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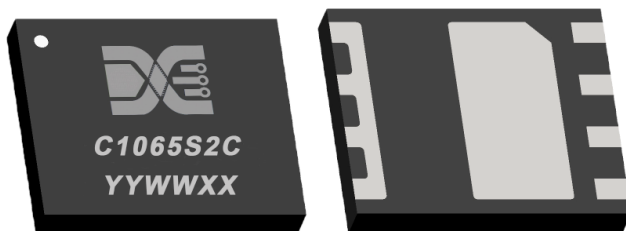
DXC1065S2C PIIP™ GaN IC

1. Features

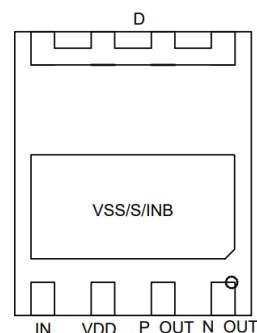
- 650 V enhancement mode power switch
- $R_{DS(on)} = 200m\Omega$
- $I_{DS(max)} = 10A$
- Easy gate drive requirements (0 V to 6 V)
- Very high switching frequency (> 10 MHz)
- Fast and controllable fall and rise times
- Zero reverse recovery loss

2. Device Information

Part Number	Marking Code	Package	Packing
DXC1065S2C	DXC1065S2C	DFN5x6	Tape 4k/reel



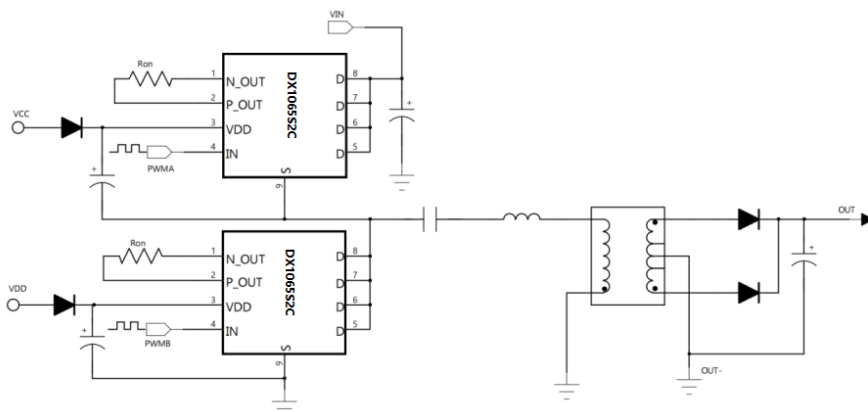
DXC1065S2C DFN5x6



DXC1065S2C Bottom View

3. Applications

- Fast Battery Charging
- LED lighting drivers
- Power Factor Correction
- LLC Converters
- Wireless Power Transfer



Typical application circuit of LLC



4. Description

DXC1065S2C is a sealed device that includes a single channel high-speed driver and an enhanced GaN silicon transistor. GaN is a wide band gap semiconductor with high power density. The gallium nitride transistor is characterized by no body diode, so the reverse recovery charge is zero.

5. Absolute Maximum Ratings (Tc=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit	Condition
Drain-Source voltage	V _{DS}	650	V	
Gate-source voltage	V _{GS}	-10 to 6	V	
Continuous drain current*	I _D	10	A	T _c =25°C
		4.5	A	T _c =125°C
Operation and storage temperature	T _j	-55 to 150	°C	
	T _{stg}	-55 to 150	°C	

* An Estimated Value

6. Enhancement Mode GaN-on-silicon Transistor Electrical

Characteristics (Tc=25°C unless otherwise specified)

Typical Performance – Static

Parameter	Symbol	Values			Unit	Test condition
		Min.	Type.	Max.		
Drain source breakdown voltage	BV _{DS}	650	/	/	V	VGS=0V, ID=20μA
Total drain leakage current	I _{DSS}	/	1	10	μA	VDS=650V, VGS=0V, Tj=25°C
		/	8	110	μA	VDS=650V, VGS=0V, Tj=150°C
Gate-to-source current	I _{GSS}	/	10	/	μA	VDS=0V, VGS=6V, Tj=25°C
Static drain-source on-resistance	R _{DS(ON)}	/	150	200	mΩ	VGS=6V, ID=3A, Tj=25°C
		/	300	/	mΩ	VGS=6V, ID=3A, Tj=150°C

7. Single Channel High Speed Drive Key Technical Indicators

7.1 Absolute Maximum Ratings

Over operating free-air temperature range(Unless otherwise noted) ⁽¹⁾

Description	Min	Max	Unit
VDD to VSS	-0.3	5.5	V
IN, INB to VSS	-0.3	20	V
N_OUT to VSS	-0.3	VDD+0.3	V
P_OUT to VSS	-0.3	VDD+0.3	V
Junction temperature		+150	°C
Storage temperature	-55	+150	°C

⁽¹⁾ Stresses beyond those listed under *Absolute Maximum Ratings* may cause permanent damage to the device. These are stress ratings only, which do not imply functional operation of the device at these or any other conditions beyond those indicated under *Recommended Operating Conditions*. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

7.2 Recommended Operating conditions

Over operating free-air temperature range(Unless otherwise noted)

Description	Min	Max	Unit
VDD	4.2	5.2	V
IN, INB	4.0	18	V
Operating temperature	-20	+125	°C

7.3 Electrical Characteristics

The maximum and minimum limits are determined by design, test, or data correlation. The typical values represent the most likely parametric norm at $T_J = 25\text{ }^{\circ}\text{C}$ for reference purposes only. (unless otherwise specified, $V_{DD} = 5\text{V}$).

