NOVOSENSE
纳芯微电子

NSi6801

Single-Channel Isolated Gate Driver

Datasheet (EN) 1.1

Product Overview

The NSi6801 is a single-channel isolated gate driver which is pin-compatible for popular opto-coupled gate driver. It can source and sink 5A peak current. System robustness is supported by 150kV/us minimum common-mode transient immunity (CMTI).

The driver operates with a maximum supply voltage of 32V. While the input circuit imitates the characters of LEDs, it has performance advantages compared to standard opto isolated gate drivers, including better reliability and aging performance, higher working temperature, shorter propagation delay and smaller pulse width distortion.

As a result, the NSi6801 is suitable to replace opto-isolated driver in high reliability, power density and efficiency switching power system.

Key Features

- Isolated single-channel driver
- Pin compatible, drop in upgrade for opto isolated gate drivers
- Driver side supply voltage: up to 32V with UVLO
- 5A peak source and sink output current
- High CMTI: ±150kV/us
- 75ns typical propagation delay
- 30ns maximum pulse width distortion
- Operation ambient temperature: -40°C ~125°C
- RoHS-compliant packages:
  - SOIC-6 wide body (SOW6)
  - DUB-8

Safety Regulatory Approvals

- UL recognition: 5700V_{RMS} SOW6 and 5000V_{RMS} DUB8 for 1 minute per UL1577
- DIN VDE V 0884-11:2017-01
- CSA component notice 5A
- CQC certification per GB4943.1-2011

Applications

- DC-to-AC solar inverters
- Motor drives
- UPS and battery chargers
- Isolated DC/DC and AC/DC power supplies

Device Information

Part Number	*Package*	*Body Size*
NSi6801x-DSWFR	SOW6	7.5mm × 4.68mm
NSi6801x-DDBR	DUB8	9.32mm × 6.4mm

