

SLLS353H-JUNE 1999-REVISED SEPTEMBER 2008

3-V TO 5.5-V MULTICHANNEL RS-232 COMPATIBLE LINE DRIVER/RECEIVER

FEATURES

- Operates With 3-V to 5.5-V V_{CC} Supply
- Always-Active Noninverting Receiver Output (ROUT2B)
- Low Standby Current ... 1 μA Typ
- External Capacitors . . . 4 × 0.1 μF
- Accepts 5-V Logic Input With 3.3-V Supply
- Inter-Operable With SN65C3238, SN75C3238
- Supports Operation From 250 kbit/s to 1 Mbit/s
- RS-232 Bus-Pin ESD Protection Exceeds ±15 kV Using Human-Body Model (HBM)
- Latch-Up Performance Exceeds 100 mA Per JESD 78, Class II

APPLICATIONS

- Battery-Powered Systems
- PDAs
- Notebooks
- Laptops
- Palmtop PCs
- Hand-Held Equipment

DESCRIPTION/ORDERING INFORMATION

The SN65C3243 and SN75C3243 consist of three line drivers, five line receivers, and a dual charge-pump circuit with \pm 15-kV ESD protection pin to pin (serial-port connection pins, including GND). This device provides the electrical interface between an asynchronous communication controller and the serial-port connector. The charge pump and four small external capacitors allow operation from a single 3-V to 5.5-V supply. In addition, this device includes an always-active noninverting output (ROUT2B), which allows applications using the ring indicator to transmit data while the device is powered down. The device operates at data signaling rates up to 1 Mbit/s and an increased slew-rate range of 24 V/µs to 150 V/µs.

Flexible control options for power management are available when the serial port is inactive. The auto-powerdown feature functions when FORCEON is low and FORCEOFF is high. During this mode of operation, if the device does not sense a valid RS-232 signal, the driver outputs are disabled. If FORCEOFF is set low, both drivers and receivers (except ROUT2B) are shut off, and the supply current is reduced to 1 μ A. Disconnecting the serial port or turning off the peripheral drivers causes the auto-powerdown condition to occur.

Auto-powerdown can be disabled when FORCEON and FORCEOFF are high and should be done when driving a serial mouse. With auto-powerdown enabled, the device is activated automatically when a valid signal is applied to any receiver input. The INVALID output is used to notify the user if an RS-232 signal is present at any receiver input. INVALID is high (valid data) if any receiver input voltage is greater than 2.7 V or less than -2.7 V or has been between -0.3 V and 0.3 V for less than 30 μ s. INVALID is low (invalid data) if all receiver input voltages are between -0.3 V and 0.3 V for more than 30 μ s. Refer to Figure 5 for receiver input levels.



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, ,	DB, DW, OR PW PACKAGE (TOP VIEW) C2+ 1 28 C1+ C2- 2 27 V+ V- 3 26 V _{CC} RIN1 4 25 GND RIN2 5 24 C1- RIN3 6 23 FORCEON RIN4 7 22 FORCEOFF RIN5 8 21 INVALID DOUT1 9 20 ROUT2B DOUT2 10 19 ROUT1 DOUT3 11 18 ROUT2 DIN3 12 17 ROUT3 DIN2 13 16 ROUT4 DIN1 14 15 ROUT5			
		_ • • •)		
C2+[1	28]C1+	
C2-[2	27] V+	
V-[3	26] V _{CC}	
RIN1	4	25] GND	
RIN2	5	24] C1–	
RIN3	6	23] FORCEON	
RIN4	7	22	FORCEOFF	
RIN5	8	21] INVALID	
DOUT1[9	20] ROUT2B	
DOUT2	10	19] ROUT1	
DOUT3[11	18] ROUT2	
DIN3	12	17] ROUT3	
DIN2	13	16	ROUT4	
DIN1	14	15] ROUT5	
I			I	

