

1. Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	2.9mΩ@10V	135A

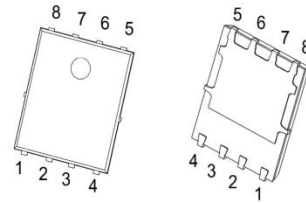
2. Features

- V_{DS} 100V
- I_D 135A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) <3.5 mohm
- Very low on-resistance $R_{DS(on)}$
- Pb-free lead plating

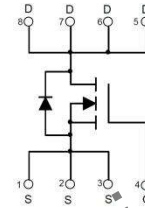
3. Applications

- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectification

PDFNWB5*6-8L



Schematic diagram



Marking



G029N10: Device Code
YY : Year Code
WW : Week Code

4. Absolute Maximum rating ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	I_D	135	A
Pulsed drain current ²	$I_{D,pulse}$	542	A
Single pulse avalanche energy ³	E_{AS}	960	mJ
Total Power Dissipation	P_D	125	W
Thermal Resistance from Junction-to-Case	$R_{\theta JC}$	0.80	$^\circ C/W$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$

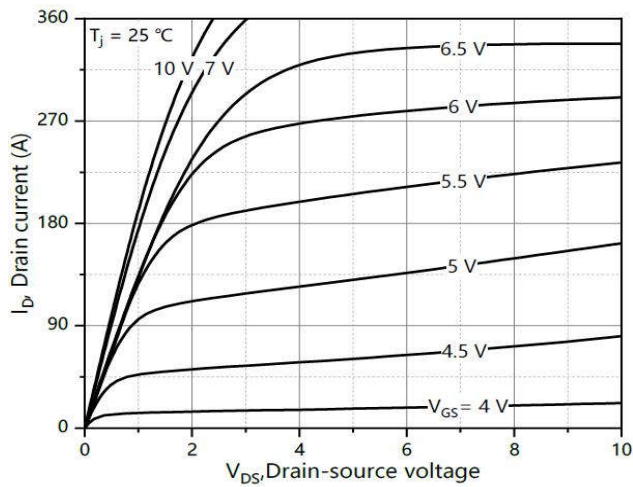
5. Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	3.0	4.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$	-	2.9	3.5	m Ω
Forward Transconductance	g_{fs}	$V_{DS} = 5.0V, I_D = 20A$	-	54	-	S
Gate resistance	R_G	f=1MHz, Open drain	-	2.1	-	Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=100kHz$	-	4406	-	pF
Output Capacitance	C_{oss}		-	1621	-	
Reverse Transfer Capacitance	C_{rss}		-	20	-	
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DD}=50V, I_D=20A$ $R_G=3\Omega$	-	11	-	nS
Turn-on Rise Time	t_r		-	23	-	
Turn-Off Delay Time	$t_{d(off)}$		-	44	-	
Turn-Off Fall Time	t_f		-	32	-	
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=50V, I_D=20A$	-	63	-	nC
Gate-Source Charge	Q_{gs}		-	16.9	-	
Gate-Drain Charge	Q_{gd}		-	11.5	-	
Gate plateau voltage	$V_{plateau}$		-	4.1	-	V
Source - Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=2A$	-	-	1.2	V
Reverse Recovery Time	t_{rr}	$I_F=20A, dI/dt=100A/\mu s$	-	76	-	ns
Reverse Recovery Charge	Q_{rr}		-	180	-	nC

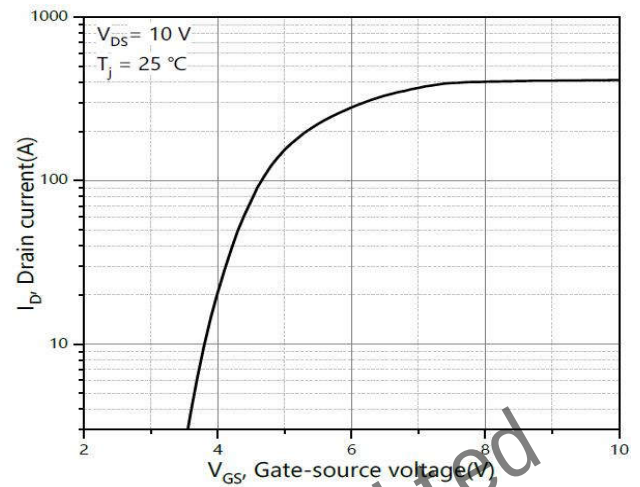
Note:

1. Calculated continuous current based on maximum allowable junction temperature.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. $V_{DD}=50V, V_{GS}=10V, L=1.0\text{mH}$, starting $T_J=25^\circ\text{C}$.

