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TEXAS INSTRUMENTS

SN54HC541, SN74HC541

SCLS305F – JANUARY 1996 – REVISED SEPTEMBER 2016

SNx4HC541 Octal Buffers and Line Drivers With 3-State Outputs

1 Features

- Wide Operating Voltage Range of 2 V to 6 V
- High-Current 3-State Outputs Drive Bus Lines Directly or Up to 15 LSTTL Loads
- Low Power Consumption, 80-μA Maximum I_{CC}
- Typical t_{pd} = 10 ns
- ±6-mA Output Drive at 5 V
- Low Input Current of 1 μA Maximum
- Data Flow-Through Pinout (All Inputs on Opposite Side From Outputs)

2 Applications

- LEDs
- Servers
- PCs and Notebooks
- Wearable Health and Wellness Devices
- Electronic Points of Sale

3 Description

These octal buffers and line drivers feature the performance of the SNx4HC541 devices and a pinout with inputs and outputs on opposite sides of the package. This arrangement greatly facilitates printed circuit board layout.

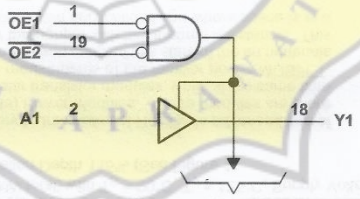
The 3-state outputs are controlled by a two-input NOR gate. If either output-enable ($\overline{OE1}$ or $\overline{OE2}$) input is high, all eight outputs are in the high-impedance state. The SNx4HC541 devices provide true data at the outputs.

Device Information(1)

PART NUMBER	PACKAGE	BODY SIZE (NOM)
SN74HC541DW	SOIC (20)	12.80 mm × 7.50 mm
SN74HC541DB	SSOP (20)	7.20 mm × 5.30 mm
SN74HC541N	PDIP (20)	24.33 mm × 6.35 mm
SN74HC541NS	SO (20)	12.60 mm × 5.30 mm
SN74HC541PW	TSSOP (20)	6.50 mm × 4.40 mm
SN54HC541J	CDIP (20)	24.20 mm × 6.92 mm
SN54HC541FK	LCCC (20)	8.89 mm × 8.89 mm

(1) For all available packages, see the orderable addendum at the end of the data sheet.

Logic Diagram (Positive Logic)



To Seven Other Channels

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On products compliant to MIL-PRF-38535, all parameters are

ADC0820-N 8-Bit High Speed µP Compatible A/D Converter with Track/Hold Function

Check for Samples: ADC0820-N

FEATURES

- Built-In Track-and-Hold Function
- No Missing Codes
- No External Clocking
- Single Supply—5 V_{DC}
- Easy Interface to All Microprocessors, or Operates Stand-Alone
- Latched TRI-STATE Output
- Logic Inputs and Outputs Meet Both MOS and T^2L Voltage Level Specifications
- Operates Ratiometrically or with any Reference Value Equal to or Less than V_{CC}
- 0V to 5V Analog Input Voltage Range with Single 5V Supply
- No Zero or Full-Scale Adjust Required
- Overflow Output Available for Cascading
- 0.3 in. Standard Width 20-Pin PDIP
- 20-Pin PLCC
- 20-Pin SOIC

KEY SPECIFICATIONS

- Resolution: 8 Bits
- Conversion Time
  - 2.5 µs Max (RD Mode)
  - 1.5 µs Max (WR-RD Mode)
- Low Power: 75 mW Max
- Total Unadjusted Error: ±½ LSB and ± 1 LSB

DESCRIPTION

By using a half-flash conversion technique, the 8-bit ADC0820-N CMOS A/D offers a 1.5 µs conversion time and dissipates only 75 mW of power. The half-flash technique consists of 32 comparators, a most significant 4-bit ADC and a least significant 4-bit ADC.

The input to the ADC0820-N is tracked and held by the input sampling circuitry eliminating the need for an external sample-and-hold for signals moving at less than 100 mV/µs.

For ease of interface to microprocessors, the ADC0820-N has been designed to appear as a memory location or I/O port without the need for external interfacing logic.

