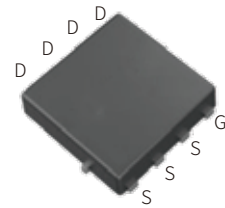


FEATURES

| Surface-mounted Package

| Low Thermal Resistance

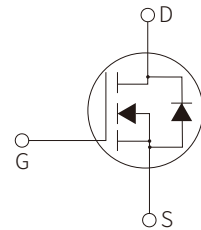


PDFN3.3×3.3-8L

APPLICATION

| Motor Drivers

| DC - DC Converter



Schematic Symbol

APPROVALS

RoHS Compliance with 2011/65/EU

HF Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage $T_c=25^\circ\text{C}$	V_{DS}	30	V
Drain Current (Pulsed) $T_c=25^\circ\text{C}, V_{GS}=10\text{V}$	I_{DM}^{***}	118	A
Drain Current	I_D^*	56	A
		35	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	56	A
Single Pulsed Avalanche Energy $V_{DD}=30\text{V}, L=1.0\text{mH}$	E_{AS}	98	mJ
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 ≤ 300 us, duty cycle $\leq 2\%$

*** Limited by bonding wire

ELECTRICAL CHARACTERISTICS (T_A=25°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		2	V
Drain Leakage Current	I_{DSS}	$V_{DS}=24V, V_{GS}=0V$			1	μA
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Drain-Source On-State Resistance	$R_{DS(on)}^a$	$V_{GS}=10V, I_D=15A$		3.7	4.2	m Ω
		$V_{GS}=4.5V, I_D=10A$		5.7	6.5	m Ω
Diode Characteristics						
Diode Forward Voltage	V_{SD}^a	$I_{SD}=15A, V_{GS}=0V$			1.3	V
Reverse Recovery Time	t_{rr}	$I_{SD}=15A,$ $dI_{SD}/dt=100A/\mu s$		19		nS
Reverse Recovery Charge	Q_{rr}			7		nC
Dynamic Characteristics ^b						
Input capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=15V,$ Frequency = 1 MHz		973		pF
Output capacitance	C_{oss}			324		pF
Reverse transfer capacitance	C_{rss}			86		pF
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=15V, V_{GEN}=10V$ $R_G=3.9\Omega, R_L=1\Omega,$ $I_D=15A$		5.5		nS
Turn-on Rise Time	t_r			41		nS
Turn-Off Delay Time	$t_{d(off)}$			24		nS
Turn-Off Fall Time	t_f			19		nS
Gate Charge Characteristics ^b						
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=10V, I_{DS}=15A$		20		nC
Gate-Source Charge	Q_{gs}			4.2		nC
Gate-Drain Charge	Q_{gd}			3.7		nC

Notes:

