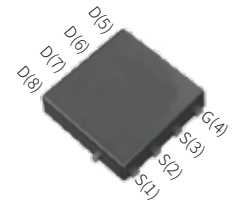
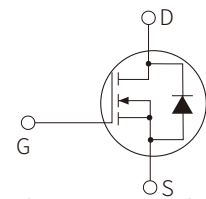


FEATURES

- | $R_{DS(ON)}$ Typ = 4.5mΩ @ $V_{GS} = 10V$
- | $R_{DS(ON)}$ Typ = 5.7mΩ @ $V_{GS} = 4.5V$
- | Advanced Trench Technology
- | Excellent $R_{DS(ON)}$ and Low Gate Charge
- | 100% UIS TESTED!
- | 100% ΔVds TESTED!



PDFN5×6-8L



Schematic Symbol

APPLICATION

- | Load Switch
- | PWM Application
- | Power Management

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DS}	100	V
Pulsed Drain Current ⁽¹⁾	I_{DM}	440	A
Continuous Drain Current	I_D	110	A
		66	A
Power Dissipation $T_c = 25^\circ\text{C}$	P_D	125	W
Gate-to-Source Voltage	V_{GS}	±20	V
Single Pulsed Avalanche Energy ⁽²⁾	E_{AS}	182	mJ
Junction & Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =250μA	100			V
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Drain Leakage Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1.0	μA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2	1.7	2.3	V
Static Drain-Source ON-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =30A		4.5	5.8	mΩ
		V _{GS} =4.5V, I _D =20A		5.7	7.4	mΩ
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =50V, f = 1MHz		2819		pF
Output capacitance	C _{oss}			790		pF
Reverse transfer capacitance	C _{rss}			16		pF
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =0 to 10V I _D =20A		45		nC
Gate-Source Charge	Q _{gs}			7		nC
Gate Drain("Miller") Charge	Q _{gd}			10		nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =50V, V _{GS} =10V R _{GEN} = 3Ω, I _D =20A		12		nS
Turn-on Rise Time	t _r			18		nS
Turn-Off Delay Time	t _{d(off)}			49		nS
Turn-Off Fall Time	t _f			38		nS
Drain-Source Diode Characteristics and Max Ratings						
Drain to Source Diode Forward Voltage	V _{SD}	I _S =30A, V _{GS} =0V			1.2	V
Body Diode Reverse Recovery Time	t _{rr}	I _F =20A di/dt = 100A/us		50		nS
Body Diode Reverse Recovery Charge	Q _{rr}			41		nC
Maximum Continuous Drain to Source Diode Forward Current	I _S				110	A
Maximum Pulsed Drain to Source Diode Forward Current	I _{SM}				440	A

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. E_{AS} condition: Starting T_J=25°C, V_{DD}=50V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=27A
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%

