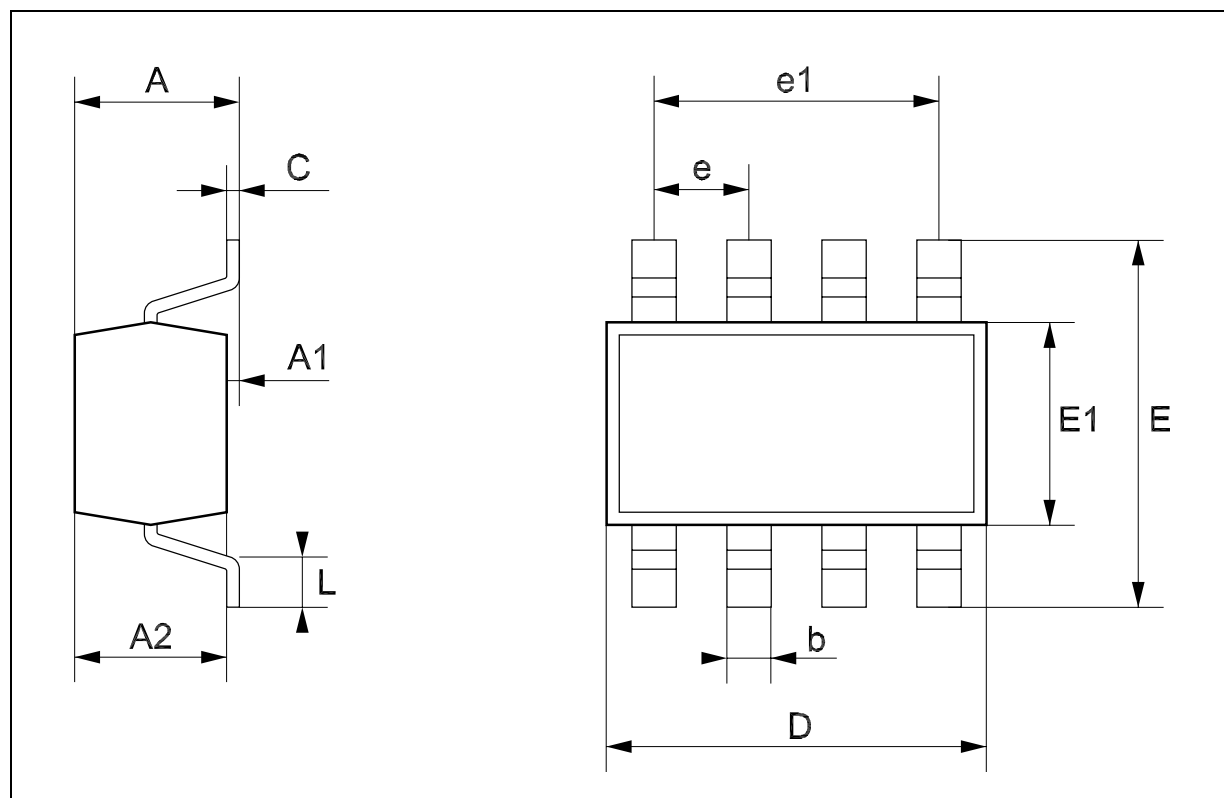
CAPACITIVE CHARACTERISTICS

Symbol	Parameter	Test Condition		Value						Unit	
		V _{CC} (V)		T _A = 25°C			-40 to 85°C		-55 to 125°C		
				Min.	Typ.	Max.	Min.	Max.	Min.		Max.
C _{IN}	Input Capacitance				4	10		10		10	pF
C _{I/O}	Output Capacitance				7						pF
C _{PD}	Power Dissipation Capacitance (note 1)	3.3			2.5						pF
		5.0			3						

1) C_{PD} is defined as the value of the IC's internal equivalent capacitance which is calculated from the operating current consumption without load. (Refer to Test Circuit). Average operating current can be obtained by the following equation. $I_{CC(opr)} = C_{PD} \times V_{CC} \times f_{IN} + I_{CC}$

