3.3V/2.5V/1.8V/1.5V 160 MHz 1:4 LVCMOS/LVTTL Low Skew Over Voltage Tolerant Fanout Buffer

Description

The NB3U1548C is an LVCMOS, overvoltage tolerant clock fanout buffer targeted for clock generation in high performance telecommunication, networking and computing applications. The device is optimized for low skew clock distribution in low voltage applications. The input overvoltage tolerance enables using this device in mixed mode voltage applications. An output enable pin controls whether the outputs are in the active or high impedance state. Guaranteed output skew characteristics make the NB3U1548C ideal for those applications demanding well defined performance and repeatability. The NB3U1548C is packaged in a small SOIC–8 and in an TSSOP–8 package.

Features

- Low skew 1:4 Fanout Buffer
- Supports 3.3 V, 2.5 V, 1.8 V and 1.5 V Power Supplies
- LVCMOS Input and Output Levels
- 3.6 V Overvoltage Tolerance at the Clock and Control Inputs
- Supports Clock Frequencies up to 160 MHz
- LVCMOS Compatible Control Input for Output Disable
- Output Disabled to a High Impedance State
- -40°C to 85°C Ambient Operating Temperature
- Available in Pb–Free RoHS Compliant Packages (SOIC–8, TSSOP–8)
- These Devices are Pb-Free and are RoHS Compliant

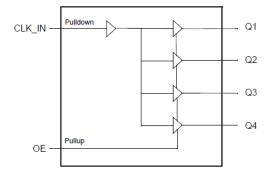


Figure 1. Block Diagram



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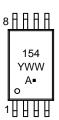
MARKING DIAGRAMS



CASE 751







A = Assembly Location

L = Wafer Lot Y = Year

W, WW = Work Week
■ Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information on page 9 of this data sheet

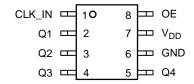


Figure 2. Pin Configuration (Top View)

Table 1. PIN DESCRIPTIONS

Number	Name	Т	уре	Description
1	CLK_IN	Input	Pulldown	Single-ended clock input. LVCMOS interface levels.
2	Q1	Output		Single-ended clock output. LVCMOS interface levels.
3	Q2	Output		Single-ended clock output. LVCMOS interface levels.
4	Q3	Output		Single-ended clock output. LVCMOS interface levels.
5	Q4	Output		Single-ended clock output. LVCMOS interface levels.
6	GND	Power		Power supply ground.
7	VDD	Power		Power supply pin.
8	OE	Input	Pullup	Output enable pin. See Table 3. LVCMOS interface levels.

NOTE: Pullup and Pulldown refer to internal input resistors. See Table 2, Pin Characteristics, for typical values.

Table 2. PIN CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min	Тур	Max	Units
CIN	Input Capacitance			4		pF
CPD	Power Dissipation Capacitance	V _{DD} = 3.465 V		14		pF
		V _{DD} = 2.375 V		13		pF
		V _{DD} = 1.95 V		13		pF
		V _{DD} = 1.6 V		12		pF
RPULLUP	Input Pullup Resistor			51		kΩ
RPULLDOWN	Input Pulldown Resistor			51		kΩ
Rout	Output Impedance	$V_{DD} = 3.3 \text{ V} \pm 5\%$		9		Ω
		$V_{DD} = 2.5 \text{ V} \pm 5\%$		10		Ω
		$V_{DD} = 1.8 \text{ V} \pm 0.15 \text{ V}$		12		Ω
		$V_{DD} = 1.5 \pm 0.1 \text{ V}$		15		Ω

Function Table

Table 3. OE CONFIGURATION TABLE

Input		
OE	Operation	
0	Q[4:1] disabled (high-impedance)	
1 (default)	Q[4:1] enabled	

NOTE: OE is an asynchronous control.

