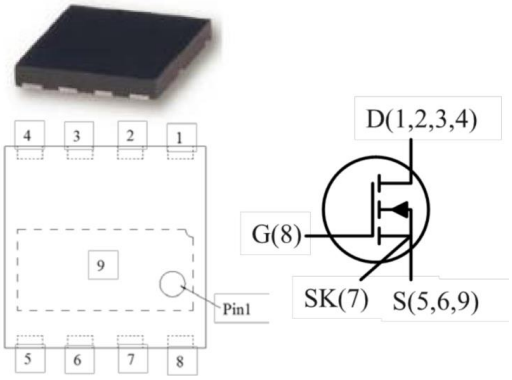
10A,650V Normally-OFF GaN

Features

- $R_{DS(on)}$=160mΩ (Typ.) @V_{GS}=6V,I_D=3A
- Low gate charge
- Low on-resistance
- Low intrinsic capacitance
- Extremely Fast switching



Applications

- Resonant soft switching Converters
- Switched mode power supplies（SMPS）
- Isolated DC/DC converters

Key Performance and Package Parameters

Order codes	V_{DS}	I_D	$R_{DS(ON)}$, Typ	T_{vjmax}	Marking	Package
XD10N65AA0Z8G	650V	10A	160mΩ	150℃	D10N65AA0	DFN8X8

Absolute Maximum Ratings (T_c= 25℃ unless otherwise noted.)

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source Voltage	650	V
V_{GSS}	Gate-Source Voltage	-10 to +7	V
I_D	Continuous Drain Current (T_C=25 ℃)	10	A
T_J	Operating Junction Temperature Range	-55 to 150	℃
T_{STG}	Storage Temperature Range	-55 to 150	℃

Electrical Characteristics (T_c= 25℃ unless otherwise noted.)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}= 0V, I_{DS}= 12uA	650	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=650V, V_{GS}=0V,T_j=25℃	---	6	12	uA
		V_{DS}=650V, V_{GS}=0V, T_j=150℃	---	25	50	uA
I_{GSS}	Gate Leakage Current	V_{GS}=6V, V_{DS}= 0V, T_j=25℃	---	100	---	uA
		V_{GS}=6V,V_{DS}= 0V, T_j=150℃	---	500	---	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_{DS}= 3.5mA	---	1.0	---	V
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=6V, I_{DS}=3A	---	160	---	mΩ
V_{SD}	Body Diode Forward Voltage	V_{GS}=0V, I_{SD}= 1A	---	1.8	---	V
Q_g	Total Gate Charge	V_{DS}=400V V_{GS}=0V to 6V	---	2.0	---	nC
Q_{gs}	Gate-Source Charge		---	0.4	---	nC
Q_{gd}	Gate-Drain Charge		---	0.9	---	nC
C_{iss}	Input Capacitance	V_{DS}=400V V_{GS}=0V f = 1MHz	---	71	---	pF
C_{oss}	Output Capacitance		---	25	---	pF
C_{rss}	Reverse Transfer Capacitance		---	1.3	---	pF
$C_{oss(er)}$	Output capacitance, energy related	VDS=0V to 400V, VGS=0V	---	31	---	pF
$C_{oss(tr)}$	Output capacitance, time related		---	40	---	pF