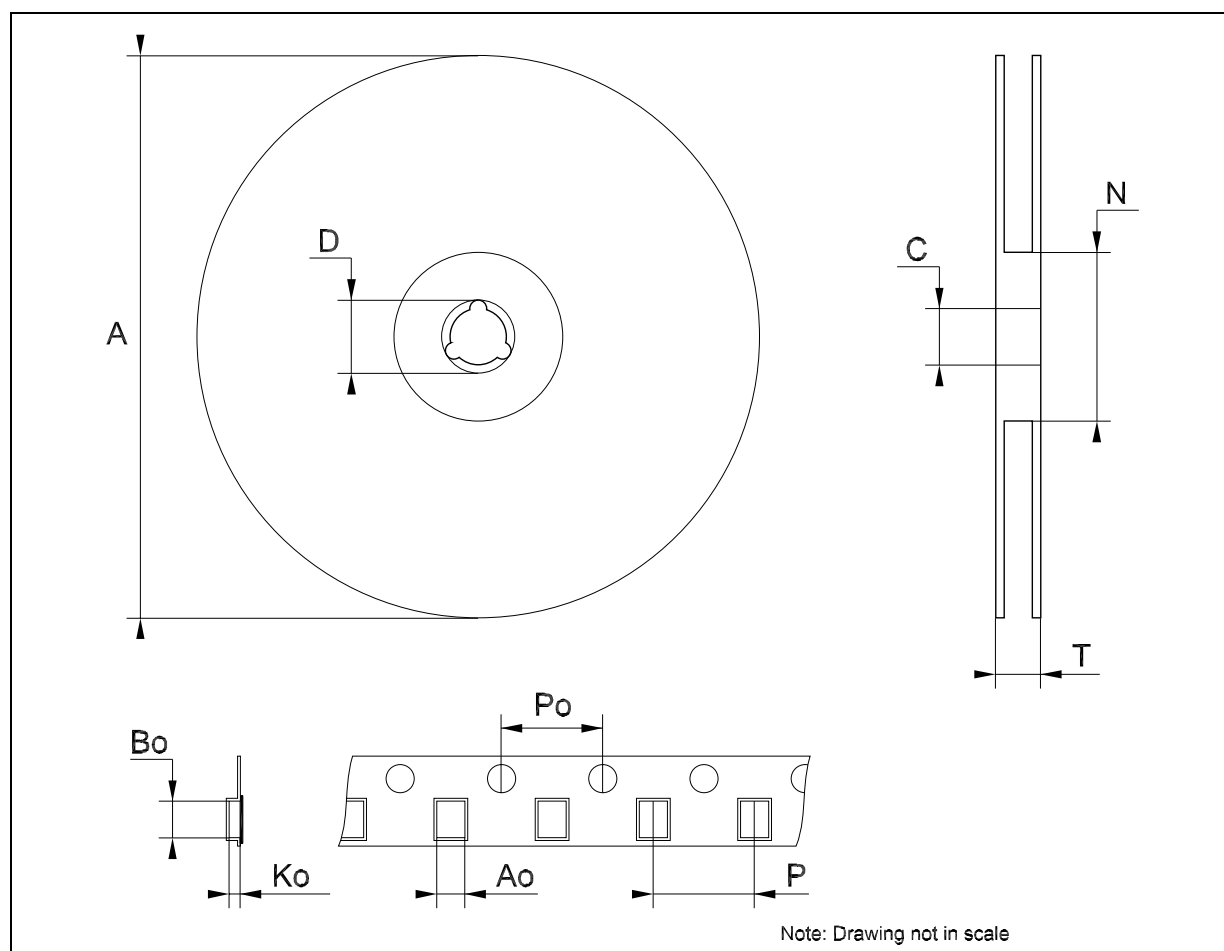
SOT23-8L MECHANICAL DATA

DIM.	mm.			mils		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	0.90		1.45	35.4		57.1
A1	0.00		0.15	0.0		5.9
A2	0.90		1.30	35.4		51.2
b	0.22		0.38	8.6		14.9
C	0.09		0.20	3.5		7.8
D	2.80		3.00	110.2		118.1
E	2.60		3.00	102.3		118.1
E1	1.50		1.75	59.0		68.8
e	0	.65			25.6	
e1		1.95			76.7	
L	0.35		0.55	13.7		21.6



Tape & Reel SOT23-xL MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A			180			7.086
C	12.8	13.0	13.2	0.504	0.512	0.519
D	20.2			0.795		
N	60			2.362		
T			14.4			0.567
Ao	3.13	3.23	3.33	0.123	0.127	0.131
Bo	3.07	3.17	3.27	0.120	0.124	0.128
Ko	1.27	1.37	1.47	0.050	0.054	0.058
Po	3.9	4.0	4.1	0.153	0.157	0.161
P	3.9	4.0	4.1	0.153	0.157	0.161



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