7.4 High frequency characteristics

Symbol	Description	Test conditions	Min.	Typ.	Max.	Unit
V_{DD}	VDD operating voltage	T_J range of -20°C to 125°C	4.7	5.0	5.2	V
UVLO	VDD undervoltage lockout	VDD rising	3.8	4.0	4.2	V
	VDD undervoltage lockout hysteresis			0.1		V
	VDD undervoltage lockout to output delay time			1300		ns
I_{LK-N}	Output leakage current	$N_OUT = V_{DD}$		0.5	15	μA
I_{LK-P}	Output leakage current	$P_OUT = V_{DD}$		0.5	15	μA
N Channel output						
R_{ON-N}	Drive output resistance - pulling down	$V_{DD} = 5\text{V}$			0.36	Ω
P Channel output						
R_{ON-P}	Drive output resistance - pulling up	$V_{DD} = 5\text{V}$		1.62	1.64	Ω
Logic input						
V_{IH}	Input voltage - logic 1		2.05			V
V_{IL}	Input voltage - logic 0				1.78	V

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

Symbol	Description	Test conditions	Min.	Typ.	Max.	Unit
t_R	Rise time ¹⁾	$C_L = 1000 \text{ pF}$		5.2		ns
t_F	Fall time	$C_L = 1000 \text{ pF}$		3.3		ns
t_{D-ON}	Turn-on propagation delay	$C_L = 1000 \text{ pF}$		6.3		ns
t_{D-OFF}	Turn-off propagation delay	$C_L = 1000 \text{ pF}$		6.3		ns

(1) The rise time is the time required for the output signal to rise from 10% to 90%.

(2) The fall time is the time required for the output signal to drop from 90% to 10%.

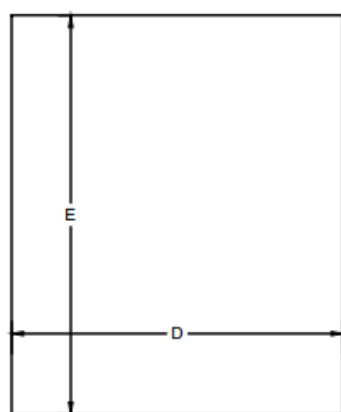
(3) The on propagation delay is the time required for the input signal to rise to 50% and the output signal to rise to 10%.

(4) The turn off propagation delay is the time required for the input signal to drop to 50% and the output signal to drop to 10%.

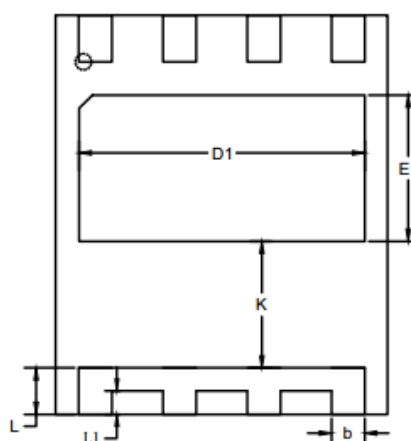
8. Package Outline Dimensions

DFN5x6

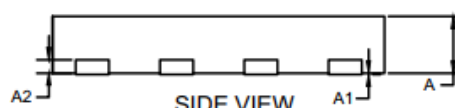
Dimensions(mm)			
Symbol	Min.	Nom.	Max.
A	0.8	0.85	0.9
A1	-	0.02	0.05
A2	0.2(REF)		
b	0.45	0.50	0.55
D	4.90	5.00	5.10
D1	4.20	4.30	4.40
E	5.90	6.00	6.10
E1	2.10	2.20	2.30
e	1.27		
k	1.9	-	-
L	0.65	0.7	0.75



TOP VIEW



BOTTOM VIEW

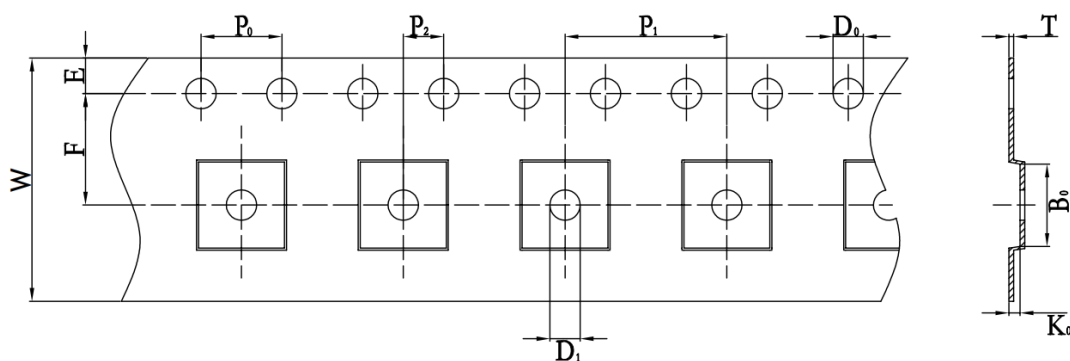


SIDE VIEW

9. Product packaging

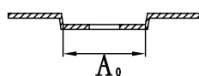
DFN5x6

ITEM	W	Ao	Bo	Ko	E	F	D1	D0	P0	P1	P2	T
MIN	11.70	4.15	4.15	0.95	1.65	5.40	—	—	3.90	7.90	1.90	0.18
NOM	12.00	4.25	4.25	1.05	1.75	5.50	1.50	1.50	4.00	8.00	2.00	0.23
MAX	12.30	4.35	4.35	1.15	1.85	5.60	1.60	1.60	4.10	8.10	2.10	0.28



USER FEED DIRECTION

进料方向



产品符合ROHS 环境管理物质标准