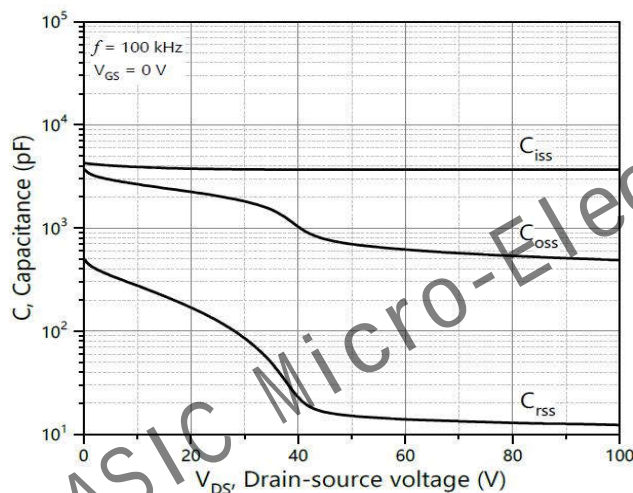
6. Typical Characteristic



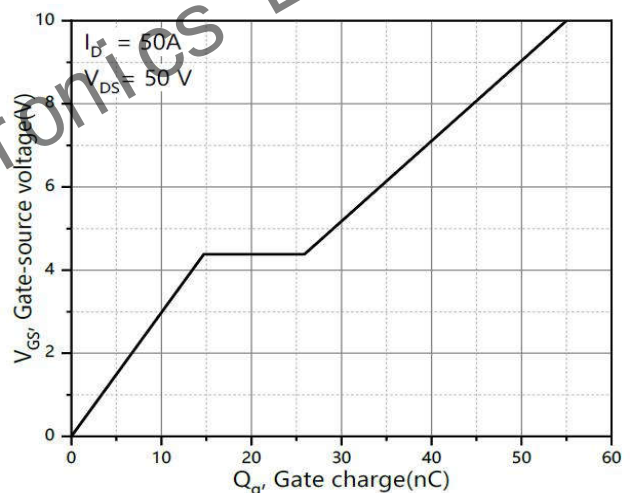
Output Characteristics



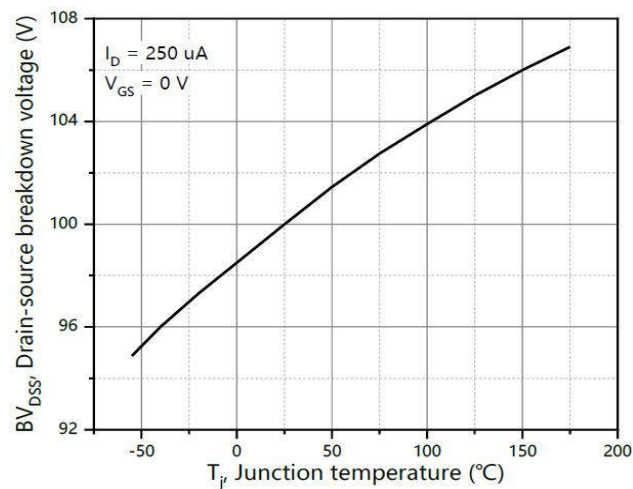
Transfer Characteristics



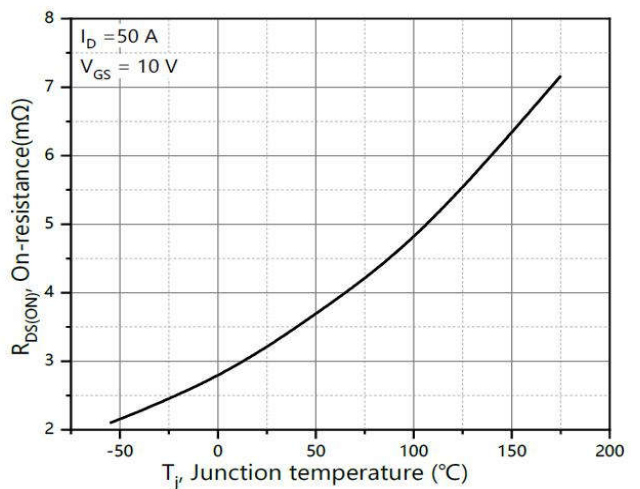
Capacitances