Functional Block Diagram

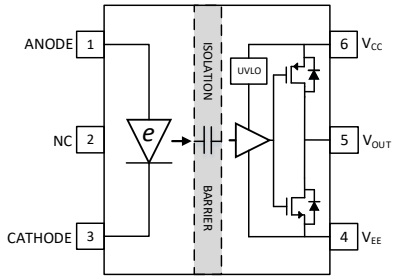


Figure 1. NSi6801 SOW6 Block Diagram

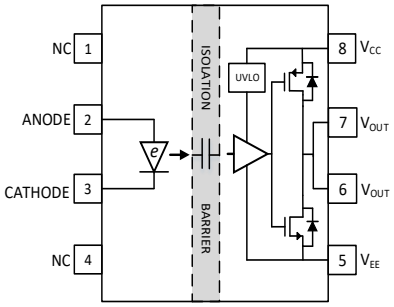


Figure 2. NSi6801T DUB8 Block Diagram

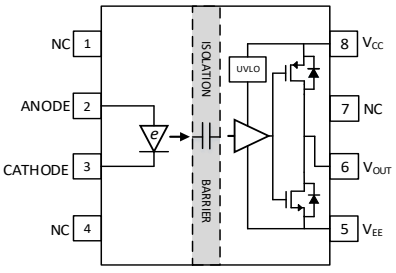
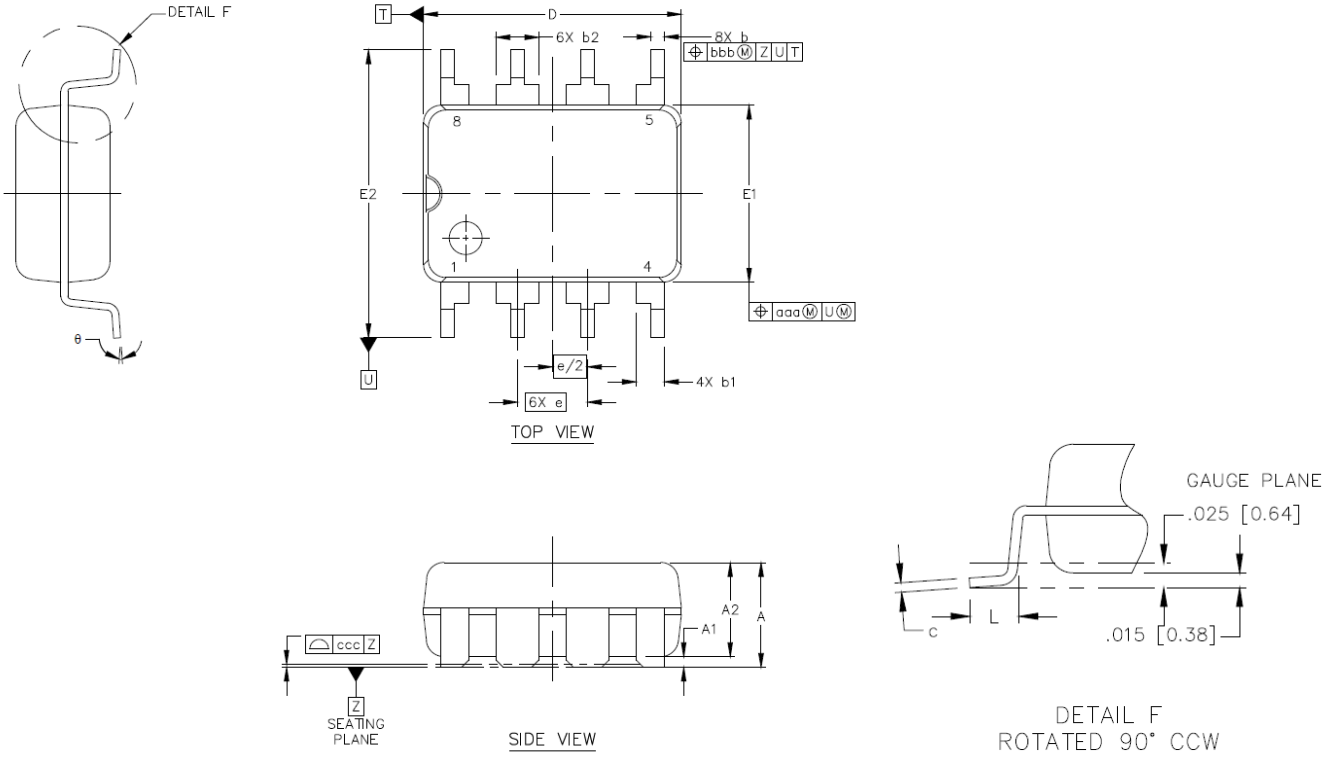


Figure 3. NSi6801L DUB8 Block Diagram



	SYMBOL	MIN	NOM	MAX
TOTAL THICKNESS	A	3.58	---	4.19
STAND OFF	A1	0.38	---	0.58
MOLD THICKNESS	A2	3.20	---	3.61
LEAD WIDTH	b	0.36	---	0.56
	b1	---	0.99 REF	---
	b2	---	1.524 REF	--
L/F THICKNESS	c	0.20	---	0.36
BODY SIZE	D	9.27	---	9.37
	E1	6.20	---	6.60
	E2	10.11	---	10.69
LEAD PITCH	e	2.54 BSC		
LEAD LENGTH	L	1.15	---	1.45
	θ	0°	---	8°
LEAD OFFSET	aaa	0.254		