Typical Characteristics

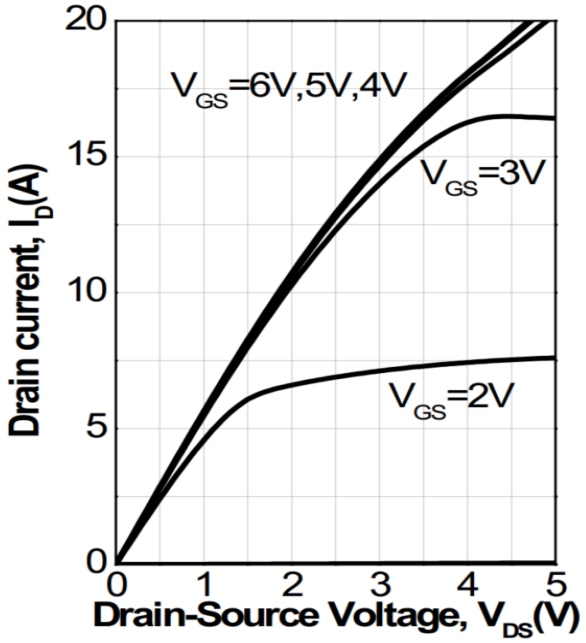


Fig.1 Typical output characteristics at T_J=25℃

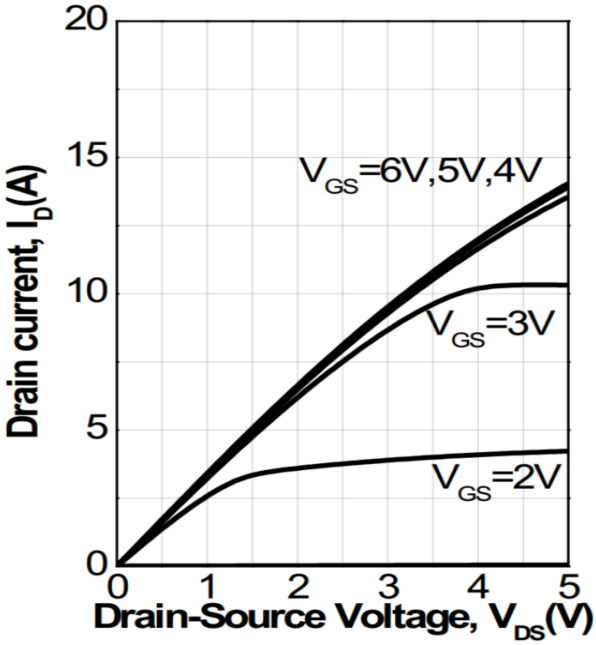


Fig.2 Typical output characteristics at T_J=150℃

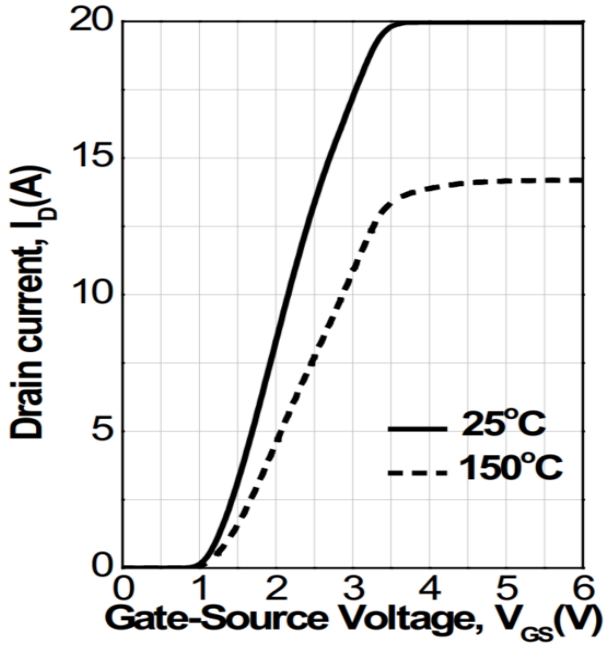


Fig.3 Typical transfer characteristics at V_{DS}=5V

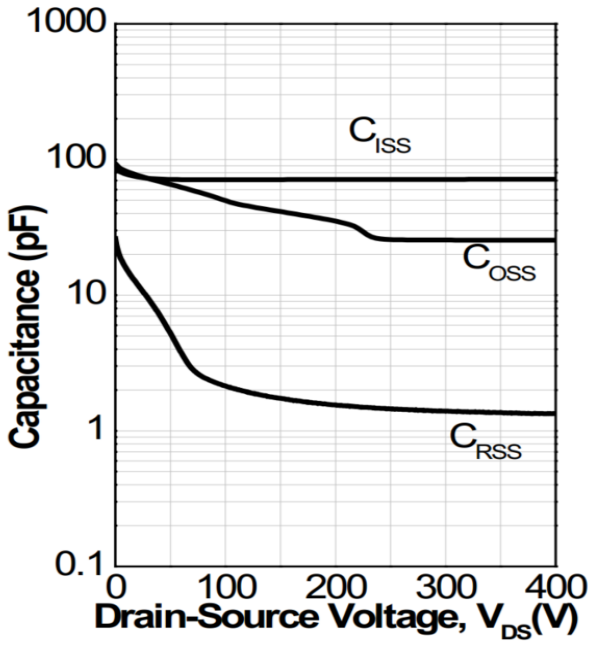