Connection and Functional Diagrams

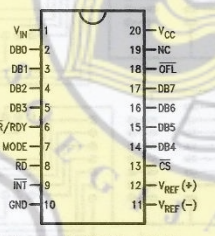

Figure 1. CDIP, PDIP, and SOIC Packages (Top View)

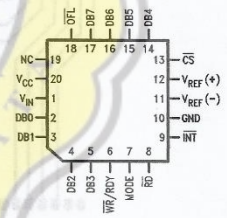

Figure 2. PLCC Package

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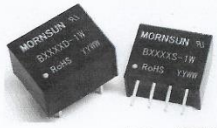
MORNSUN

B_S-1W & B_D-1W Series

1W, FIXED INPUT ISOLATED & UNREGULATED SINGLE OUTPUT MINIATURE SIP/DIP PACKAGE



multi-country patent protection RoHS

FEATURES

- Efficiency up to 80%
- Small Footprint
- Miniature SIP/DIP Package
- 1KVDC Isolation
- Temperature Range: -40°C ~ +85°C
- Internal SMD Construction
- Industry Standard Pinout
- No Heat sink Required
- No External Component Required
- PCB Mounting
- RoHS Compliance

APPLICATIONS

The B_S-1W & B_D-1W Series are specially designed for applications where a single power supply is isolated from the input power supply in a distributed power supply system on a circuit board. These products apply to:

1) Where the voltage of the input power supply is fixed (voltage variation ≤ ±10%);
2) Where isolation is necessary between input and output (isolation voltage ≤1000VDC);
3) Where the regulation of the output voltage and the output ripple and noise are not demanding.

Such as: purely digital circuits, ordinary low frequency analog circuits and IGBT power device driven circuits, etc.

MODEL SELECTION

B0505S-1W

- Rated Power
- Package Style
- Output Voltage
- Input Voltage
- Product Series

PRODUCT PROGRAM

Part Number	Input Voltage (VDC) Nominal	Input Voltage (VDC) Range	Output Voltage (VDC)	Output Current (mA) Max.	Output Current (mA) Min.	Efficiency (%, Typ.)	UL CE
B0303S/D-1W	3.3	2.97-3.63	3.3	303	30	72	
B0305S/D-1W			5	200	20	74	
B0503S/D-1W	5	4.5-5.5	3.3	303	30	72	
B0505S/D-1W			5	200	20	70	UL CE
B0509S/D-1W			9	111	12	78	UL CE
B0512S/D-1W			12	83	9	79	UL CE
B0515S/D-1W			15	67	7	80	UL CE
B1203S/D-1W	12	10.8-13.2	3.3	303	30	72	
B1205S/D-1W			5	200	20	71	UL CE
B1209S/D-1W			9	111	12	76	UL CE
B1212S/D-1W			12	83	9	78	UL CE
B1215S/D-1W			15	67	7	80	UL CE
B2405S/D-1W	24	21.6-26.4	5	200	20	73	UL CE
B2409S/D-1W			9	111	12	78	UL CE
B2412S/D-1W			12	83	9	79	UL CE
B2415S/D-1W			15	67	7	80	UL CE

Note: The B_S-W2 & B_D-W2 series also are available in our company.

COMMON SPECIFICATION

Item	Test Conditions	Min.	Typ.	Max.	Units
Storage humidity				95	%
Operating temperature		-40		85	°C
Storage temperature		-55		125	°C
Temp. rise at full load			15	25	°C
Lead temperature	1.5mm from case for 10 seconds			300	°C
Short circuit protection*				1	S
Cooling		Free air convection			
Case material		Plastic(UL94-V0)			
MTBF		3500			K hours
Weight			1.6		g

*Supply voltage must be discontinued at the end of short circuit duration.

ISOLATION SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Units
Isolation voltage	Tested for 1 minute and 1mA max	1000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

MORNSUN Science & Technology co.,Ltd.
Address: 2th floor 6th building, Huangzhou Industrial District, Guangzhou, China
Tel: 86-20-38601850
Fax:86-20-38601272
Http://www.mornsun-power.com

1. Cyclone IV Device Datasheet

CYIV-53001-2.0

This chapter describes the electrical and switching characteristics for Cyclone® IV devices. Electrical characteristics include operating conditions and power consumption. Switching characteristics include transceiver specifications, core, and periphery performance. This chapter also describes I/O timing, including programmable I/O element (IOE) delay and programmable output buffer delay.