Table 4. ABSOLUTE MAXIMUM RATINGS

Item	Rating
Supply Voltage, V _{DD}	4.6 V
Inputs, V _I	3.6 V
Outputs, V _O	-0.5 V to V _{DD} + 0.5 V
Package Thermal Impedance, θ_{JA} 8 Lead SOIC 8 Lead TSSOP	102.5°C/W (0 mps) 151.2°C/W (0 mps)
Storage Temperature, T _{STG}	-65°C to 150°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. JEDEC standard multilayer board – 2S2P (2 signal, 2 power) with 6 cm² copper area.

2. For additional information, see Application Note AND8003/D.

Symbol	Parameter		Test Conditions	Min	Тур	Max	Units
POWER SUPP	PLY DC CHARACTERISTICS, V _{DI}	_D = 3.3 V ± 5%	o, T _A = -40°C to 85°C				
V _{DD}	Power Supply Voltage			3.135	3.3	3.465	V
I _{DDQ}	Quiescent Power Supply Co	urrent	Inputs Open, Outputs Unloaded			1	mA
POWER SUPF	PLY DC CHARACTERISTICS, V _{DI}	_D = 2.5 V ± 5%	, T _A = -40°C to 85°C				
V _{DD}	Power Supply Voltage	•		2.375	2.5	2.625	V
I _{DDQ}	Quiescent Power Supply Co	urrent	Inputs Open, Outputs Unloaded			1	mA
POWER SUPF	PLY DC CHARACTERISTICS, V _{DI}	_D = 1.8 V ± 0.1	5 V, T _A = -40°C to 85°C				
V_{DD}	Power Supply Voltage			1.65	1.8	1.95	V
I _{DDQ}	Quiescent Power Supply Current		Inputs Open, Outputs Unloaded			1	mA
POWER SUPF	PLY DC CHARACTERISTICS, V _{DI}	_D = 1.5 V ± 0.1	V, $T_A = -40^{\circ}C$ to $85^{\circ}C$				
V_{DD}	Power Supply Voltage			1.4	1.5	1.6	V
I _{DDQ}	Quiescent Power Supply Current		Inputs Open, Outputs Unloaded			1	mA
LVCMOS DC	CHARACTERISTICS, V _{DD} = 3.3 V	′ ± 5%, T _A = -4	40°C to 85°C				
V _{IH}	Input High Voltage			0.65 * V _{DD}		3.6	V
V _{IL}	Input Low Voltage			-0.3		0.35 * V _{DD}	V
I _{IH}	Input High Current	CLK_IN	V _{DD} = V _{IN} = 3.465 V			165	μΑ
		OE	$V_{DD} = V_{IN} = 3.465 \text{ V}$			5	μΑ
I _{IL}	Input Low Current	CLK_IN	$V_{DD} = 3.465 \text{ V}, V_{IN} = 0 \text{ V}$	- 5			μΑ
		OE	$V_{DD} = 3.465 \text{ V}, V_{IN} = 0 \text{ V}$	-150			μΑ
V _{OH}	Output High Voltage	Q[4:1]	$I_{OH} = -12 \text{ mA}$	2.6			V
V _{OL}	Output Low Voltage	Q[4:1]	I _{OL} = 12 mA			0.5	V
LVCMOS DC	CHARACTERISTICS, V _{DD} = 2.5 V	± 5%, T _A = -4	40°C to 85°C				
V_{IH}	Input High Voltage			0.65 * V _{DD}		3.6	٧
V_{IL}	Input Low Voltage			-0.3		0.35 * V _{DD}	٧
I _{IH}	Input High Current	CLK_IN	$V_{DD} = V_{IN} = 2.625 \text{ V}$			165	μΑ
		OE	$V_{DD} = V_{IN} = 2.625 \text{ V}$			5	μΑ
I _{IL}	Input Low Current	CLK_IN	$V_{DD} = 2.625 \text{ V}, V_{IN} = 0 \text{ V}$	- 5			μΑ
		OE	$V_{DD} = 2.625 \text{ V}, V_{IN} = 0 \text{ V}$	-150			μΑ

