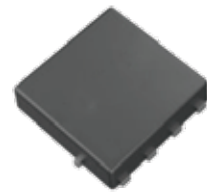


FEATURES

| Surface-mounted Package

| Low Thermal Resistance



PDFN3×3-8L

APPLICATION

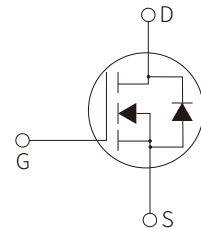
| Motor Drivers

| DC - DC Converter



APPROVALS

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



Schematic Symbol

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage $T_c=25^\circ\text{C}$	V_{DS}	30	V
Pulsed Source Current $T_c=25^\circ\text{C}, V_{GS}=10\text{V}$	I_{DM}^{***}	112	A
Drain Current $T_c=25^\circ\text{C}, V_{GS}=10\text{V}$	I_D^{**}	50	A
Gate-Source Voltage $T_c=25^\circ\text{C}$	V_{GS}	± 20	V
Total Power Dissipation $T_c=25^\circ\text{C}$	P_{tot}^*	20.8	W
Diode Forward Current $T_c=25^\circ\text{C}$	I_S	50	A
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^\circ\text{C}$
Thermal Resistance – Junction to Ambient	$R_{\theta JA}^*$	62.5	$^\circ\text{C/W}$
Thermal Resistance- Junction to Case	$R_{\theta JC}^*$	6	$^\circ\text{C/W}$

Notes:

* Surface Mounted on 1 in² pad area, $t \leq 10$ sec

** Pulse width ≤ 10 us, duty cycle $\leq 1\%$

*** Limited by bonding wire

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	1.0		2.0	V
Drain Leakage Current	I_{DSS}	$V_{DS}=24V, V_{GS}=0V$			1	μA
		$V_{DS}=24V, V_{GS}=0V, T_J=85^{\circ}C$			30	μA
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Drain-Source On-State Resistance	$R_{DS(on)}^a$	$V_{GS}=10V, I_D=20A$		4.5	5.0	m Ω
		$V_{GS}=4.5V, I_D=10A$		7.0	8.0	m Ω
Diode Characteristics						
Diode Forward Voltage	V_{SD}^a	$I_{SD}=20A, V_{GS}=0V$			1.3	V
Reverse Recovery Time	t_{rr}	$I_{SD}=20A,$ $dI_{SD}/dt=100A/\mu s$		23		nS
Reverse Recovery Charge	Q_{rr}			10		nC
Dynamic Characteristics ^b						
Input capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=15V,$ Frequency = 1 MHz		731		pF
Output capacitance	C_{oss}			380		pF
Reverse transfer capacitance	C_{rss}			34		pF
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=15V, V_{GEN}=10V$ $R_G=4.5\Omega, R_L=0.75\Omega,$ $I_D=20A$		6.8		nS
Turn-on Rise Time	t_r			55		nS
Turn-Off Delay Time	$t_{d(off)}$			12		nS
Turn-Off Fall Time	t_f			20		nS
Gate Charge Characteristics ^b						
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=10V, I_{DS}=20A$		14		nC
Gate-Source Charge	Q_{gs}			3.2		nC
Gate-Drain Charge	Q_{gd}			2.2		nC

Notes:

a : Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Capability

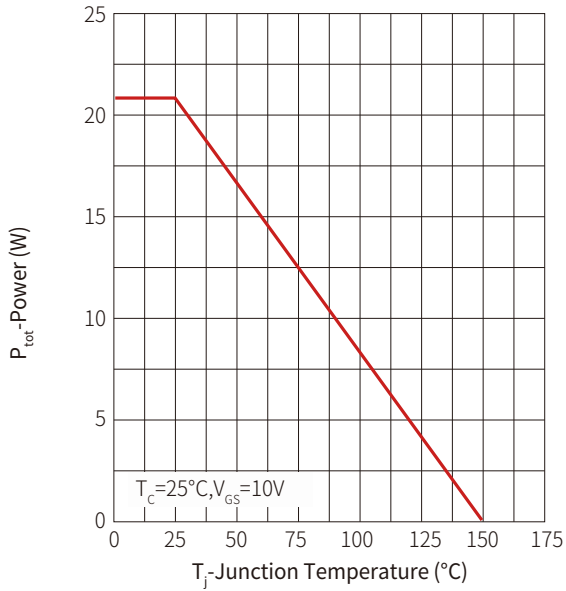


Figure2: Current Capability

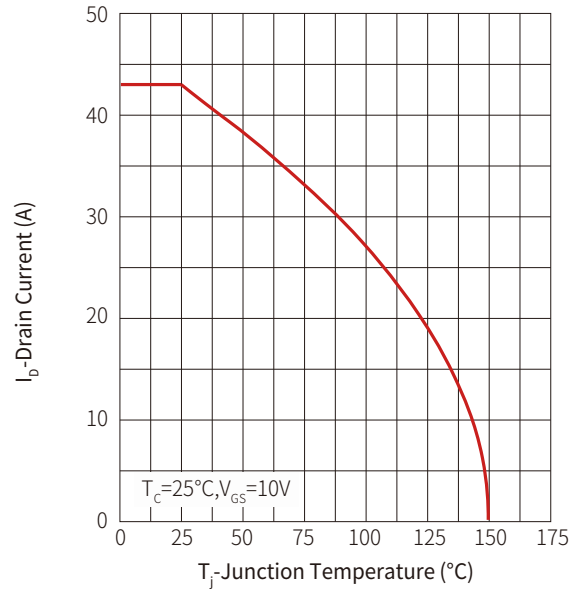


Figure3: Safe Operation Area

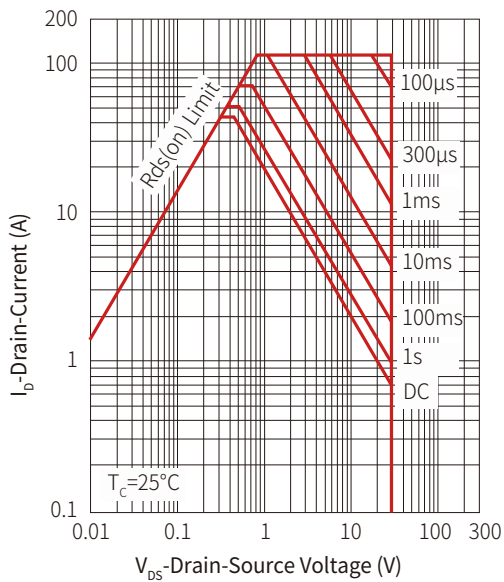


Figure 4: Transient Thermal Impedance

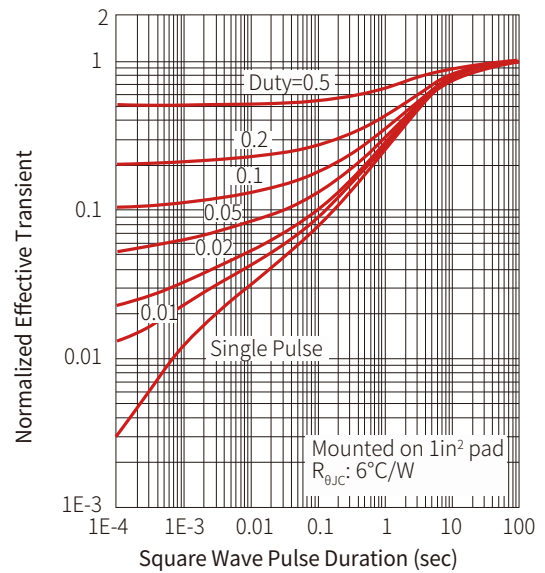


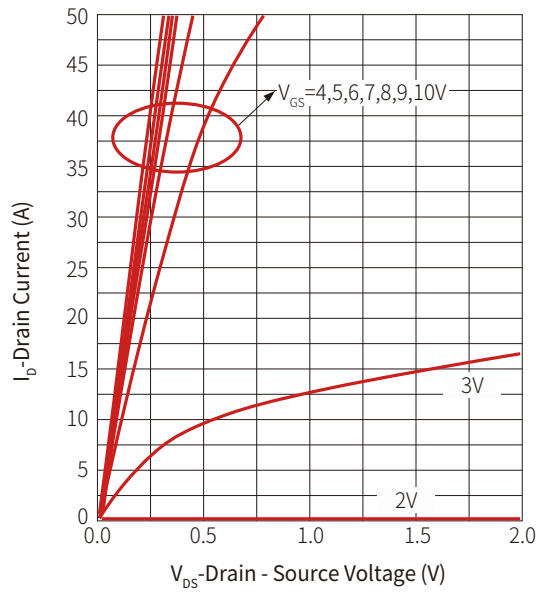