This chapter includes the following sections:

- "Operating Conditions" on page 1–1
- "Power Consumption" on page 1–16
- "Switching Characteristics" on page 1–16
- "I/O Timing" on page 1–37
- "Glossary" on page 1–37

Operating Conditions

When Cyclone IV devices are implemented in a system, they are rated according to a set of defined parameters. To maintain the highest possible performance and reliability of Cyclone IV devices, you must consider the operating requirements described in this chapter.

Cyclone IV devices are offered in commercial, industrial, extended industrial and, automotive grades. Cyclone IV E devices offer –6 (fastest), –7, –8, –8L, and –9L speed grades for commercial devices, –8L speed grades for industrial devices, and –7 speed grade for extended industrial and automotive devices. Cyclone IV GX devices offer –6 (fastest), –7, and –8 speed grades for commercial devices and –7 speed grade for industrial devices.

For more information about the supported speed grades for respective Cyclone IV devices, refer to the *Cyclone IV FPGA Device Family Overview* chapter.

Cyclone IV E devices are offered in core voltages of 1.0 and 1.2 V. Cyclone IV E devices with a core voltage of 1.0 V have an 'L' prefix attached to the speed grade.

In this chapter, a prefix associated with the operating temperature range is attached to the speed grades; commercial with a "C" prefix, industrial with an "I" prefix, and automotive with an "A" prefix. Therefore, commercial devices are indicated as C6, C7, C8, C8L, or C9L per respective speed grade. Industrial devices are indicated as I7, I8, or I8L. Automotive devices are indicated as A7.

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ISO 9001:2008 Registered

Cyclone IV Device Handbook,
Volume 3
March 2016

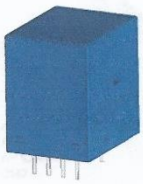
Feedback Subscribe

LEM

Current Transducer HX 03 ... 50-P

I_{PN} = 3 ... 50 A

For the electronic measurement of currents: DC, AC, pulsed..., with galvanic separation between the primary and the secondary circuit.



Electrical data

Type	Primary nominal RMS current I_{PN} (A)	Primary current, measuring range I_{PM} (A)	Primary conductor diameter × turns (mm)
HX 03-P	3	±9	0.6 d × 20 T
HX 05-P	5	±15	0.8 d × 12 T
HX 10-P	10	±30	1.1 d × 6 T
HX 15-P	15	±45	1.4 d × 4 T
HX 20-P	20	±60	1.6 d × 3 T
HX 25-P	25	±75	1.6 d × 2 T
HX 50-P	50	±150	1.2 × 6.3 × 1 T

U_{out}	Output voltage (Analog) @ $\pm I_{PN}$, R_L = 10 kΩ, T_A = 25 °C	±4	V
R_L	Load resistance	≥ 10	kΩ
R_{out}	Output internal resistance	< 50	Ω
U_C	Supply voltage (±5 %) [1]	±15	V
I_C	Current consumption	< ±15	mA

Accuracy - Dynamic performance data

ε	Error @ I_{PN}, T_A = 25 °C (excluding offset)	< ±1	% of I_{PN}
ε_L	Linearity error (0 ... $\pm I_{PN}$)	< ±1	% of I_{PN}
U_{OE}	Electrical offset voltage @ T_A = 25 °C	< ±40	mV
U_{OH}	Hysteresis offset voltage @ I_P = 0, after an excursion of 1 × I_{PN}	±15 (typ)	mV
TCU_{OE}	Temperature coefficient of U_{OE}	< ±1.5	mV/K
TCU_{out}	Temperature coefficient of U_{out} (% of reading)	±0.1	%/K
t_{D90}	Delay time to 90 % of I_{PN}	≤ 3	µs
BW	Frequency bandwidth (−3 dB) [2]	50	kHz

General data

T_A	Ambient operating temperature	−25 ... +85	°C
T_S	Ambient storage temperature	−25 ... +85	°C
m	Mass	8	g
	Standard	EN 50178: 1997	

Notes: [1] Also operate at U_C = ±12 V, with measuring range reduced to ±2.5 × I_{PN}
[2] Small signal only to avoid excessive heating of the magnetic cores.