Table 5. DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter		Test Conditions	Min	Тур	Max	Units
LVCMOS DC	CHARACTERISTICS, V _{DD} = 2.5 V	± 5%, T _A = -4	0°C to 85°C	•			
V _{OH}	Output High Voltage	Q[4:1]	I _{OH} = -12 mA	1.8			V
V _{OL}	Output Low Voltage	Q[4:1]	I _{OL} = 12 mA			0.5	٧
LVCMOS DC	CHARACTERISTICS, V _{DD} = 1.8 V	± 0.15 V, T _A =	-40°C to 85°C				
V_{IH}	Input High Voltage			0.65 * V _{DD}		3.6	V
V_{IL}	Input Low Voltage			-0.3		0.35 * V _{DD}	V
I _{IH}	Input High Current	CLK_IN	V _{DD} = V _{IN} = 1.95 V			165	μΑ
		OE				5	μΑ
I _{IL}	Input Low Current	CLK_IN	V _{DD} = 1.95 V, V _{IN} = 0 V	-5			μΑ
		OE	V _{DD} = 1.95 V, V _{IN} = 0 V	-150			μΑ
V _{OH}	Output High Voltage	Q[4:1]	I _{OH} = -6 mA	V _{DD} – 0.45			V
V _{OL}	Output Low Voltage	Q[4:1]	I _{OL} = 6 mA			0.45	V
LVCMOS DC	CHARACTERISTICS, V _{DD} = 1.5 V	± 0.1 V, T _A = -	-40°C to 85°C				
V_{IH}	Input High Voltage			0.65 * V _{DD}		3.6	V
V _{IL}	Input Low Voltage			-0.3		0.35 * V _{DD}	V
lін	Input High Current	CLK_IN	V _{DD} = V _{IN} = 1.6 V			165	μΑ
		OE	V _{DD} = V _{IN} = 1.6 V			5	μΑ
I _{IL}	Input Low Current	CLK_IN	V _{DD} = 1.6 V, V _{IN} = 0 V	-5			μΑ
		OE	V _{DD} = 1.6 V, V _{IN} = 0 V	-150			μΑ
V _{OH}	Output High Voltage	Q[4:1]	$I_{OH} = -4 \text{ mA}$	0.75 * V _{DD}			V
V _{OL}	Output Low Voltage	Q[4:1]	$I_{OL} = 4 \text{ mA}$			0.25 * V _{DD}	V

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

	C ELECTRICAL CHARACTERISTICS	T	B.C.	T - T		T
Symbol	Parameter	Test Conditions	Min	Тур	Max	Units
AC CHARA	CTERISTICS, $V_{DD} = 3.3 \text{ V} \pm 5\%$, $T_A = -40^{\circ}\text{C}$	to 85°C				
f _{OUT}	Output Frequency				160	MHz
tp _{LH}	Propagation Delay (low to high transition); (Notes 4, 8)		0.7		2.1	ns
tp _{HL}	Propagation Delay (high to low transition); (Notes 4, 8)		0.7		2.1	ns
t _{PLZ} , t _{PHZ}	Disable Time, (active to high-impedance)				10	ns
t_{PZL}, t_{PZH}	Enable Time, (high-impedance to active)				10	ns
tsk(o)	Output Skew; (Notes 5, 6)				250	ps
tsk(pp)	Part-to-Part Skew; (Notes 5, 7)				800	ps
tjit	Buffer Additive Phase Jitter, RMS	25 MHz, Integration Range: 12 kHz – 5 MHz		0.094		ps
t _R / t _F	Output Rise/Fall Time	10% to 90%	0.33		1.2	ns
odc	Output Duty Cycle		48		53	%
AC CHARA	CTERISTICS, V_{DD} = 2.5 V ± 5%, T_A = -40°C	to 85°C		•		•
fout	Output Frequency				160	MHz
tp _{LH}	Propagation Delay (low to high transition); (Notes 4, 8)		0.8		2.0	ns
tp _{HL}	Propagation Delay (high to low transition); (Notes 4, 8)		0.8		2.0	ns
t_{PLZ} , t_{PHZ}	Disable Time (active to high-impedance)				10	ns
t _{PZL} , t _{PZH}	Enable Time (high-impedance to active)				10	ns
tsk(o)	Output Skew; (Notes 5, 6)				250	ps
tsk(pp)	Part-to-Part Skew; (Notes 5, 7)				800	ps
tjit	Buffer Additive Phase Jitter, RMS	25 MHz, Integration Range: 12 kHz – 5 MHz		0.076		ps
t _R / t _F	Output Rise/Fall Time	10% to 90%	0.33		1.2	ns
odc	Output Duty Cycle		45		53	%
AC CHARA	CTERISTICS, $V_{DD} = 1.8 \text{ V} \pm 0.15 \text{ V}$, $T_A = -40$	°C to 85°C				
f _{OUT}	Output Frequency				160	MHz
tp _{LH}	Propagation Delay (low to high transition); (Notes 4, 8)		1.1		2.8	ns
tp _{HL}	Propagation Delay (high to low transition); (Notes 4, 8)		1.1		2.8	ns
t _{PLZ} , t _{PHZ}	Disable Time (active to high-impedance)				10	ns
t _{PZL} , t _{PZH}	Enable Time (high-impedance to active)				10	ns
tsk(o)	Output Skew; (Notes 5, 6)				250	ps
tsk(pp)	Part-to-Part Skew; (Notes 5, 7)				800	ps
tjit	Buffer Additive Phase Jitter, RMS	25 MHz, Integration Range:		0.193		ps