Fig.4 Typical capacitance characteristics at 1MHz

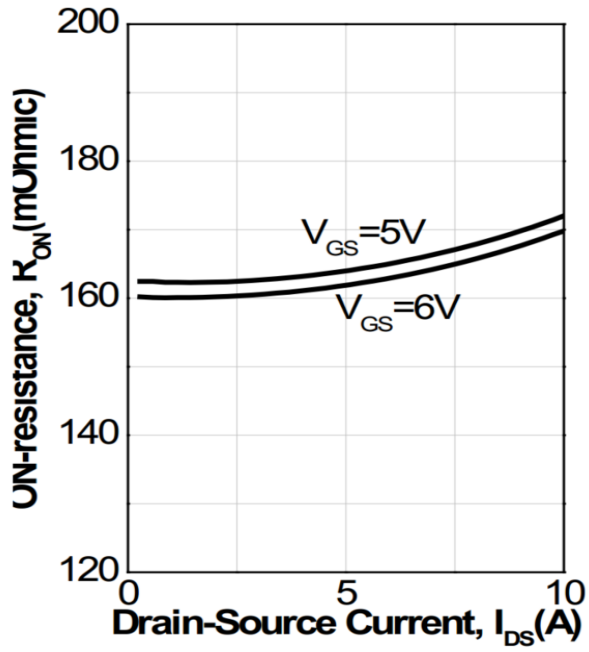


Fig.5 ON-resistance for various drain current at T_j=25℃

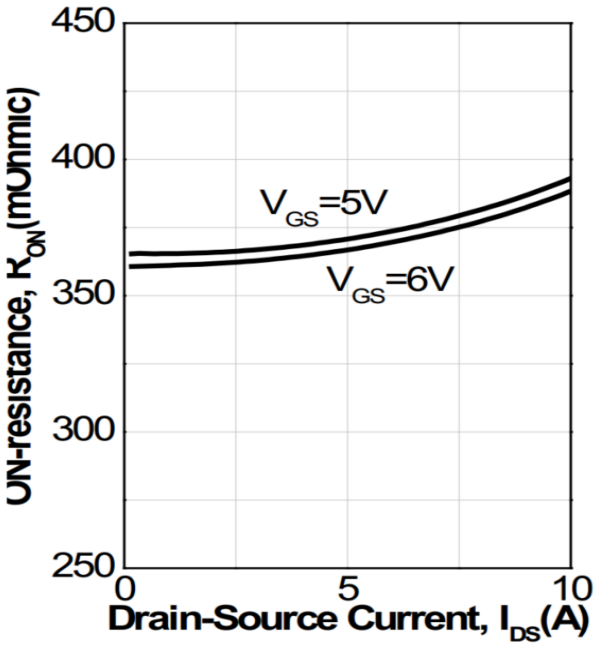


Fig.6 ON-resistance for various drain current at T_j=25℃

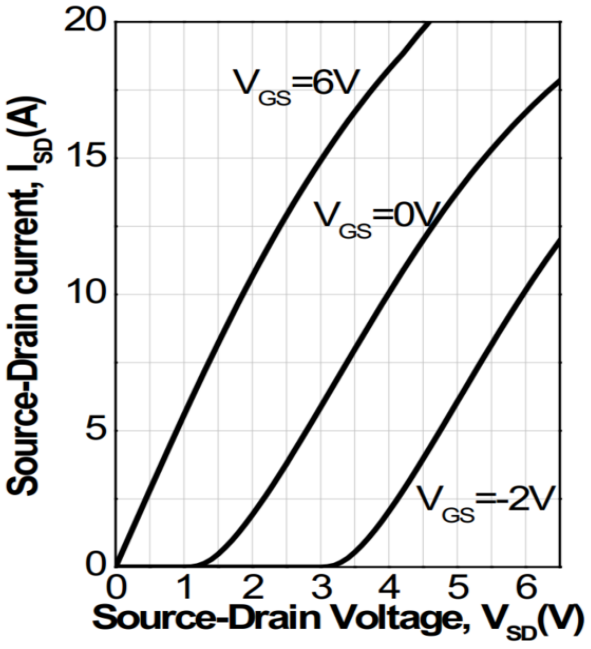


Fig.7 Typical reverse conduction Characteristics

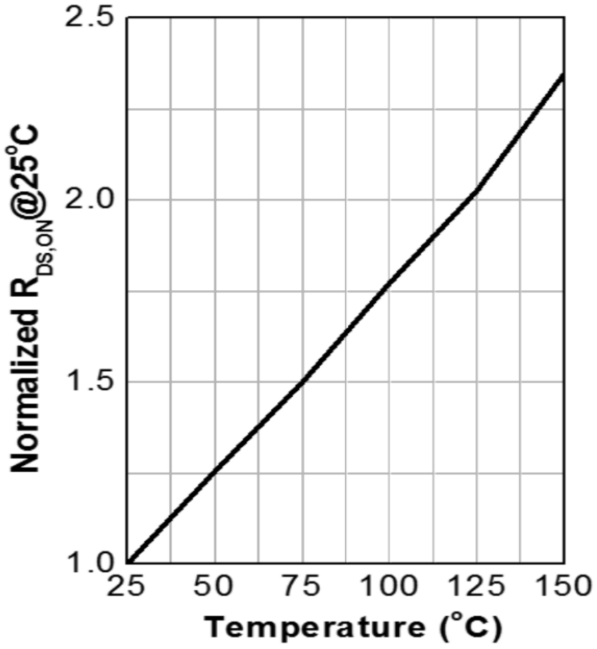