Figure 9.2 DUB8 Package Shape and Dimension in millimeters

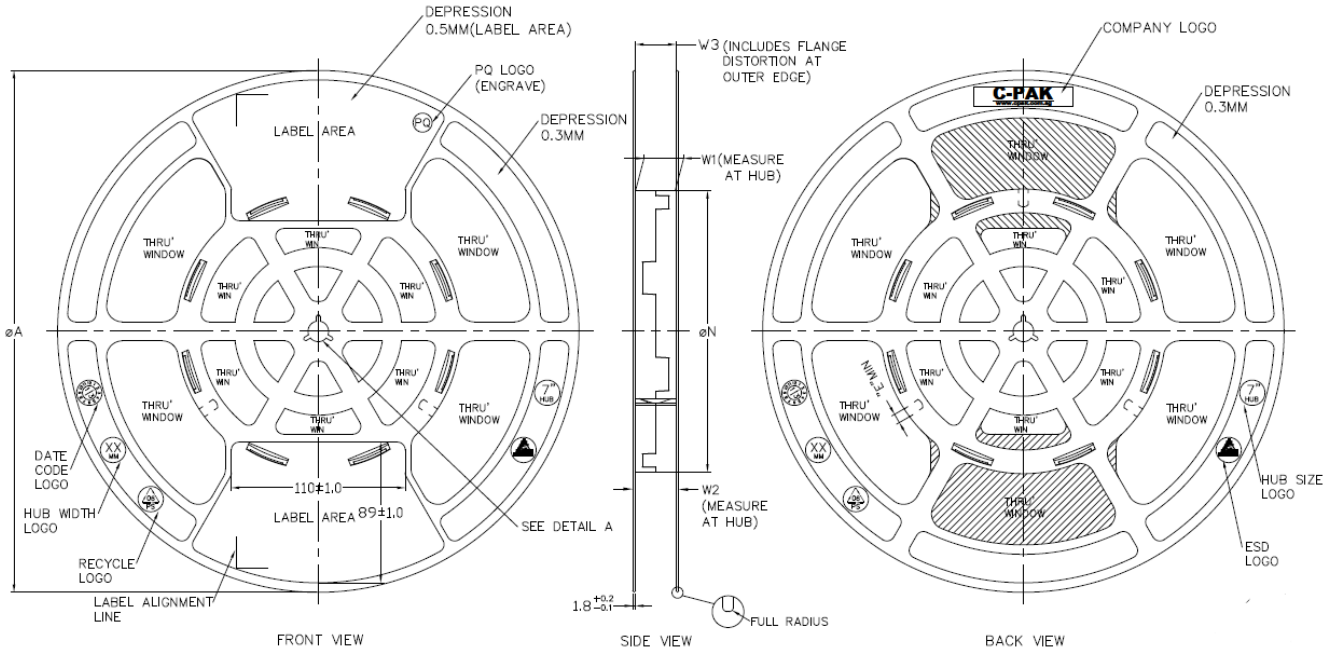
10. Ordering Information

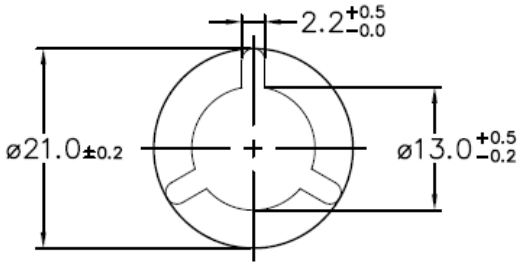
Part Number	*Isolation Rating (kV)*	*UVLO Level*	*Vout Connection*	*Temperature*	*MSL*	*Package Drawing*	*SPQ*
NSi6801B-DSWFR	5.7	9V	Pin 5	-40 to 125°C	3	SOW6	1000
NSi6801C-DSWFR	5.7	13V	Pin 5	-40 to 125°C	3	SOW6	1000
NSi6801TB-DDBR	5	9V	Pin 6, 7	-40 to 125°C	3	DUB8	800
NSi6801TC-DDBR	5	13V	Pin 6, 7	-40 to 125°C	3	DUB8	800
NSi6801LC-DDBR	5	13V	Pin 6	-40 to 125°C	3	DUB8	800

11. Documentation Support

Part Number	***Product Folder***	***Datasheet***	***Technical Documents***	***Isolated Driver Selection Guide***
NSi6801	Click here	Click here	Click here	Click here