T _A	PA	CKAGE ⁽¹⁾⁽²⁾	ORDERABLE PART NUMBER	TOP-SIDE MARKING			
	SOIC – DW	Tube of 20	SN75C3243DW	7502242			
	50IC - DW	Reel of 1000	SN75C3243DWR	TOP-SIDE MARKING 75C3243 75C3243 CA3243 65C3243 65C3243 CB3243			
0°C to 70°C	SSOP – DB	Reel of 2000	SN75C3243DBR	75C3243			
		Tube of 50	SN75C3243PW	040040			
	TSSOP – PW	Reel of 2000	SN75C3243PWR	- CA3243			
	SOIC – DW	Tube of 20	SN65C3243DW	6502242			
	50IC - DW	Reel of 1000	SN65C3243DWR	0503243			
–40°C to 85°C	SSOP – DB	Reel of 2000	SN65C3243DBR	65C3243			
	TSSOP – PW	Tube of 50	SN65C3243PW	CD2242			
	1330P - PW	Reel of 2000	SN65C3243PWR	003243			

ORDERING INFORMATION

(1) Package drawings, thermal data, symbolization are available at www.ti.com/sc/packaging.

(2) For the most current package and ordering information, see the Package Option Addendum at the end of this document, or see the TI website at www.ti.com.

FUNCTION TABLES

EACH DRIVER⁽¹⁾

	INPUTS			OUTPUT	
DIN	FORCEON	FORCEOFF	VALID RIN RS-232 LEVEL	DOUT	DRIVER STATUS
Х	Х	L	Х	Z	Powered off
L	Н	Н	Х	Н	Normal approximation with outpany advantage dischlord
Н	Н	Н	Х	L	Normal operation with auto-powerdown disabled
L	L	Н	Yes	Н	Normal apprection with outp powerdown apphled
Н	L	Н	Yes	L	Normal operation with auto-powerdown enabled
L	L	Н	No	Z	Powered off by auto-powerdown feature
Н	L	Н	No	Z	Fowered on by auto-powerdown realtire

(1) H = high level, L = low level, X = irrelevant, Z = high impedance

EACH RECEIVER⁽¹⁾

	INP	UTS		Ουτι	PUTS		
RIN2	RIN1, RIN3–RIN5	FORCEOFF	VALID RIN RS-232 LEVEL	ROUT2B	ROUT2	ROUT1, ROUT3–5	RECEIVER STATUS
L	Х	L	Х	L	Z	Z	Powered off while
н	х	L	х	н	Z	Z	ROUT2B is active
L	L	Н	YES	L	Н	Н	
L	Н	Н	YES	L	L	L	Normal operation with
н	L	Н	YES	н	Н	н	auto-powerdown
н	н	Н	YES	н	L	L	disabled/enabled
Open	Open	Н	YES	L	Н	н	

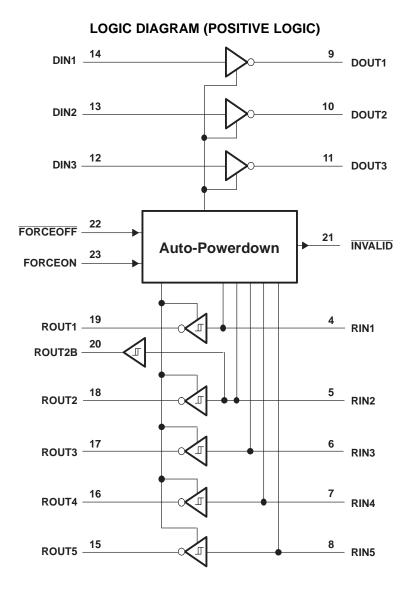
(1) H = high level, L = low level, X = irrelevant, Z = high impedance (off), Open = input disconnected or connected driver off

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ABSOLUTE MAXIMUM RATINGS⁽¹⁾

over operating free-air temperature range (unless otherwise noted)

			MIN	MAX	UNIT	
V _{CC}	Supply voltage range ⁽²⁾		-0.3	6	V	
V+	Positive-output supply voltage range ⁽²⁾		-0.3	7	V	
V–	Negative-output supply voltage range ⁽²⁾		0.3	-7	V	
V+ - V-	Supply voltage difference ⁽²⁾			13	V	
V _I Input v	Input voltogo rongo	Driver (FORCEOFF, FORCEON)	-0.3	6	V	
	Input voltage range	Receiver	-25	25		
Vo	Output voltage range	Driver	-13.2	13.2	V	
		DB package		62	2	
θ_{JA}	Package thermal impedance ⁽³⁾⁽⁴⁾	DW package		46	°C/W	
		PW package		62		
TJ	Operating virtual junction temperature			150	°C	
T _{stg}	Storage temperature range		-65	150	°C	

Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings (1) only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

All voltages are with respect to network GND. (2)

(3)Maximum power dissipation is a function of T_J(max), θ_{JA}, and T_A. The maximum allowable power dissipation at any allowable ambient temperature is $P_D = (T_J(max) - T_A)/\theta_{JA}$. Operating at the absolute maximum T_J of 150°C can affect reliability.

The package thermal impedance is calculated in accordance with JESD 51-7. (4)

RECOMMENDED OPERATING CONDITIONS⁽¹⁾

see Figure 6

				MIN	NOM	MAX	UNIT
	Supply voltage		$V_{CC} = 3.3 V$	3	3.3	3.6	V
	Supply voltage Driver and control high-level input voltage Driver and control low-level input voltage DIN, FORCEOFF, FORCEON Driver and control low-level input voltage DIN, FORCEOFF, FORCEON	$V_{CC} = 5 V$	4.5	5	5.5	v	
V	Driver and control high-level input voltage		$V_{CC} = 3.3 V$	2			V
VIH			$V_{CC} = 5 V$	2.4			v
V_{IL}	Driver and control low-level input voltage	DIN, FORCEOFF, FORCEON				0.8	V
VI	Driver and control input voltage	DIN, FORCEOFF, FORCEON		0		5.5	V
VI	Receiver input voltage			-25		25	V
т	Operating free air temperature		SN65C3243	-40		85	°C
T _A			SN75C3243	0		70	C

(1) Test conditions are C1–C4 = 0.1 μ F at V_{CC} = 3.3 V ± 0.3 V; C1 = 0.047 μ F, C2–C4 = 0.33 μ F at V_{CC} = 5 V ± 0.5 V.

ELECTRICAL CHARACTERISTICS⁽¹⁾

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted) (see Figure 6)

	PARAME	TER	TEST CONDITIONS	MIN	TYP ⁽²⁾	MAX	UNIT
I _I	Input leakage current	FORCEOFF, FORCEON			±0.01	±1	μA
	Auto-powerdown disabled	No load, FORCEOFF and FORCEON = V_{CC}		0.3	1	mA	
		Powered off	No load, $\overline{\text{FORCEOFF}} = \text{GND}$		1	10	
I _{CC}	Supply current	Auto-powerdown enabled	No load, $\overline{\text{FORCEOFF}} = V_{CC}$, FORCEON = GND, All RIN are open or grounded, All DIN are grounded		1	10	μΑ

Test conditions are C1–C4 = 0.1 μ F at V_{CC} = 3.3 V ± 0.3 V; C1 = 0.047 μ F, C2–C4 = 0.33 μ F at V_{CC} = 5 V ± 0.5 V. All typical values are at V_{CC} = 3.3 V or V_{CC} = 5 V, and T_A = 25°C. (1)

(2)



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DRIVER SECTION

Electrical Characteristics⁽¹⁾

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted) (see Figure 6)

	PARAMETER	TEST CONDITIONS	MIN	TYP ⁽²⁾	MAX	UNIT
V _{OH}	High-level output voltage	All DOUT at $R_L = 3 \text{ k}\Omega$ to GND	5	5.4		V
V _{OL}	Low-level output voltage	All DOUT at $R_L = 3 \text{ k}\Omega$ to GND	-5	-5.4		V
Vo	Output voltage (mouse driveability)	DIN1 = DIN2 = GND, DIN3 = V_{CC} , 3-k Ω to GND at DOUT3, DOUT1 = DOUT2 = 2.5 mA	±5			V
I _{IH}	High-level input current	V _I = V _{CC}		±0.01	±1	μΑ
IIL	Low-level input current	V _I = GND		±0.01	±1	μΑ
	Short-circuit output	$V_{CC} = 3.6 \text{ V}, \qquad V_{O} = 0 \text{ V}$		±35	±60	
I _{OS}	current ⁽³⁾	$V_{CC} = 5.5 \text{ V}, \qquad V_O = 0 \text{ V}$		±35	±90	mA
r _o	Output resistance	V_{CC} , V+, and V- = 0 V, $V_{O} = \pm 2 V$	300	10M		Ω
		$\overline{\text{FORCEOFF}} = \text{GND}$			±25	۵
l _{off}	Output leakage current	FORCEOFF = GND $V_0 = \pm 10 \text{ V}, V_{CC} = 4.5 \text{ V to } 5.5 \text{ V}$			±25	μA