NOTE: Device will meet the specifications after thermal equilibrium has been established when mounted in a test socket or printed circuit board with maintained transverse airflow greater than 500 lfpm.

12 kHz – 5MHz

- Characterized up to F_{OUT} ≤ 150 MHz.
 Measured from the V_{DD}/2 of the input to V_{DD}/2 of the output.
 This parameter is defined in accordance with JEDEC Standard 65.
 Defined as skew between outputs at the same supply voltage and with equal load conditions. Measured at V_{DD}/2.
- Defined as skew between outputs on different devices operating at the same supply voltage, same temperature, same frequency and with equal load conditions. Using the same type of inputs on each device, the outputs are measured at V_{DD}/2.
- 8. With rail to rail input clock.

Table 6. AC ELECTRICAL CHARACTERISTICS

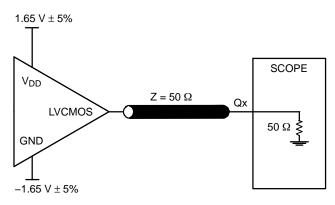
Symbol	Parameter	Test Conditions	Min	Тур	Max	Units
AC CHARAC	CTERISTICS, $V_{DD} = 1.8 \text{ V} \pm 0.15 \text{ V}, T_{A} = -40^{\circ}$	°C to 85°C	•			
t_R/t_F	Output Rise/Fall Time	0.63 V to 1.17 V	0.11		0.6	ns
odc	Output Duty Cycle		47		53	%
AC CHARAC	CTERISTICS, V_{DD} = 1.5 V ± 0.1 V, T_A = -40°C	C to 85°C				
fout	Output Frequency				160	MHz
tp _{LH}	Propagation Delay (low to high transition); (Notes 4, 8)		1.5		3.5	ns
tp⊔ı	Propagation Delay		1.5		3.5	ns

YHL	(high to low transition); (Notes 4, 8)		1.5		3.3	113
t _{PLZ} , t _{PHZ}	Disable Time (active to high-impedance)				10	ns
t _{PZL} , t _{PZH}	Enable Time (high-impedance to active)				10	ns
tsk(o)	Output Skew; (Notes 5, 6)				250	ps
tsk(pp)	Part-to-Part Skew; (Notes 5, 7)				800	ps
tjit	Buffer Additive Phase Jitter, RMS	25 MHz, Integration Range: 12 kHz – 5 MHz		0.266		ps
t _R / t _F	Output Rise/Fall Time	0.525 V to 0.975 V	0.11		0.6	ns
odc	Output Duty Cycle		47		53	%

NOTE: Device will meet the specifications after thermal equilibrium has been established when mounted in a test socket or printed circuit board with maintained transverse airflow greater than 500 lfpm.