12. Tape and Reel Information



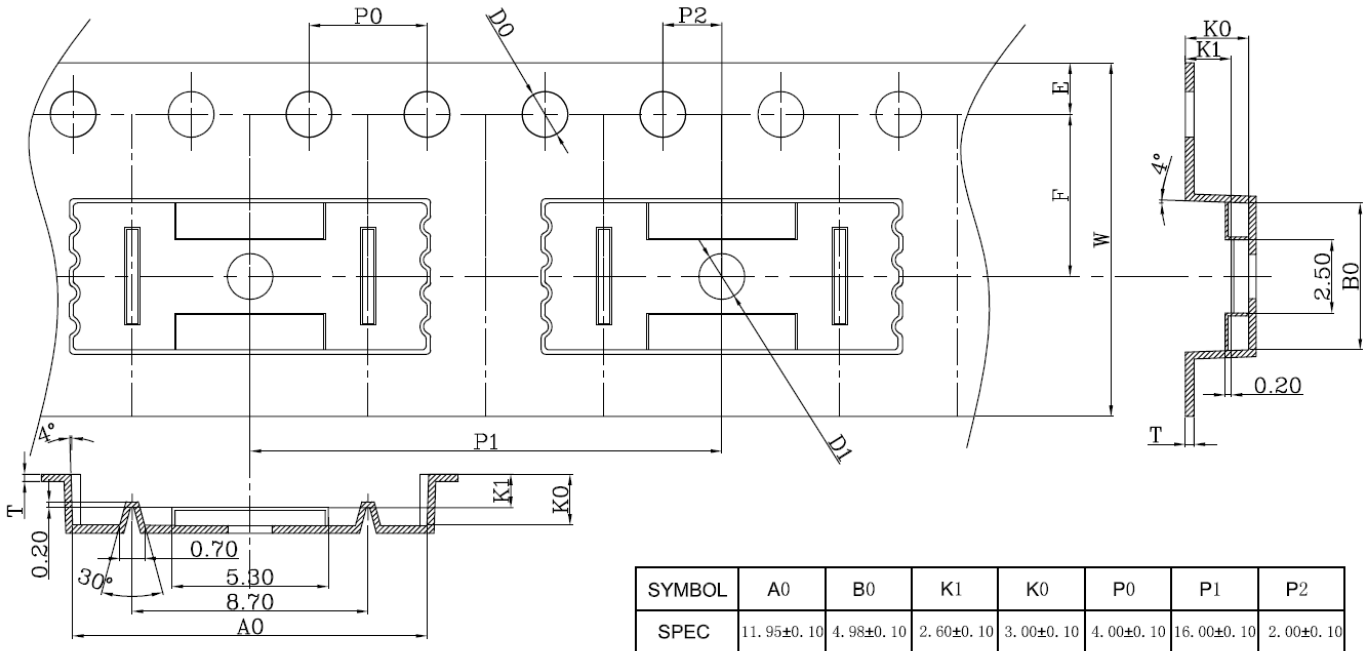


ARBOR HOLE
DETAIL A
SCALE : 3:1

PRODUCT SPECIFICATION						
TAPE WIDTH	øA ±2.0	øN ±2.0	W1	W2 (MAX)	W3	E (MIN)
08MM	330	178	8.4 +1.5 -0.0	14.4	SHALL ACCOMMODATE TAPE WIDTH WITHOUT INTERFERENCE	5.5
12MM	330	178	12.4 +2.0 -0.0	18.4		5.5
16MM	330	178	16.4 +2.0 -0.0	22.4		5.5
24MM	330	178	24.4 +2.0 -0.0	30.4		5.5
32MM	330	178	32.4 +2.0 -0.0	38.4		5.5