(1) Test conditions are C1–C4 = 0.1 μ F at V_{CC} = 3.3 V ± 0.3 V; C1 = 0.047 μ F, C2–C4 = 0.33 μ F at V_{CC} = 5 V ± 0.5 V. (2) All typical values are at V_{CC} = 3.3 V or V_{CC} = 5 V, and T_A = 25°C.

(3)Short-circuit durations should be controlled to prevent exceeding the device absolute power dissipation ratings, and not more than one output should be shorted at a time.

Switching Characteristics⁽¹⁾

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted) (see Figure 6)

	PARAMETER		TEST CONDITIONS		MIN	TYP ⁽²⁾	MAX	UNIT
Maximum data rata		C _L = 1000 pF		250				
	Maximum data rate (see Figure 1)	R _L = 3 kΩ, One DOUT switching	C _L = 250 pF,	V_{CC} = 3 V to 4.5 V	1000			kbit/s
(see rigure r)	one boot switching	C _L = 1000 pF,	V_{CC} = 4.5 V to 5.5 V	1000				
t _{sk(p)}	Pulse skew ⁽³⁾	C_{L} = 150 pF to 2500 pF,	$R_L = 3 k\Omega$ to 7 k Ω ,	See Figure 2		25		ns
SR(tr)	Slew rate, transition region (see Figure 1)	$C_{L} = 150 \text{ pF to } 1000 \text{ pF},$	$R_L = 3 \ k\Omega$ to 7 $k\Omega$,	V _{CC} = 3.3 V	18		150	V/µs

(1) Test conditions are C1–C4 = 0.1 μ F at V_{CC} = 3.3 V ± 0.3 V; C1 = 0.047 μ F, C2–C4 = 0.33 μ F at V_{CC} = 5 V ± 0.5 V. (2) All typical values are at V_{CC} = 3.3 V or V_{CC} = 5 V, and T_A = 25°C. (3) Pulse skew is defined as |t_{PLH} - t_{PHL}| of each channel of the same device.



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RECEIVER SECTION

Electrical Characteristics⁽¹⁾

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted) (see Figure 6)

	PARAMETER	TEST CONDITIONS	MIN	TYP ⁽²⁾	MAX	UNIT
V _{OH}	High-level output voltage	I _{OH} = -1 mA	$V_{CC} - 0.6$	V _{CC} – 0.1		V
V _{OL}	Low-level output voltage	I _{OL} = 1.6 mA			0.4	V
V _{IT+}	Positive-going input threshold voltage	$V_{CC} = 3.3 V$		1.6	2.4	V
	Positive-going input theshold voltage	$V_{CC} = 5 V$		1.9	2.4	v
V		$V_{CC} = 3.3 V$	0.6	1.1		V
V _{IT}	Negative-going input threshold voltage	$V_{CC} = 5 V$	0.8	1.4		v
V _{hys}	Input hysteresis (V _{IT+} – V _{IT-})			0.5		V
I _{off}	Output leakage current (except ROUT2B)	FORCEOFF = 0 V		±0.05	±10	μA
r _i	Input resistance	$V_1 = \pm 3 V$ to $\pm 25 V$	3	5	7	kΩ

Test conditions are C1–C4 = 0.1 μ F at V_{CC} = 3.3 V ± 0.3 V; C1 = 0.047 μ F, C2–C4 = 0.33 μ F at V_{CC} = 5 V ± 0.5 V. All typical values are at V_{CC} = 3.3 V or V_{CC} = 5 V, and T_A = 25°C. (1)

(2)

Switching Characteristics⁽¹⁾

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted)