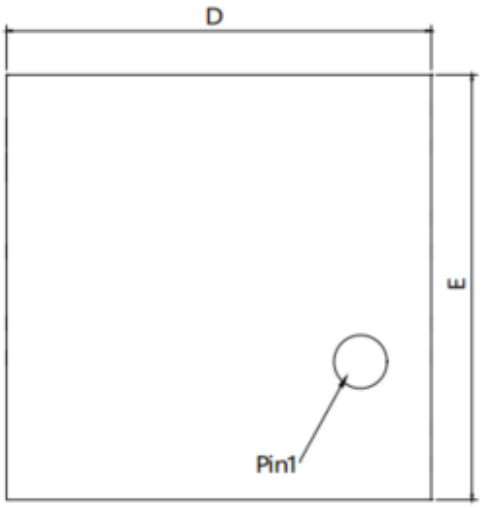


Fig.8 Normalized ON-resistance at various temperatures

Package Information

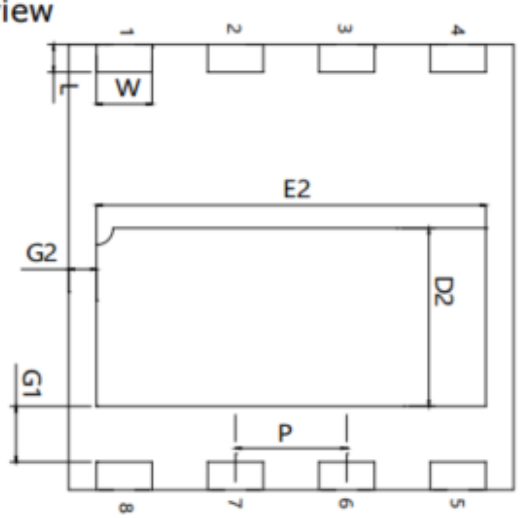
DFN8x8

Top view



Dimension[unit:mm]		
No	Typ.	Tolerance
A	0.9	±0.1
A2	0.203	Ref.
D	8.0	BSC
E	8.0	BSC
D2	3.20	Ref.
E2	7.00	Ref.
L	0.5	±0.05
W	1.0	±0.05
P	2.0	BSC
G1	1.0	Ref.
G2	0.5	Ref.

Bottom view



Side view