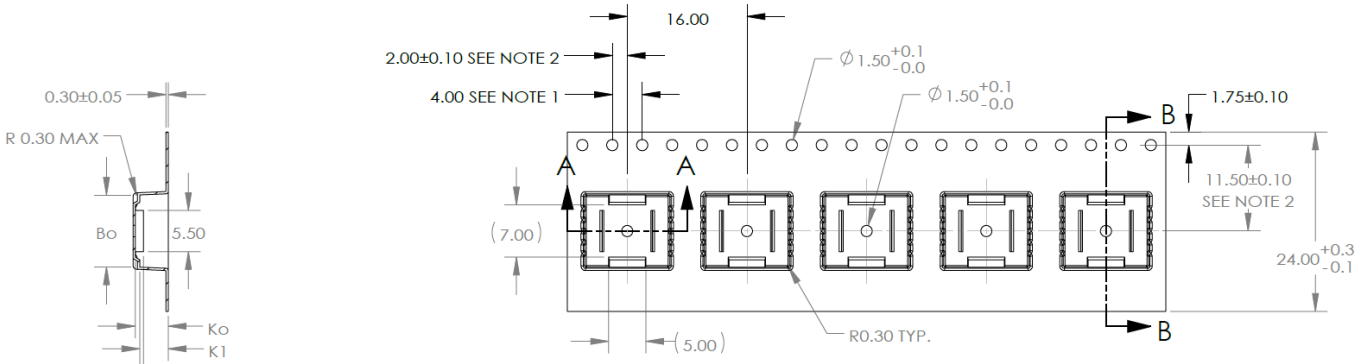
SURFACE RESISTIVITY			
LEGEND	SR RANGE	TYPE	COLOUR
A	BELOW 10^{12}	ANTISTATIC	ALL TYPES
B	10^{6} TO 10^{11}	STATIC DISSIPATIVE	BLACK ONLY
C	10^{5} & BELOW 10^{5}	CONDUCTIVE (GENERIC)	BLACK ONLY
E	10^{9} TO 10^{11}	ANTISTATIC (COATED)	ALL TYPES

Figure 12.1 Tape Information



SYMBOL	A0	B0	K1	K0	P0	P1	P2
SPEC	11.95±0.10	4.98±0.10	2.60±0.10	3.00±0.10	4.00±0.10	16.00±0.10	2.00±0.10
SYMBOL	T	E	F	D0	D1	W	
SPEC	0.30±0.03	1.75±0.10	7.50±0.05	1.55±0.05	1.55±0.10	$16.0^{+0.30}_{-0.10}$	

Figure 12.2 Reel Information of SOW6



	DIM	±
Ao	11.00	0.10
Bo	9.60	0.10
Ko	4.40	0.10
K1	3.80	0.10

NOTES:
1. 10 SPROCKET HOLE PITCH CUMULATIVE TOLERANCE ±0.2
2. POCKET POSITION RELATIVE TO SPROCKET HOLE MEASURED AS TRUE POSITION OF POCKET, NOT POCKET HOLE.
3. Ao AND Bo ARE MEASURED ON A PLANE AT A DISTANCE "R" ABOVE THE BOTTOM OF THE POCKET.

Figure 12.3 Reel Information of DUB8

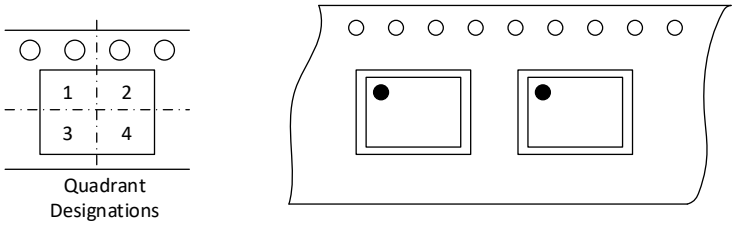


Figure 12.4 Quadrant Designation for Pin1 Orientation in Tape

13. Reversion History

Revision	Description	Date
1.0	Initial version	2021/4/16
1.1	Updated CTI level and VDE file numbers	2021/9/13