	PARAMETER	TEST CONDITIONS	TYP ⁽²⁾	UNIT
t _{PLH}	Propagation delay time, low- to high-level output	$C_L = 150 \text{ pF}$, See Figure 3	150	ns
t _{PHL}	Propagation delay time, high- to low-level output	C _L = 150 pF, See Figure 3	150	ns
t _{en}	Output enable time	C_L = 150 pF, R_L = 3 k Ω , See Figure 4	200	ns
t _{dis}	Output disable time	C_L = 150 pF, R_L = 3 k Ω , See Figure 4	200	ns
t _{sk(p)}	Pulse skew ⁽³⁾	See Figure 3	50	ns

Test conditions are C1–C4 = 0.1 μ F at V_{CC} = 3.3 V ± 0.3 V; C1 = 0.047 μ F, C2–C4 = 0.33 μ F at V_{CC} = 5 V ± 0.5 V. All typical values are at V_{CC} = 3.3 V or V_{CC} = 5 V, and T_A = 25°C. Pulse skew is defined as |t_{PLH} - t_{PHL}| of each channel of the same device. (1)

(2)

(3)



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AUTO-POWERDOWN SECTION

Electrical Characteristics

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted) (see Figure 5)

	PARAMETER	TEST CONDITIONS	MIN	MAX	UNIT
V _{T+(valid)}	Receiver input threshold for INVALID high-level output voltage	FORCEON = GND, $\overline{\text{FORCEOFF}} = V_{CC}$		2.7	V
V _{T-(valid)}	Receiver input threshold for INVALID high-level output voltage	FORCEON = GND, $\overline{\text{FORCEOFF}} = V_{CC}$	-2.7		V
V _{T(invalid)}	Receiver input threshold for INVALID low-level output voltage	FORCEON = GND, $\overline{\text{FORCEOFF}} = V_{CC}$	-0.3	0.3	V
V _{OH}	INVALID high-level output voltage	$I_{OH} = -1 \text{ mA}$, FORCEON = GND, FORCEOFF = V _{CC}	V _{CC} – 0.6		V
V _{OL}	INVALID low-level output voltage	$I_{OL} = 1.6 \text{ mA}$, FORCEON = GND, FORCEOFF = V _{CC}		0.4	V

Switching Characteristics

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted) (see Figure 5)

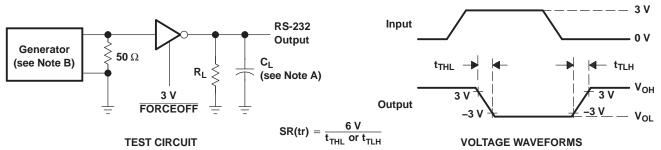
	PARAMETER	TYP ⁽¹⁾	UNIT
t _{valid}	Propagation delay time, low- to high-level output	1	μs
t _{invalid}	Propagation delay time, high- to low-level output	30	μs
t _{en}	Supply enable time	100	μs

(1) All typical values are at V_{CC} = 3.3 V or V_{CC} = 5 V, and T_A = 25 ^{\circ}C.



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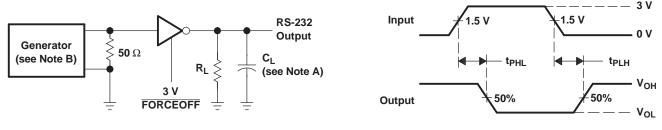




NOTES: A. C_L includes probe and jig capacitance.

B. The pulse generator has the following characteristics: PRR = 1 Mbit/s, $Z_0 = 50 \Omega$, 50% duty cycle, $t_r \le 10$ ns, $t_f \le 10$ ns.

Figure 1. Driver Slew Rate



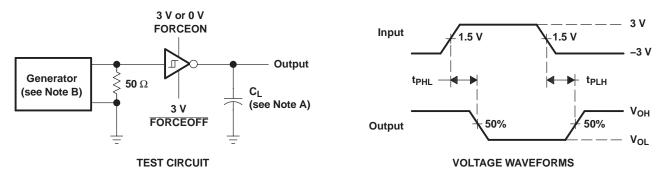
TEST CIRCUIT



NOTES: A. C_L includes probe and jig capacitance.