PARAMETER CHARACTERISTIC CURVE

Fig 1: Output Characteristics

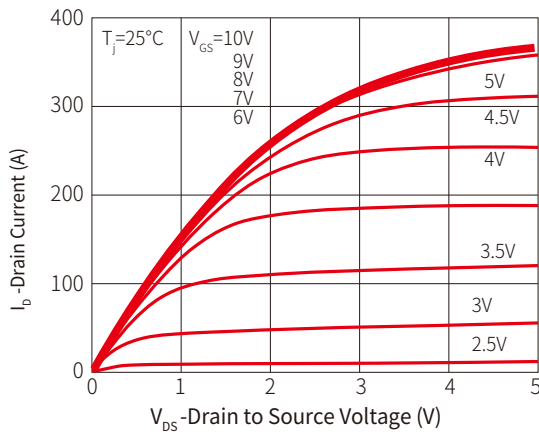


Figure 2: Typical Transfer Characteristics

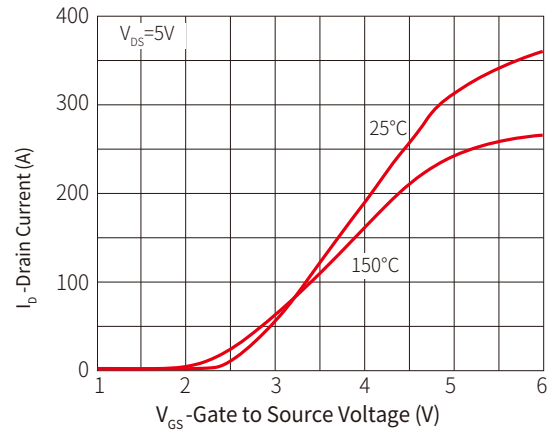


Figure 3: Capacitance Characteristics

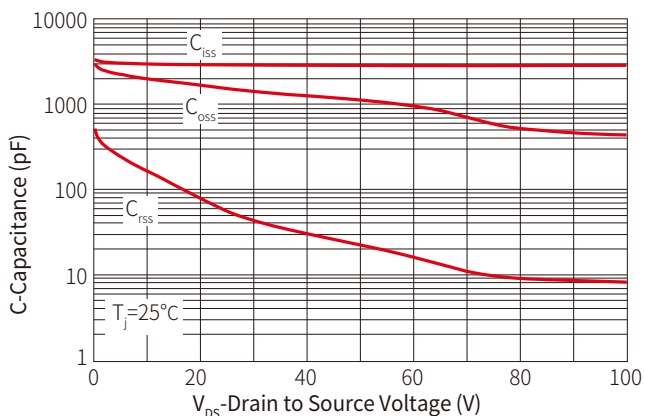


Figure 4: Gate Charge

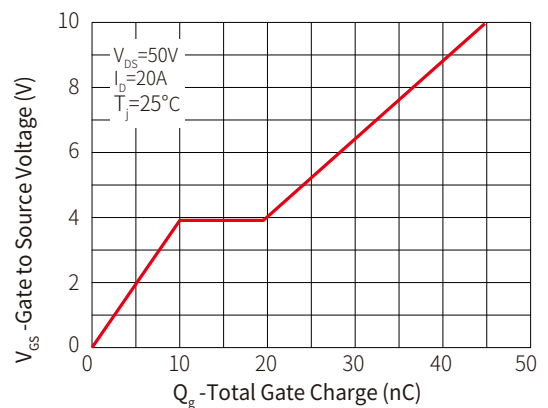


Figure 5: On-Resistance vs Gate to Source Voltage

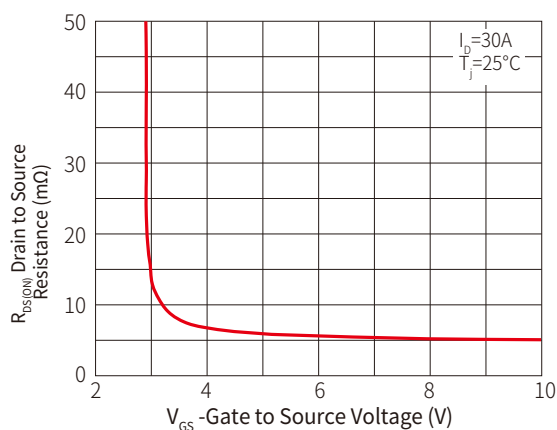
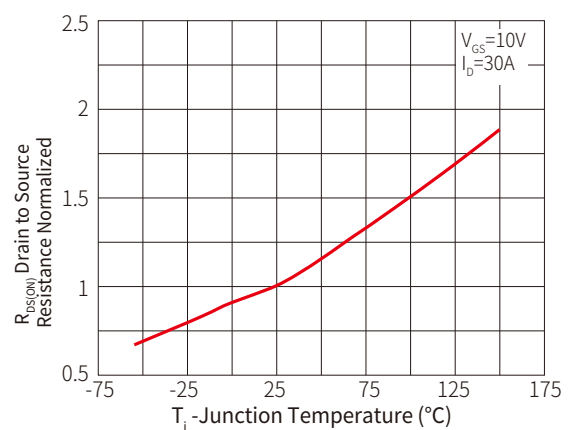