- Characterized up to F_{OUT} ≤ 150 MHz.
 Measured from the V_{DD}/2 of the input to V_{DD}/2 of the output.
 This parameter is defined in accordance with JEDEC Standard 65.
 Defined as skew between outputs at the same supply voltage and with equal load conditions. Measured at V_{DD}/2.
- 7. Defined as skew between outputs on different devices operating at the same supply voltage, same temperature, same frequency and with equal load conditions. Using the same type of inputs on each device, the outputs are measured at V_{DD}/2.
- 8. With rail to rail input clock.

Parameter Measurement Information



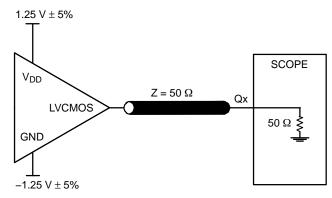
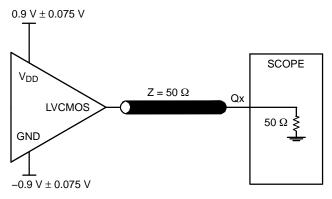


Figure 3. 3.3 V Output Load AC Test Circuit

Figure 4. 2.5 V Output Load AC Test Circuit





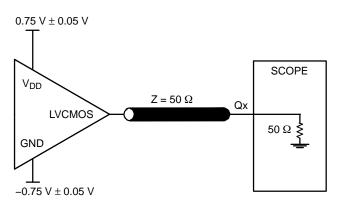


Figure 6. 1.5 V Output Load AC Test Circuit

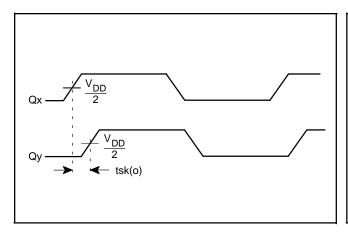


Figure 7. Output Skew

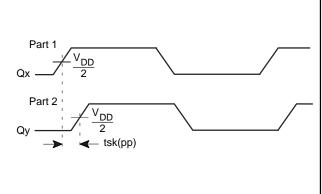
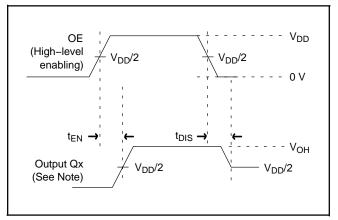


Figure 8. Part-to-Part Skew

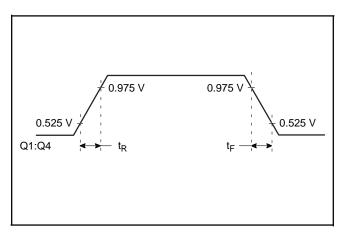
Parameter Measurement Information, (continued)



Q1:Q4 t_{PW} t_{PERIOD} $odc = \frac{t_{PW}}{t_{PERIOD}} \times 100\%$

Figure 9. Output Enable/Disable Time

Figure 10. Output Duty Cycle/Pulse Width/Period



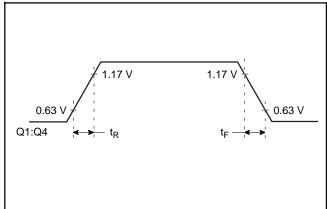
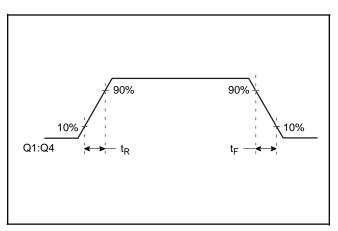