N° 74.79.06.000.0. N° 74.79.08.000.0. N° 74.79.13.000.0. N° 74.79.15.000.0

Features

- Open loop technology current transducer using the Hall effect
- Insulated voltage 3000 V
- Extended measuring range (3 x I_{PN})
- Power supply from ±12 V to ±15 V
- Insulating plastic case recognized according to UL 94-V0.

Advantages

- Low insertion losses
- Low power consumption
- Easy to mount with automatic handling system
- Small size and space saving
- Only one design for wide current ratings range
- High immunity to external interference.

Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.

Application domain

- Industrial.

Hall 引线 ：五芯屏蔽线 26AWG
(300mm)
hall wire

电机绕组引线 ：三芯屏蔽线 18AWG
(300mm)
motor wire

Electrical Spec:

Model	FXD57BL115S18-240TF-001A	
ITEM	UNIT	SPEC
PHASE	PHS	3
VOLTAGE	VDC	24
ROTOR POLES	POLE	4
NOLOAD SPEED	RPM	5000REF
NOLOAD CURRENT	A	0.2REF
RATED SPEED	RPM	4000
RATED POWER	W	180
RATED TORQUE	Nm	0.43
RATED CURRENT	A	11
INSULATING STRENGTH	VAC	500
IP CLASS		IP40
INSULATION CLASS		B
WEIGHT	g	800

标记	处数	分区	更改文件号	签名	年、月、日
设计			标准化		
审核					
工艺			批准		

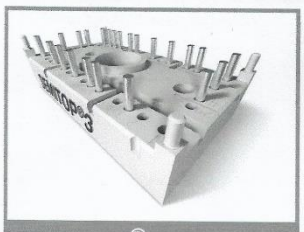
阶段标记	重量	比例
		1:1.1
共 张 第 张		

常州市富贤达机电科技有限公司

规格书

FXD57BL115S18-240TF-001A

SK35GD065ET



SEMITOP® 3

IGBT Module

SK35GD065ET

Preliminary Data

Features

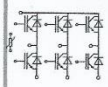
- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- Ultrafast NPT technology IGBT
- CAL technology FWD
- Integrated NTC temperature sensor

Typical Applications*

- Inverter

Absolute Maximum Ratings			T_s = 25 °C, unless otherwise specified	
Symbol	**Conditions**		**Values**	**Units**
IGBT				
V_{CES}	T_j = 25 °C		600	V
I_C	T_j = 125 °C	T_s = 25 °C	45	A
		T_s = 80 °C	33	A
I_{CRM}	I_{CRM} = 2 x I_{Cnom}		100	A
V_{GES}			± 20	V
t_{psc}	V_{CC} = 300 V; V_{GE} ≤ 20 V; VCES < 600 V	T_j = 125 °C	10	µs
Inverse Diode				
I_F	T_j = 150 °C	T_s = 25 °C	36	A
		T_s = 80 °C	24	A
I_{FRM}	I_{FRM} = 2 x I_{Fnom}		70	A
Module				
$I_{t(RMS)}$				A
T_{vj}			-40 ... +150	°C
T_{stg}			-40 ... +125	°C
V_{isol}	AC, 1 min.		2500	V

Characteristics			T_s = 25 °C, unless otherwise specified			
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Units**
IGBT						
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 1 mA		3	4	5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = V_{CES}	T_j = 25 °C				mA
		T_j = 125 °C				mA
I_{GES}	V_{CE} = 0 V, V_{GE} = 20 V	T_j = 25 °C			120	nA
		T_j = 125 °C				nA
V_{CE0}		T_j = 25 °C		1,2	1,3	V
		T_j = 125 °C		1,1	1,2	V
r_{CE}	V_{GE} = 15 V	T_j = 25°C		16	24	mΩ
		T_j = 125°C		22	30	mΩ
$V_{CE(sat)}$	I_{Cnom} = 50 A, V_{GE} = 15 V	T_j = 25°$C_{chiplev.}$		2	2,5	V
		T_j = 125°$C_{chiplev.}$		2,2		V
C_{ies}	V_{CE} = 25, V_{GE} = 0 V	f = 1 MHz		2,7		nF
C_{oes}				0,25		nF
C_{res}				0,153		nF
$t_{d(on)}$	R_{Gon} = 15 Ω	V_{CC} = 300V		35		ns
t_r		I_C = 50A		35		ns
E_{on}		T_j = 125 °C		1,3		mJ
$t_{d(off)}$	R_{Goff} = 15 Ω	V_{GE} = ±15V		240		ns
t_f				25		ns
E_{off}				0,6		mJ
$R_{th(j-s)}$	per IGBT				1	K/W