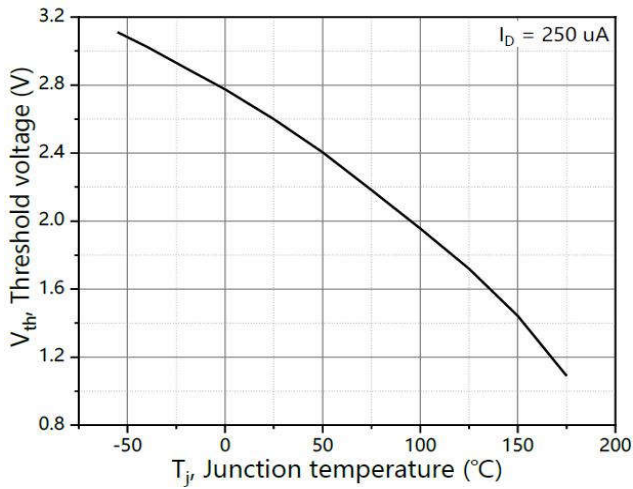
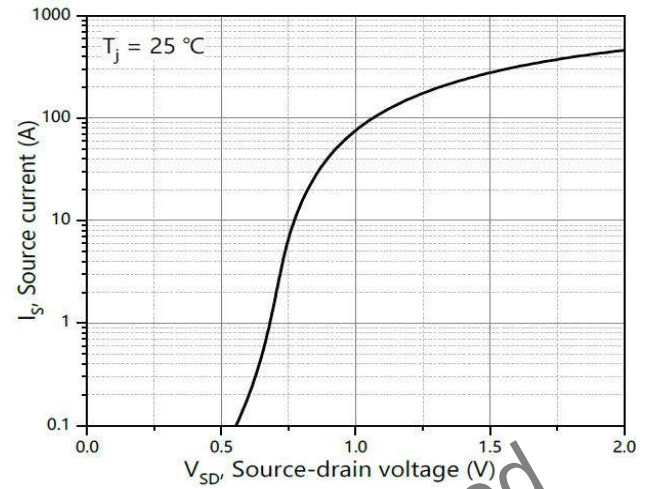
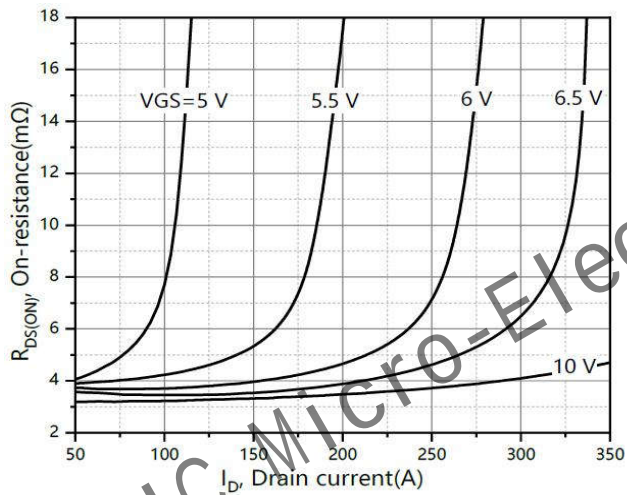
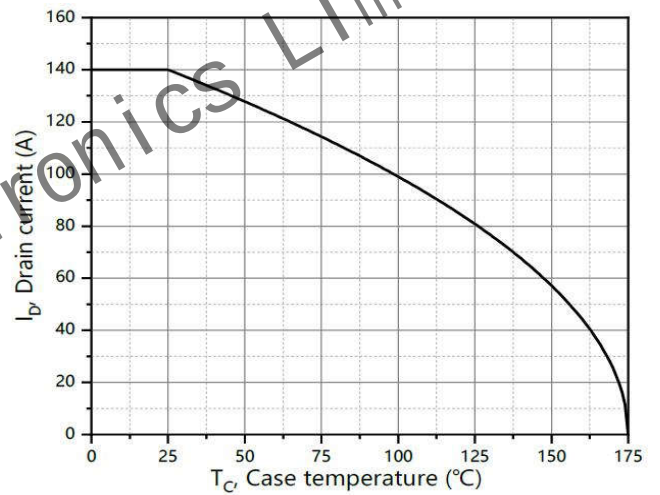
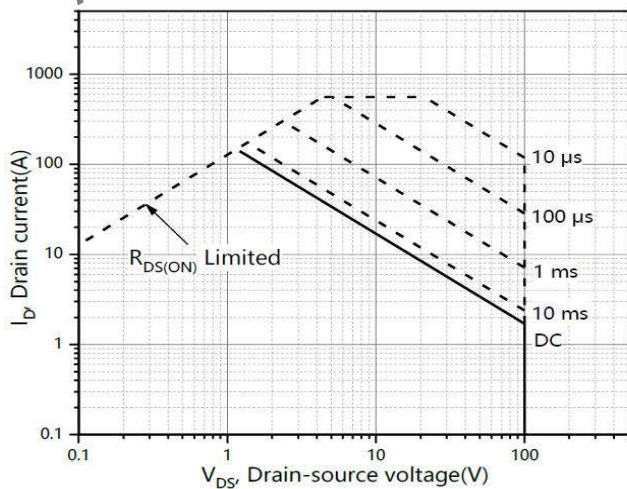
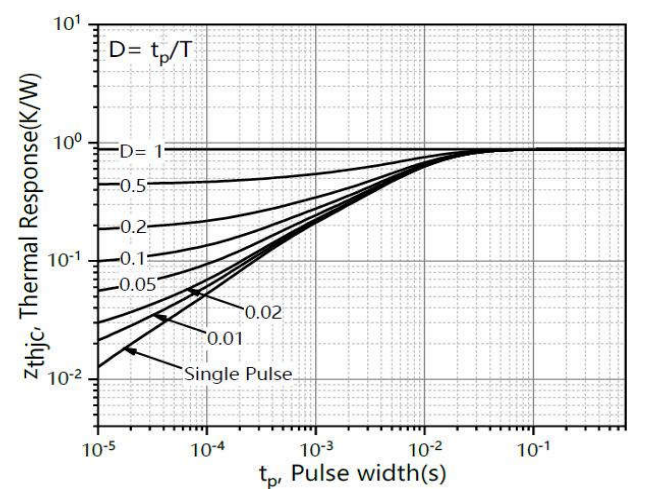
Gate Charge