Figure 11. 1.5 V Output Rise/Fall Time

Figure 12. 1.8 V Output Rise/Fall Time



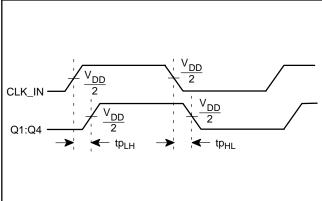


Figure 13. 2.5 V and 3.3 V Output Rise/Fall Time

Figure 14. Propagation Delay

Table 7. THERMAL RESISTANCE θ_{1A}

	θ_{JA} by Velocity		
FOR 8 LEAD SOIC, FORCED CONVECTION			
Meters per Second	0	1	2.5
Multi-Layer PCB, JEDEC Standard Test Boards	102.5°C/W	93.5°C/W	88.6°C/W
FOR 8 LEAD TSSOP, FORCED CONVECTION			
Meters per Second	0	1	2.5
Multi-Layer PCB, JEDEC Standard Test Boards	151.2°C/W	145.9°C/W	143.3°C/W
	θ _{JA} by Velocity	ı	

Table 8. ORDERING INFORMATION

Device	Package	Shipping [†]
NB3U1548CDG	SOIC-8 (Pb-Free)	96 Units / Tube
NB3U1548CDR2G	SOIC-8 (Pb-Free)	3000 / Tape & Reel
NB3U1548CDTR2G	TSSOP-8 (Pb-Free)	2500 / Tape & Reel

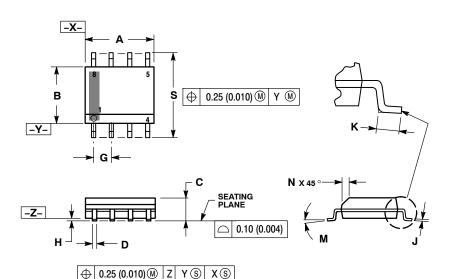
[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.





SOIC-8 NB CASE 751-07 **ISSUE AK**

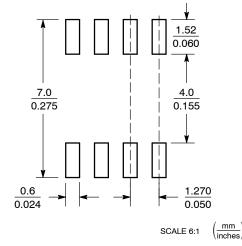
DATE 16 FEB 2011



- NOTES:
 1. DIMENSIONING AND TOLERANCING PER
- ANSI Y14.5M, 1982.
 CONTROLLING DIMENSION: MILLIMETER.
- DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
- MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE
- DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.
- 751-01 THRU 751-06 ARE OBSOLETE. NEW STANDARD IS 751-07.

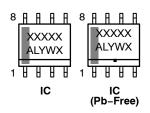
	MILLIMETERS		INC	HES
DIM	MIN	MAX	MIN	MAX
Α	4.80	5.00	0.189	0.197
В	3.80	4.00	0.150	0.157
С	1.35	1.75	0.053	0.069
D	0.33	0.51	0.013	0.020
G	1.27	7 BSC	0.050 BSC	
Н	0.10	0.25	0.004	0.010
J	0.19	0.25	0.007	0.010
K	0.40	1.27	0.016	0.050
М	0 °	8 °	0 °	8 °
N	0.25	0.50	0.010	0.020
S	5.80	6.20	0.228	0.244

SOLDERING FOOTPRINT*



^{*}For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

GENERIC MARKING DIAGRAM*



XXXXX = Specific Device Code = Assembly Location = Wafer Lot = Year = Work Week

= Pb-Free Package

XXXXXX = Specific Device Code = Assembly Location Α = Year ww = Work Week = Pb-Free Package

XXXXXX

AYWW

Discrete

Ŧ \mathbb{H} AYWW

Discrete (Pb-Free)

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

STYLES ON PAGE 2

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DESCRIPTION:	SOIC-8 NB		PAGE 1 OF 2

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SOIC-8 NB CASE 751-07 ISSUE AK