Figure 6: Normalized On-Resistance



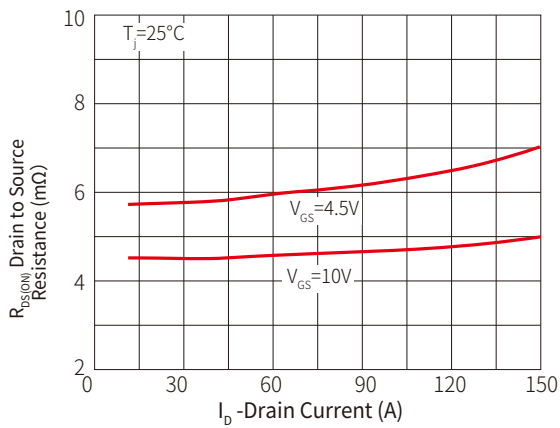
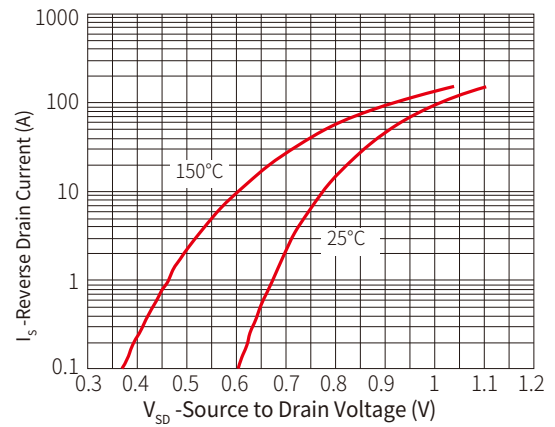
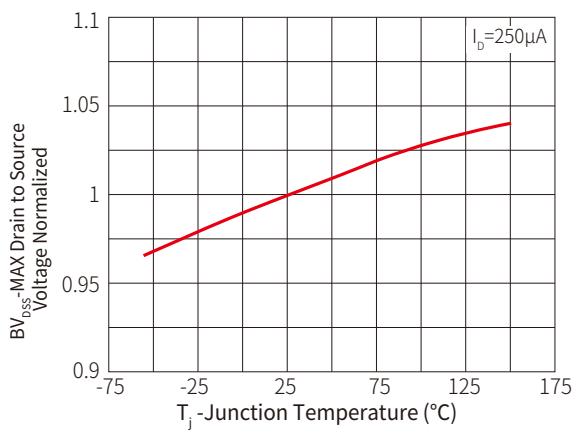
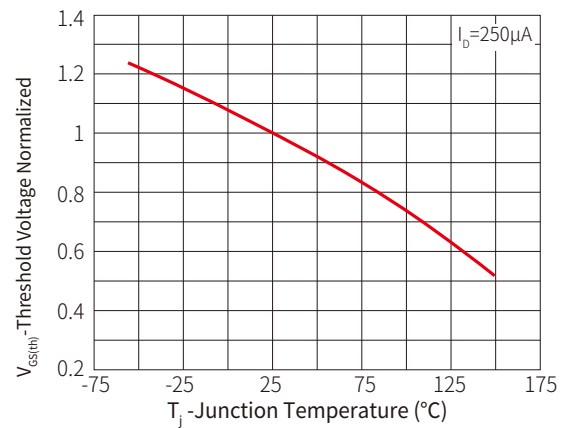
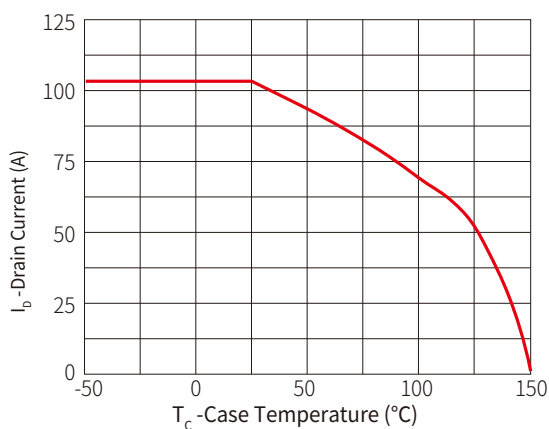
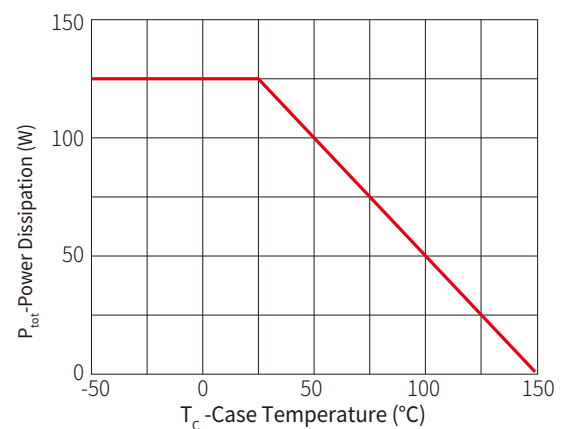
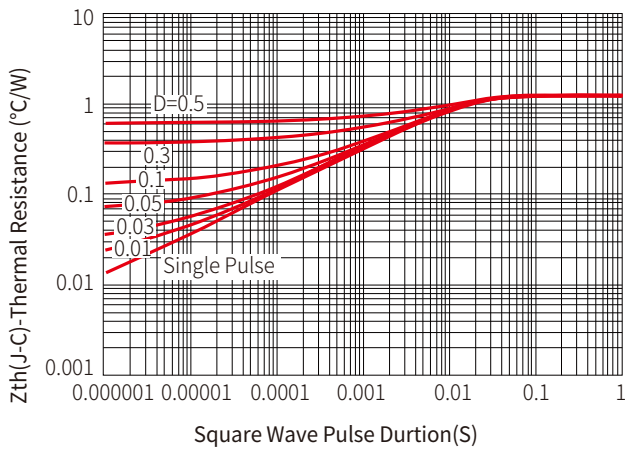
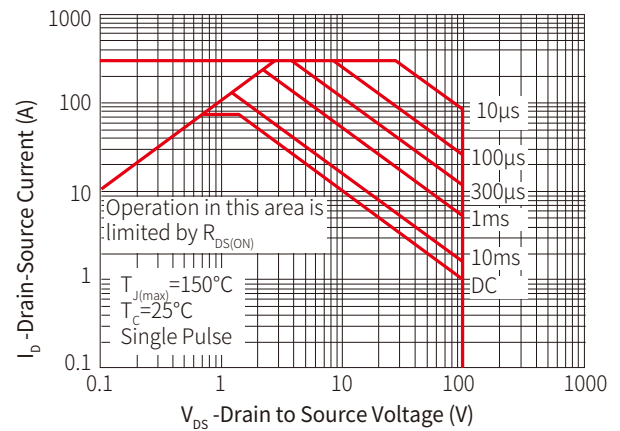
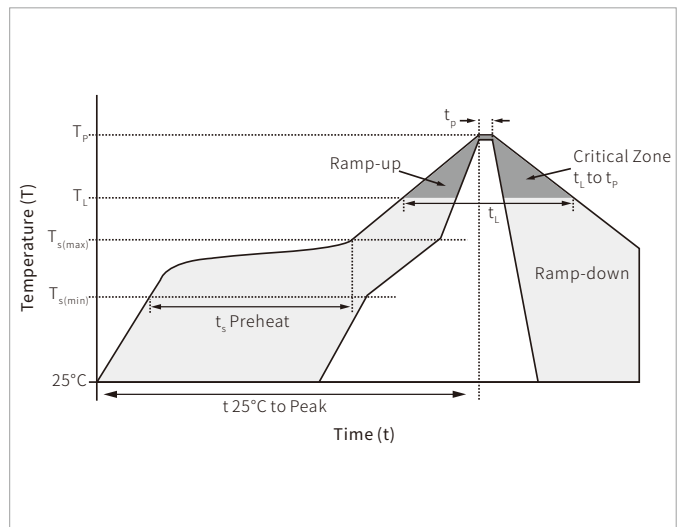
**Figure 7: $R_{DS(on)}$ VS Drain Current****Figure 8: Forward characteristics of reverse diode****Figure 9: Normalized breakdown voltage****Figure 10: Normalized Threshold voltage****Figure 11: Current dissipation****Figure 12: Power dissipation**

Figure 13: Maximum Transient Thermal Impedance

Figure 14: Safe Operation Area


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.17	0.035	0.046
A1	0.00	0.05	0.000	0.002
A3	0.254REF		0.010REF	
b	0.31	0.51	0.012	0.020
b1	0.03	0.13	0.001	0.005
b2	0.21	0.41	0.008	0.016
D	5.15BSC		0.203BSC	
D1	5.00BSC		0.197BSC	
D2	3.70	3.90	0.146	0.154
E	6.15BSC		0.242BSC	
E1	6.00BSC		0.236BSC	
E2	3.56	3.76	0.140	0.148
e	1.27BSC		0.050BSC	
L	0.51	0.71	0.020	0.028
M	0.51	0.71	0.020	0.028
P	10°	12°	0.394°	0.472°
aaa	0.10		0.004	
bbb	0.10		0.004	
ccc	0.10		0.004	
ddd	0.05		0.002	
eee	0.08		0.003	

Part Number	Component Package	Marking	QTY/Reel	Reel Size
SNM110N10G	PDFN5×6-8L	 110N10 XXXX	5000PCS	13"

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