B. The pulse generator has the following characteristics: PRR = 1 Mbit/s, $Z_0 = 50 \Omega$, 50% duty cycle, $t_r \le 10$ ns. $t_f \le 10$ ns.

Figure 2. Driver Pulse Skew

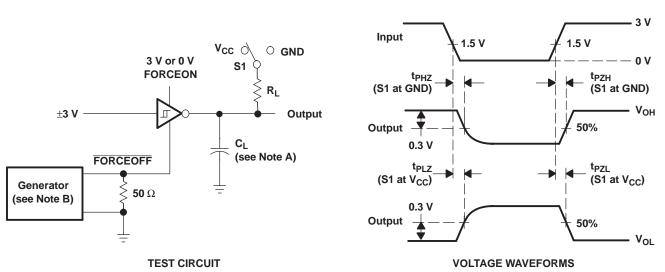


NOTES: A. C_L includes probe and jig capacitance. B. The pulse generator has the following characteristics: $Z_0 = 50 \ \Omega$, 50% duty cycle, $t_r \le 10 \text{ ns}$, $t_f \le 10 \text{ ns}$.

Figure 3. Receiver Propagation Delay Times



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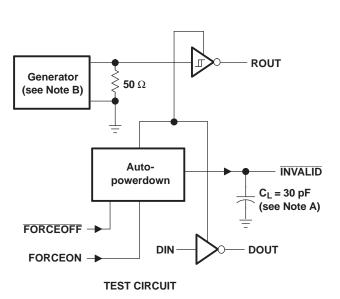
PARAMETER MEASUREMENT INFORMATION (continued)

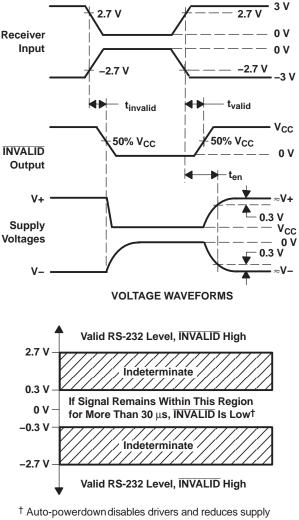
- NOTES: A. C_L includes probe and jig capacitance.
 - B. The pulse generator has the following characteristics: $Z_0 = 50 \ \Omega$, 50% duty cycle, $t_r \le 10 \text{ ns}$, $t_f \le 10 \text{ ns}$.
 - C. t_{PLZ} and t_{PHZ} are the same as t_{dis} .
 - D. t_{PZL} and t_{PZH} are the same as t_{en} .

Figure 4. Receiver Enable and Disable Times

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current to 1 μA.

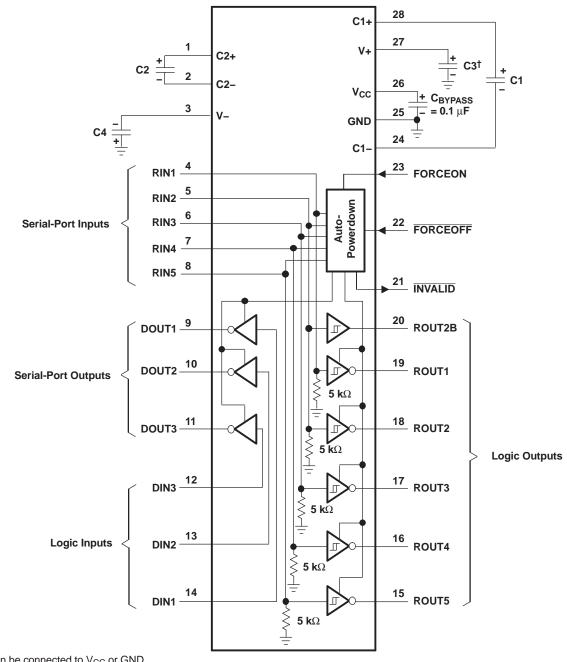
- NOTES: A. C_L includes probe and jig capacitance.
 - B. The pulse generator has the following characteristics: PRR = 5 kbit/s, Z_0 = 50 Ω , 50% duty cycle, $t_r \le 10$ ns, $t_f \le 10$ ns.