DATE 16 FEB 2011

STYLE 1: PIN 1. EMITTER 2. COLLECTOR 3. COLLECTOR 4. EMITTER 5. EMITTER 6. BASE 7. BASE 8. EMITTER	STYLE 2: PIN 1. COLLECTOR, DIE, #1 2. COLLECTOR, #1 3. COLLECTOR, #2 4. COLLECTOR, #2 5. BASE, #2 6. EMITTER, #2 7. BASE, #1 8. EMITTER, #1	STYLE 3: PIN 1. DRAIN, DIE #1 2. DRAIN, #1 3. DRAIN, #2 4. DRAIN, #2 5. GATE, #2 6. SOURCE, #2 7. GATE, #1 8. SOURCE, #1	STYLE 4: PIN 1. ANODE 2. ANODE 3. ANODE 4. ANODE 5. ANODE 6. ANODE 7. ANODE 8. COMMON CATHODE
STYLE 5: PIN 1. DRAIN 2. DRAIN 3. DRAIN 4. DRAIN 5. GATE 6. GATE 7. SOURCE 8. SOURCE	PIN 1. SOURCE 2. DRAIN 3. DRAIN 4. SOURCE 5. SOURCE 6. GATE 7. GATE 8. SOURCE	PIN 1. INPUT 2. EXTERNAL BYPASS 3. THIRD STAGE SOURCE 4. GROUND 5. DRAIN 6. GATE 3 7. SECOND STAGE Vd 8. FIRST STAGE Vd	PIN 1. COLLECTOR, DIE #1 2. BASE, #1
STYLE 9: PIN 1. EMITTER, COMMON 2. COLLECTOR, DIE #1 3. COLLECTOR, DIE #2 4. EMITTER, COMMON 5. EMITTER, COMMON 6. BASE, DIE #2 7. BASE, DIE #1 8. EMITTER, COMMON	STYLE 10: PIN 1. GROUND 2. BIAS 1 3. OUTPUT 4. GROUND 5. GROUND 6. BIAS 2 7. INPUT 8. GROUND	STYLE 11: PIN 1. SOURCE 1 2. GATE 1 3. SOURCE 2 4. GATE 2 5. DRAIN 2 6. DRAIN 2 7. DRAIN 1	STYLE 12: PIN 1. SOURCE 2. SOURCE 3. SOURCE 4. GATE 5. DRAIN 6. DRAIN 7. DRAIN 9. DRAIN
STYLE 13: PIN 1. N.C. 2. SOURCE 3. SOURCE 4. GATE 5. DRAIN 6. DRAIN 7. DRAIN 8. DRAIN	STYLE 14: PIN 1. N-SOURCE 2. N-GATE 3. P-SOURCE 4. P-GATE 5. P-DRAIN 6. P-DRAIN 7. N-DRAIN 8. N-DRAIN	STYLE 15: PIN 1. ANODE 1 2. ANODE 1 3. ANODE 1 4. ANODE 1 5. CATHODE, COMMON 6. CATHODE, COMMON 7. CATHODE, COMMON 8. CATHODE, COMMON	STYLE 16: PIN 1. EMITTER, DIE #1 2. BASE, DIE #1 3. EMITTER, DIE #2 4. BASE, DIE #2 5. COLLECTOR, DIE #2 6. COLLECTOR, DIE #2 7. COLLECTOR, DIE #1 8. COLLECTOR, DIE #1
STYLE 17: PIN 1. VCC 2. V2OUT 3. V1OUT 4. TXE 5. RXE 6. VEE 7. GND 8. ACC	STYLE 18: PIN 1. ANODE 2. ANODE 3. SOURCE 4. GATE 5. DRAIN	STYLE 19: PIN 1. SOURCE 1 2. GATE 1 3. SOURCE 2 4. GATE 2 5. DRAIN 2 6. MIRROR 2	STYLE 20: PIN 1. SOURCE (N) 2. GATE (N) 3. SOURCE (P) 4. GATE (P) 5. DRAIN 6. DRAIN
3. V10UT 4. TXE 5. RXE 6. VEE 7. GND 8. ACC STYLE 21: PIN 1. CATHODE 1 2. CATHODE 2 3. CATHODE 3 4. CATHODE 4 5. CATHODE 5 6. COMMON ANODE 7. COMMON ANODE 8. CATHODE 6	STYLE 22:	7. DRAIN 1 8. MIRROR 1 STYLE 23: PIN 1. LINE 1 IN 2. COMMON ANODE/GND 3. COMMON ANODE/GND 4. LINE 2 IN 5. LINE 2 OUT 6. COMMON ANODE/GND 7. COMMON ANODE/GND 8. LINE 1 OUT	STYLE 24: PIN 1. BASE 2. EMITTER 3. COLLECTOR/ANODE 4. COLLECTOR/ANODE 5. CATHODE 6. CATHODE 7. COLLECTOR/ANODE 8. COLLECTOR/ANODE
STYLE 25: PIN 1. VIN 2. N/C 3. REXT 4. GND 5. IOUT 6. IOUT 7. IOUT 8. IOUT	STYLE 26: PIN 1. GND 2. dv/dt 3. ENABLE 4. ILIMIT 5. SOURCE 6. SOURCE 7. SOURCE 8. VCC	STYLE 27: PIN 1. ILIMIT 2. OVLO 3. UVLO 4. INPUT+ 5. SOURCE 6. SOURCE 7. SOURCE 8. DRAIN	STYLE 28: PIN 1. SW_TO_GND 2. DASIC_OFF 3. DASIC_SW_DET 4. GND 5. V_MON 6. VBULK 7. VBULK 8. VIN
STYLE 29: PIN 1. BASE, DIE #1 2. EMITTER, #1 3. BASE, #2 4. EMITTER, #2 5. COLLECTOR, #2 6. COLLECTOR, #2 7. COLLECTOR, #1 8. COLLECTOR, #1	STYLE 30: PIN 1. DRAIN 1 2. DRAIN 1 3. GATE 2 4. SOURCE 2 5. SOURCE 1/DRAIN 2 6. SOURCE 1/DRAIN 2 7. SOURCE 1/DRAIN 2 8. GATE 1		