a : Pulse test ; pulse width ≤ 300μs, duty cycle ≤ 2 %

b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Capability

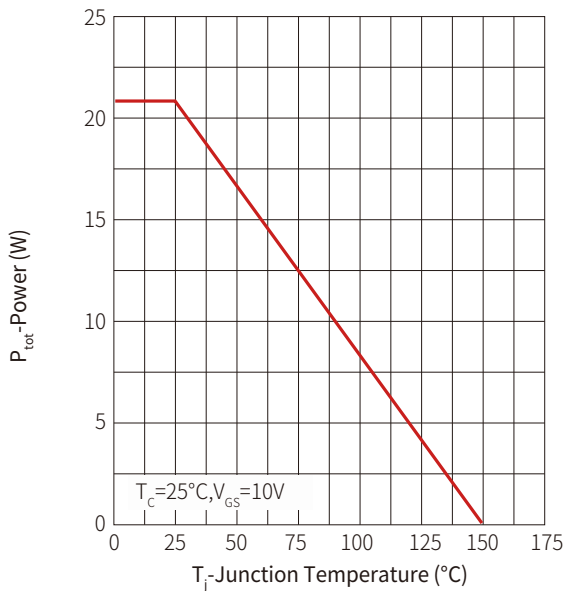


Figure2: Current Capability

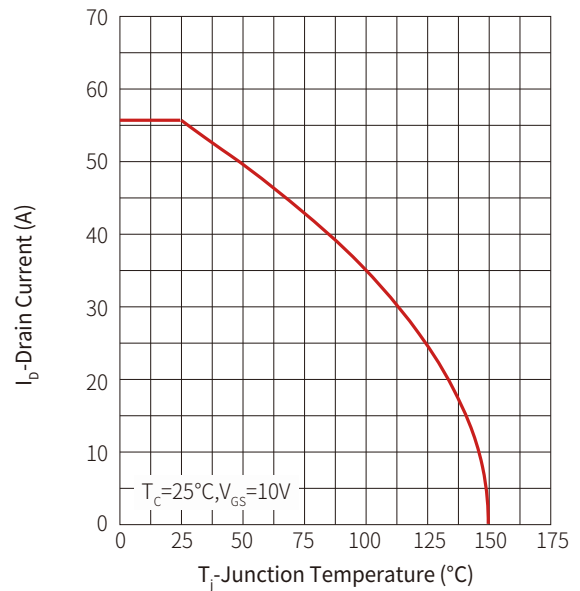


Figure3: Safe Operation Area

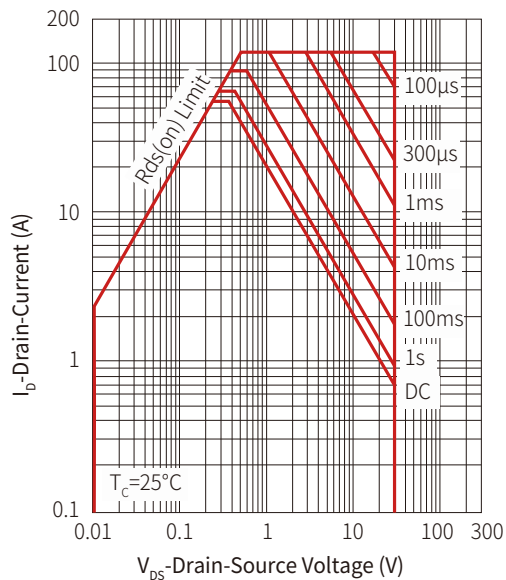


Figure 4: Transient Thermal Impedance

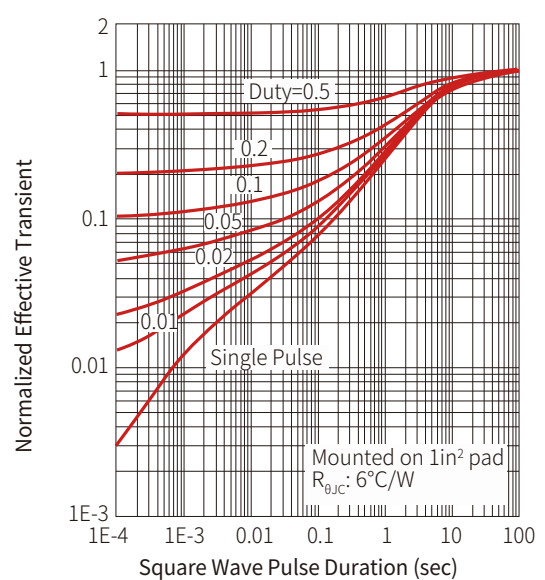


Figure 5: Output Characteristics

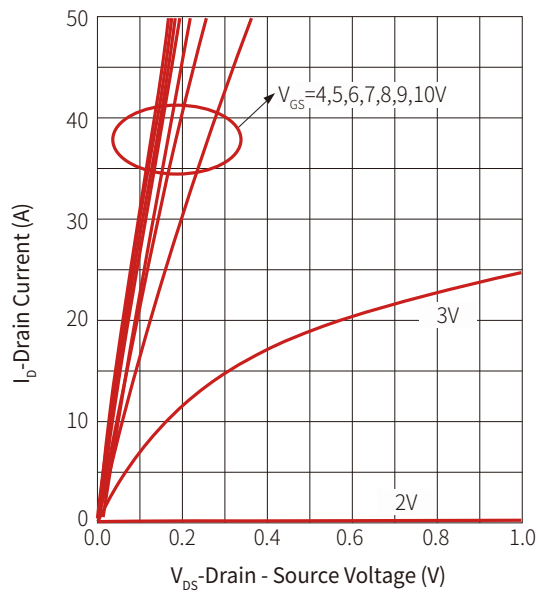


Figure 6: On Resistance