Figure 5. INVALID Propagation Delay Times and Supply Enabling Time

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PARAMETER MEASUREMENT INFORMATION (continued)

[†] C3 can be connected to V_{CC} or GND.

NOTE A: Resistor values shown are nominal.

VCC VS CAFACITOR VALUES							
V _{CC}	C1	C2, C3, and C4					
$\begin{array}{c} \textbf{3.3 V} \pm \textbf{0.3 V} \\ \textbf{5 V} \pm \textbf{0.5 V} \\ \textbf{3 V to 5.5 V} \end{array}$	0.1 μF 0.047 μF 0.1 μF	0.1 μF 0.33 μF 0.47 μF					

V _{CC} vs	CAPACITOR	VALUES
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Figure 6.	Typical (Operating	Circuit and	Capacitor	Values
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16-Apr-2009

PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	e Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
SN65C3243DBR	ACTIVE	SSOP	DB	28	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243DBRE4	ACTIVE	SSOP	DB	28	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243DBRG4	ACTIVE	SSOP	DB	28	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243DW	ACTIVE	SOIC	DW	28	20	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243DWE4	ACTIVE	SOIC	DW	28	20	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243DWG4	ACTIVE	SOIC	DW	28	20	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243DWR	ACTIVE	SOIC	DW	28	1000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243DWRE4	ACTIVE	SOIC	DW	28	1000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243DWRG4	ACTIVE	SOIC	DW	28	1000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243PW	ACTIVE	TSSOP	PW	28	50	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243PWE4	ACTIVE	TSSOP	PW	28	50	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243PWG4	ACTIVE	TSSOP	PW	28	50	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243PWR	ACTIVE	TSSOP	PW	28	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243PWRE4	ACTIVE	TSSOP	PW	28	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN65C3243PWRG4	ACTIVE	TSSOP	PW	28	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243DBR	ACTIVE	SSOP	DB	28	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243DBRE4	ACTIVE	SSOP	DB	28	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243DBRG4	ACTIVE	SSOP	DB	28	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243DW	ACTIVE	SOIC	DW	28	20	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243DWE4	ACTIVE	SOIC	DW	28	20	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243DWG4	ACTIVE	SOIC	DW	28	20	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243DWR	ACTIVE	SOIC	DW	28	1000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243DWRE4	ACTIVE	SOIC	DW	28	1000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243DWRG4	ACTIVE	SOIC	DW	28	1000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243PW	ACTIVE	TSSOP	PW	28	50	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM

RUMENTS

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	e Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
SN75C3243PWE4	ACTIVE	TSSOP	PW	28	50	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243PWG4	ACTIVE	TSSOP	PW	28	50	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243PWR	ACTIVE	TSSOP	PW	28	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243PWRE4	ACTIVE	TSSOP	PW	28	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN75C3243PWRG4	ACTIVE	TSSOP	PW	28	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIN

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check http://www.ti.com/productcontent for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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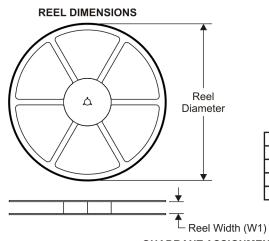
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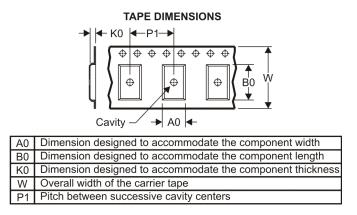
PACKAGE MATERIALS INFORMATION