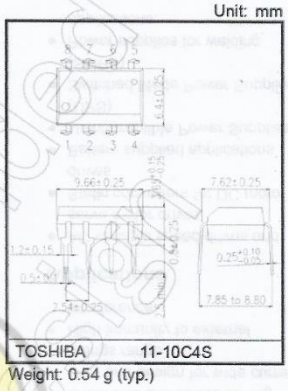
GD-ET

TOSHIBA Photocoupler IRED & Photo-IC

TLP250

Industrial Inverter
Inverter For Air Conditioner
IGBT Gate Drive
Power MOS FET Gate Drive

Unit: mm



Weight: 0.54 g (typ.)

The TOSHIBA TLP250 consists of an infrared emitting diode and a integrated photodetector.
This unit is 8-lead DIP package.
TLP250 is suitable for gate driving circuit of IGBT or power MOS FET.

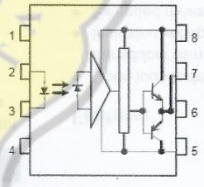
- Input threshold current: 5mA(max)
- Supply current : 11mA(max)
- Supply voltage : 10-35V
- Output current : ±1.5A (max)
- Switching time t_{pLH}/t_{pHL}): 0.5μs(max)
- Isolation voltage: 2500V_{rms}(min)
- UL-recognized: UL 1577, File No.E67349
- cUL-recognized: CSA Component Acceptance Service No.5A
  File No.E67349
- VDE-Approved: EN 60747-5- 5 (Note 1)

Note 1: When a VDE approved type is needed,
please designate the **Option(D4)**.

Truth Table

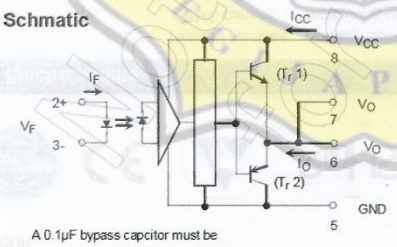
		Tr1	Tr2
Input LED	On	On	Off
	Off	Off	On

Pin Configuration (top view)



1 : N.C.
2 : Anode
3 : Cathode
4 : N.C.
5 : GND
6 : V_O (Output)
7 : V_O
8 : V_{CC}

Schmatic



A 0.1μF bypass capcitor must be connected between pin 8 and 5

PLAGIARISM CHECK.ORG

1.84% PLAGIARISM APPROXIMATELY

Report #11054628

PENDAHULUAN Latar BelakangDi era modern seperti sekarang ini Brushless DC Motor (BLDC) banyak digunakan di berbagai bidang seperti industri elektronik, otomotif, robotika dan lain lain. Motor BLDC banyak digunakan karen a mempunyai banyak keunggulan yaitu mudah dalam pemeliharaan, tingkat efisiensi tinggi, dan hemat energi dibandingkan motor DC konvensional ADDIN [1]ADDIN [2]ADDIN [3]ADDIN [4]. Untuk strategi pengendalian motor BLDC tiga fasa dibutuhkan inverter tiga fasa yang terdiri dari MOSFET atau IGBT, driver dan mikrokontroler atau IC programmer sebagai penghitung algoritma dengan kemampuan komputasi yang tinggi ADDIN [5]. Sekarang ini, pengendalian motor BLDC banyak menggunakan mikrokontroler sebagai pemrograman dan penghitung algoritma. Akan tetapi pengendalian menggunakan mikrokontroler membutuhkan waktu untuk membaca dan mengeksekusi algoritma, sehingga diperlukan suatu alat yang disebut Field Programmable Gate Array (FPGA) untuk mengatasi kelemahan tersebut. Perhitungan algoritma mikrokontroler menggunakan algoritma serial yang membutuhkan delay, bila dibandingkan dengan FPGA yang mempunyai algoritma paralel, FPGA unggul dalam kecepatan perhitungan algoritma. Laporan Tugas Akhir ini membahas tentang pengendalian kecepatan motor BLDC dengan menggunakan FPGA. Pengendalian motor BLDC