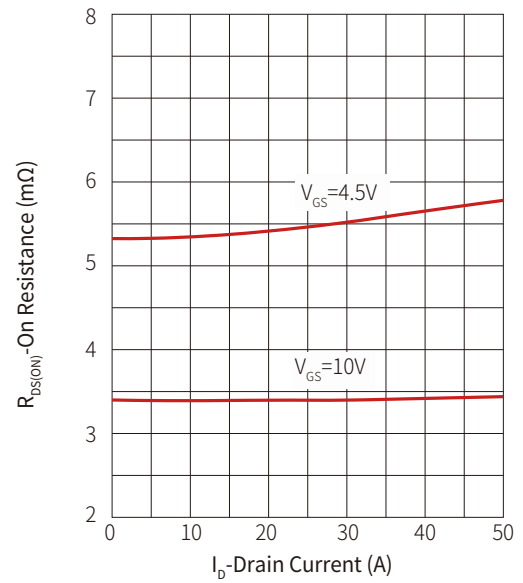


Figure 7: Transfer Characteristics

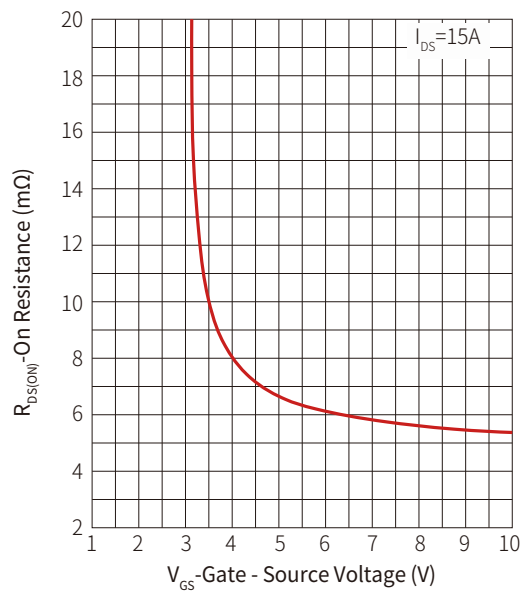


Figure 8: Normalized Threshold Voltage

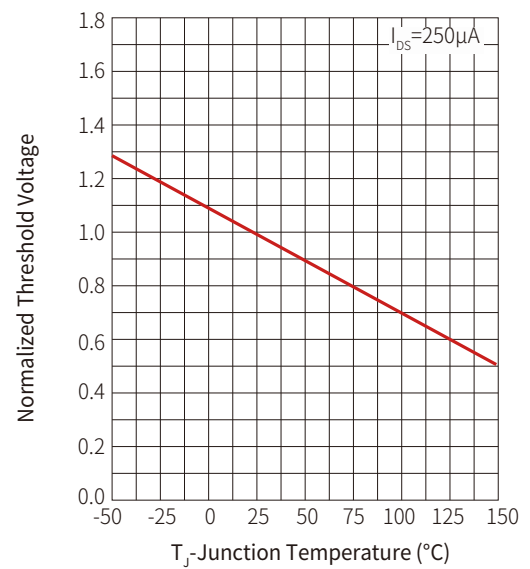
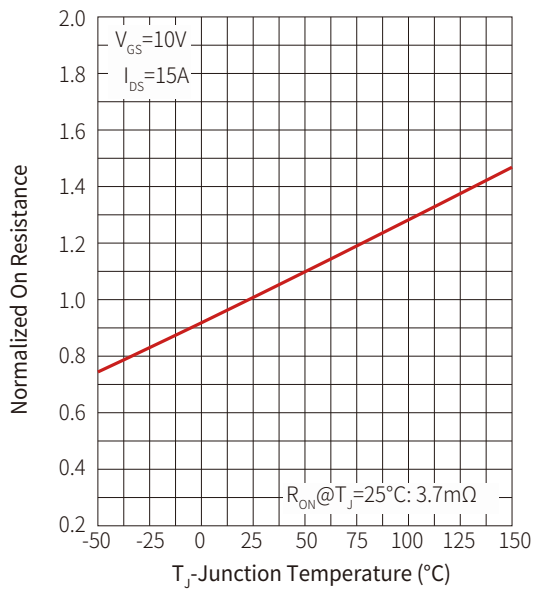
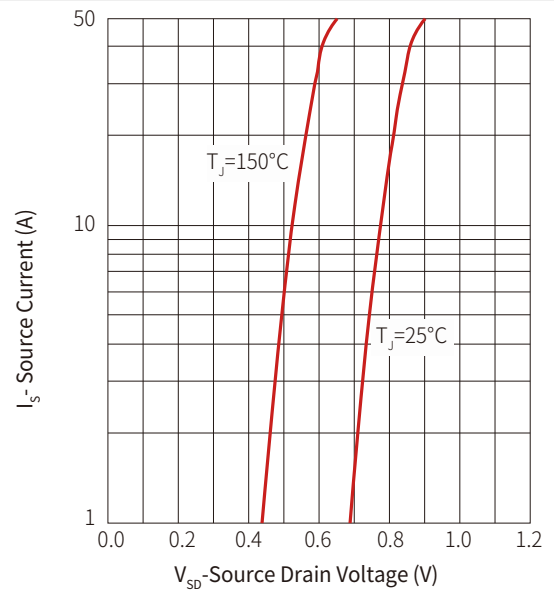
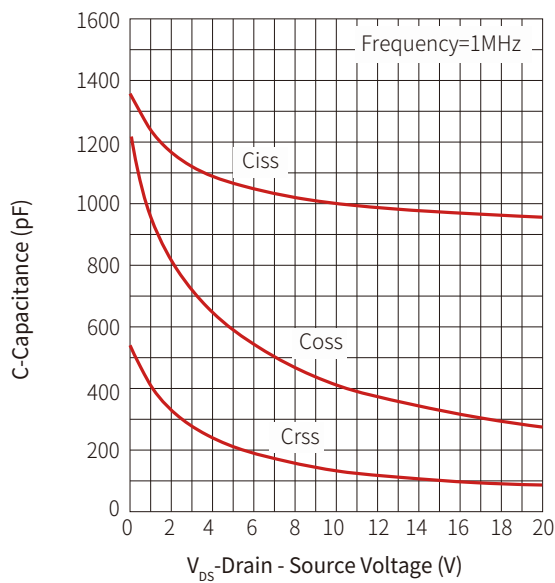
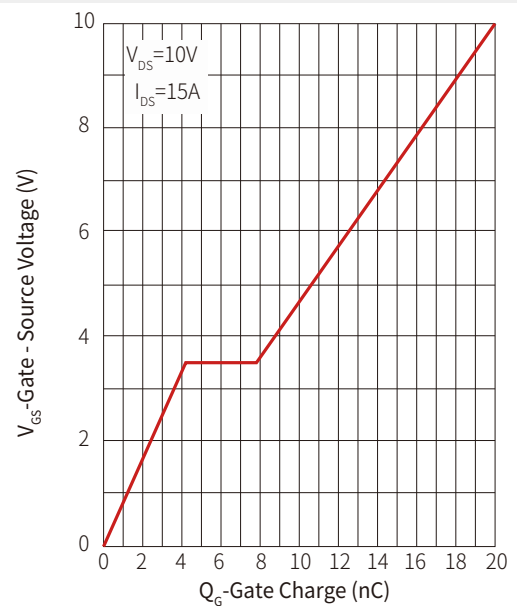
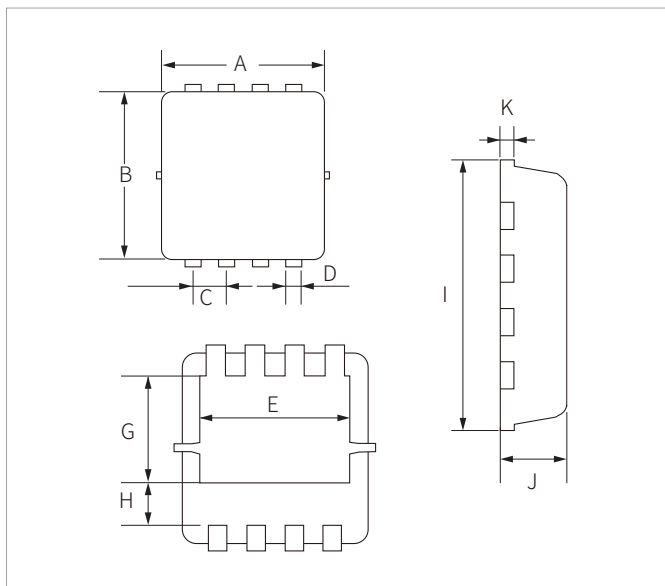


Figure 9: Normalized On Resistance

Figure 10: Diode Forward Current

Figure 11: Capacitance

Figure 12: Gate Charge


PDFN3.3x3.3-8L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	3.05	3.25	0.120	0.128
B	3.15	3.55	0.124	0.140
C	0.65		0.026	
D	0.32		0.013	
E	2.25	2.65	0.089	0.104
G	1.53	1.93	0.060	0.076
H	0.49	0.89	0.020	0.035
I	3.10	3.50	0.122	0.138
J	0.65	0.90	0.026	0.035
K	0.152		0.006	

ORDERING INFORMATION

Part Number	Component Package	Marking	QTY/Reel	Reel Size
SNM0403Q	PDFN3.3x3.3-8L	0403 YWWXXX	5000PCS	13"

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