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TAPE AND REEL INFORMATION





QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



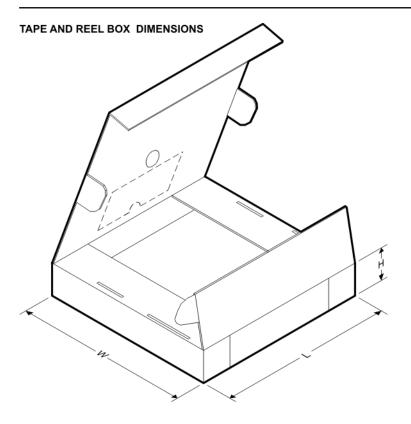
*All dimensions are nominal												
Device	Package Type	Package Drawing		SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN65C3243DBR	SSOP	DB	28	2000	330.0	16.4	8.2	10.5	2.5	12.0	16.0	Q1
SN65C3243DWR	SOIC	DW	28	1000	330.0	32.4	11.35	18.67	3.1	16.0	32.0	Q1
SN65C3243PWR	TSSOP	PW	28	2000	330.0	16.4	7.1	10.4	1.6	12.0	16.0	Q1
SN75C3243DBR	SSOP	DB	28	2000	330.0	16.4	8.2	10.5	2.5	12.0	16.0	Q1
SN75C3243DWR	SOIC	DW	28	1000	330.0	32.4	11.35	18.67	3.1	16.0	32.0	Q1
SN75C3243PWR	TSSOP	PW	28	2000	330.0	16.4	7.1	10.4	1.6	12.0	16.0	Q1

TEXAS INSTRUMENTS

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PACKAGE MATERIALS INFORMATION

8-Jul-2011



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN65C3243DBR	SSOP	DB	28	2000	346.0	346.0	33.0
SN65C3243DWR	SOIC	DW	28	1000	346.0	346.0	49.0
SN65C3243PWR	TSSOP	PW	28	2000	346.0	346.0	33.0
SN75C3243DBR	SSOP	DB	28	2000	346.0	346.0	33.0
SN75C3243DWR	SOIC	DW	28	1000	346.0	346.0	49.0
SN75C3243PWR	TSSOP	PW	28	2000	346.0	346.0	33.0

DW (R-PDSO-G28)

PLASTIC SMALL OUTLINE



NOTES:

A. All linear dimensions are in inches (millimeters). Dimensioning and tolerancing per ASME Y14.5M-1994.

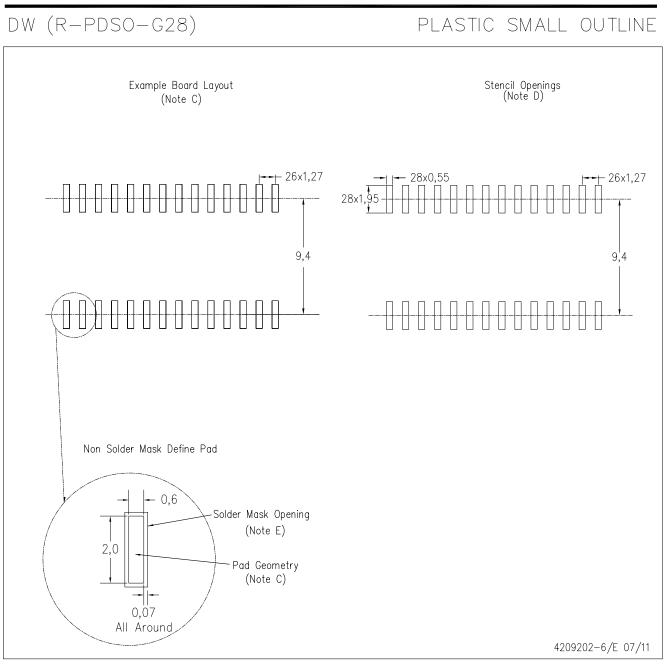
B. This drawing is subject to change without notice.

C. Body dimensions do not include mold flash or protrusion not to exceed 0.006 (0,15).

D. Falls within JEDEC MS-013 variation AE.



LAND PATTERN DATA



NOTES:

A. All linear dimensions are in millimeters.

- B. This drawing is subject to change without notice.
- C. Refer to IPC7351 for alternate board design.
- D. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC-7525
- E. Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.



PW (R-PDSO-G28)

PLASTIC SMALL OUTLINE



NOTES:

A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M-1994.
B. This drawing is subject to change without notice.

Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0,15 each side.

Body width does not include interlead flash. Interlead flash shall not exceed 0,25 each side.

E. Falls within JEDEC MO-153



MECHANICAL DATA

MSSO002E - JANUARY 1995 - REVISED DECEMBER 2001

DB (R-PDSO-G**)

PLASTIC SMALL-OUTLINE

28 PINS SHOWN



NOTES: A. All linear dimensions are in millimeters.

- B. This drawing is subject to change without notice.
- C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.
- D. Falls within JEDEC MO-150



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