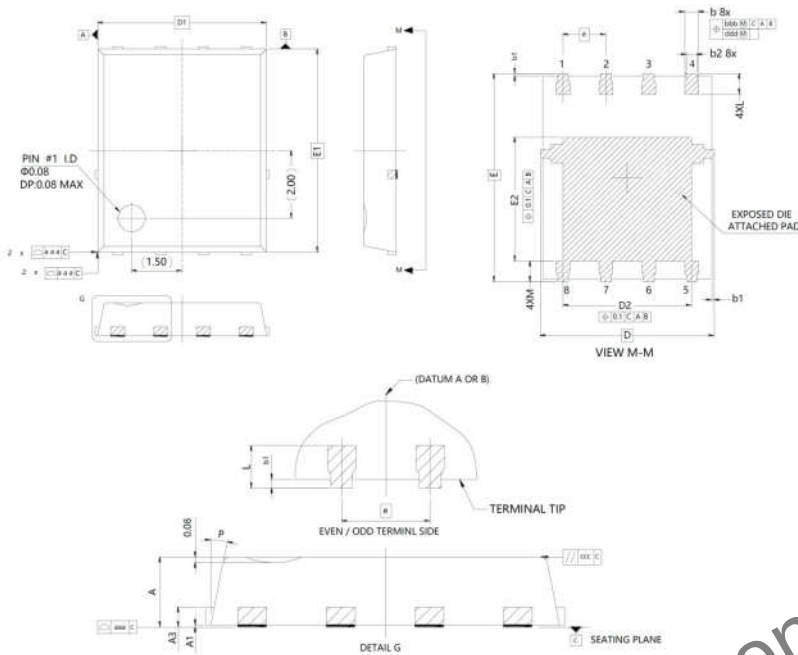
Drain-source Breakdown Voltage



Drain-source On-state Resistance


Threshold Voltage

Forward Characteristic of Body Diode

Drain-source On-state Resistance

Drain Current

Safe Operation Area $T_C = 25^\circ C$

Transient Thermal Impedance

7. Dimension



Symbol	Millimeters		
	Min	TYP	Max
A	0.95		1.05
A1	0		0.05
A3	0.25 REF		
b	0.31		0.51
b1	0.03		0.13
b2	0.21		0.41
D	5.15 BSC		
D1	5.00 BSC		
D2	3.7		3.9
E	6.15 BSC		
E1	6.00 BSC		
E2	3.56		3.76
e	1.27 BSC		
L	0.51		0.71
M	0.51		0.71

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