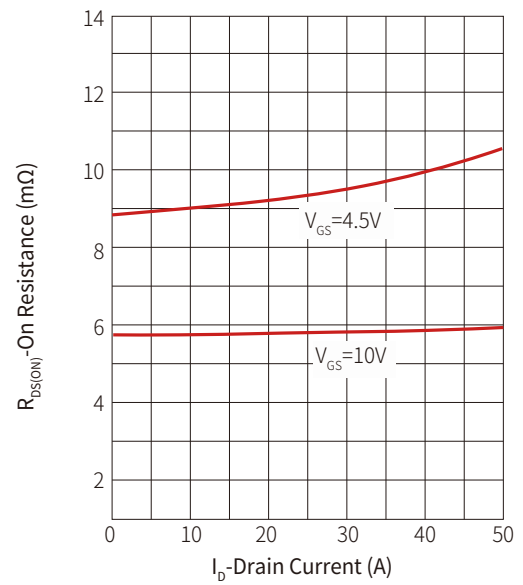
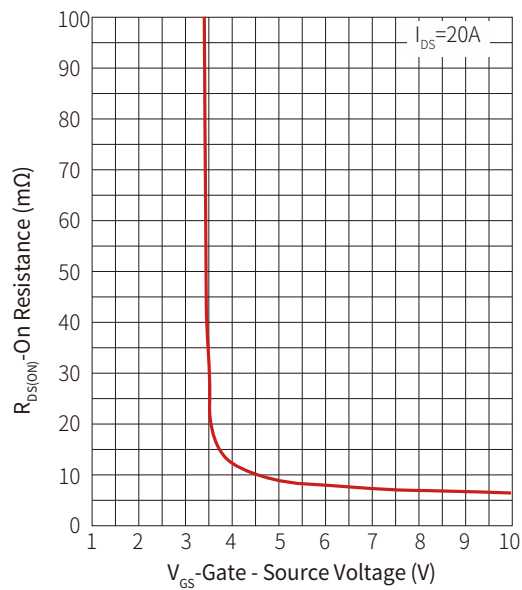
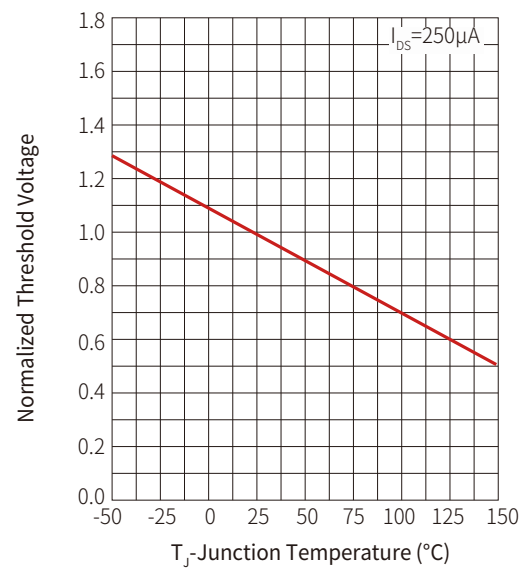
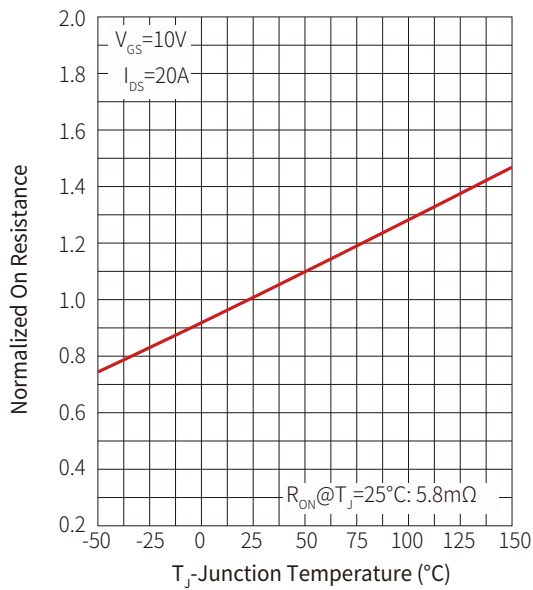
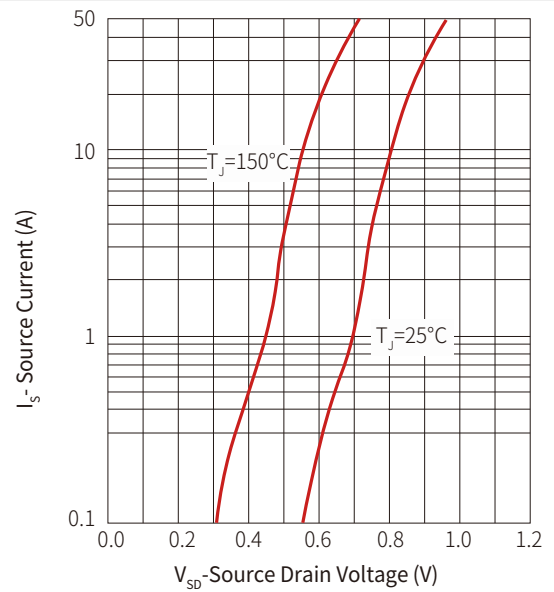
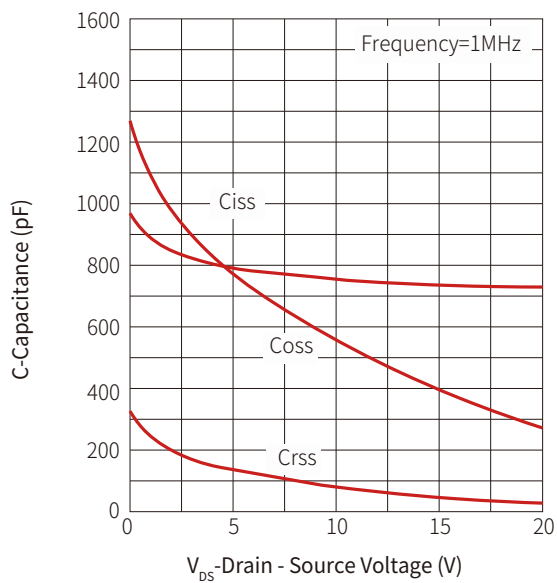
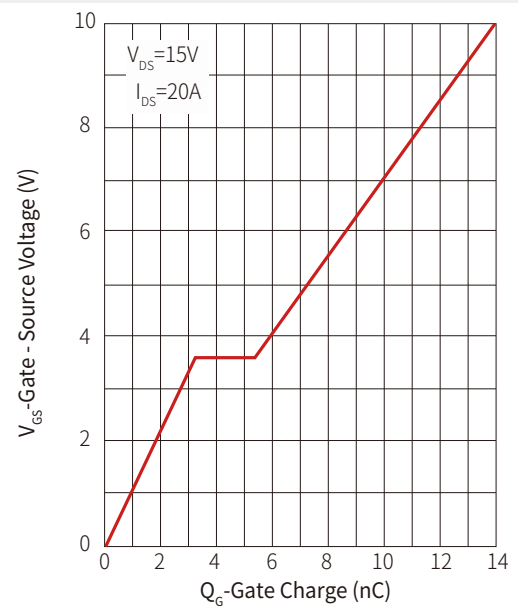
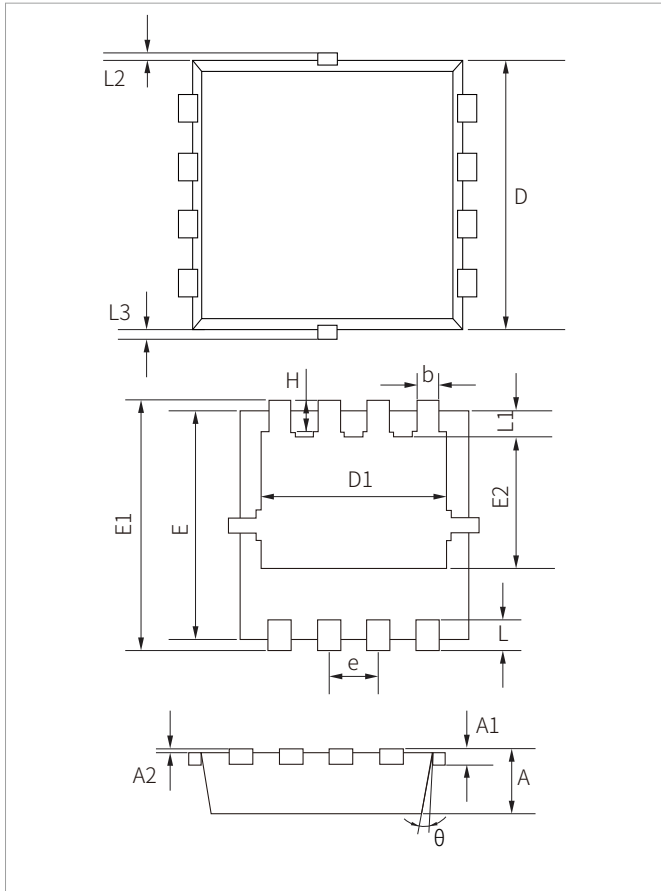
Figure 5: Output Characteristics

Figure 6: On Resistance

Figure 7: Transfer Characteristics

Figure 8: Normalized Threshold Voltage


Figure 9: Drain-Source On Resistance

Figure 10: Body Diode Characteristics

Figure 11: Capacitance

Figure 12: Gate Charge


PDFN3x3-8L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152REF		0.006REF	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SNM0503Q	PDFN3x3-8L	5000PCS	13"

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