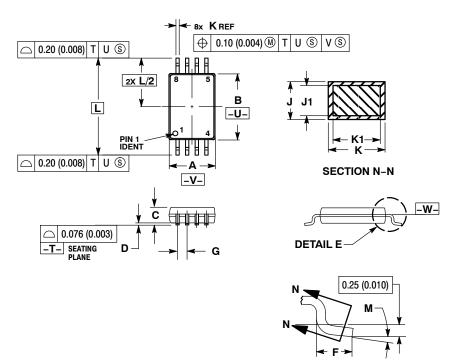
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TSSOP-8 CASE 948S-01 ISSUE C

DATE 20 JUN 2008



NOTES:

- DIMENSIONING AND TOLERANCING PER ANSI
- Y14.5M, 1982.
 2. CONTROLLING DIMENSION: MILLIMETER.
- 3. DIMENSION A DOES NOT INCLUDE MOLD FLASH. PROTRUSIONS OR GATE BURRS. MOLD FLASH OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
- (0.006) PER SIDE.
 4. DIMENSION B DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 (0.010) PER SIDE.
 5. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
 6. DIMENSION A AND B ARE TO BE DETERMINED AT DATUM PLANE -W-.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
Α	2.90	3.10	0.114	0.122
В	4.30	4.50	0.169	0.177
С		1.10		0.043
D	0.05	0.15	0.002	0.006
F	0.50	0.70	0.020	0.028
G	0.65 BSC		0.026 BSC	
J	0.09	0.20	0.004	0.008
J1	0.09	0.16	0.004	0.006
K	0.19	0.30	0.007	0.012
K1	0.19	0.25	0.007	0.010
Ĺ	6.40 BSC		0.252 BSC	
M	0 °	8°	0°	8°

GENERIC MARKING DIAGRAM*



XXX = Specific Device Code = Assembly Location

= Year WW = Work Week = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot " ■", may or may not be present.

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ISSUE	REVISION	DATE
0	RELEASED FOR PRODUCTION.	18 APR 2000
Α	ADDED MARKING DIAGRAM INFORMATION. REQ. BY V. BASS.	13 JAN 2006
В	CORRECTED MARKING DIAGRAM PIN 1 LOCATION AND MARKING. REQ. BY C. REBELLO.	13 MAR 2006
С	REMOVED EXPOSED PAD VIEW AND DIMENSIONS P AND P1. CORRECTED MARKING INFORMATION. REQ. BY C. REBELLO.	20 JUN 2008

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