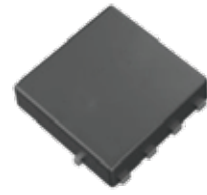


FEATURES

- | Surface-mounted package
- | Advanced trench cell design



PDFN3×3-8L

APPLICATION

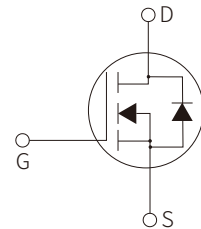
- | Motor appliances
- | High power inverter system



Marking

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 $T_A=25^\circ\text{C}$	V_{DS}	30	V
Pulsed Drain Current $T_A=25^\circ\text{C}, V_{GS}=10\text{V}$	I_{DM}^{**}	50	A
Drain Current $T_A=25^\circ\text{C}, V_{GS}=10\text{V}$	I_D^*	50	A
Gate-Source Voltage $T_A=25^\circ\text{C}$	V_{GS}	± 20	V
Total Power Dissipation $T_A=25^\circ\text{C}$	P_{tot}	35	W
Diode Forward Current $T_A=25^\circ\text{C}$	I_S	50	A
Junction Temperature	T_J	-55 to 150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^\circ\text{C}$
Thermal Resistance- Junction to Ambient	$R_{\theta JA}^*$	62.5	$^\circ\text{C}/\text{W}$

Notes:

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

 ** Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$

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 _{DS} =250μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _{DS} =250μA	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°C			30	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
On-State Resistance	R _{DS(on)} ^a	V _{GS} =10V, I _{DS} =10A		5.7	6.3	mΩ
		V _{GS} =4.5V, I _{DS} =5A		7.5	8.2	mΩ
Diode Characteristics						
Diode Forward Voltage	V _{SD} ^a	I _{SD} =10A, V _{GS} =0V			1.3	V
Reverse Recovery Time	t _{rr}	I _{DS} =10A, V _{GS} =0V dI _{SD} /dt=100A/μs		34		nS
Reverse Recovery Charge	Q _{rr}			7.1		μC
Dynamic Characteristics^b						
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, Frequency = 1 MHz		1145		pF
Output capacitance	C _{oss}			106		pF
Reverse transfer capacitance	C _{rss}			87		pF
Turn-on Delay Time	t _{d(on)}	V _{DS} =15V, V _{GEN} =10V R _G =4.5Ω, R _L =1.5Ω, I _{DS} =10A		7		nS
Turn-on Rise Time	t _r			30		nS
Turn-Off Delay Time	t _{d(off)}			19		nS
Turn-Off Fall Time	t _f			18		nS
Gate Charge Characteristics^b						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =15V, I _{DS} =10A		22		nC
Gate-Source Charge	Q _{gs}			5		nC
Gate-Drain Charge	Q _{gd}			3.3		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

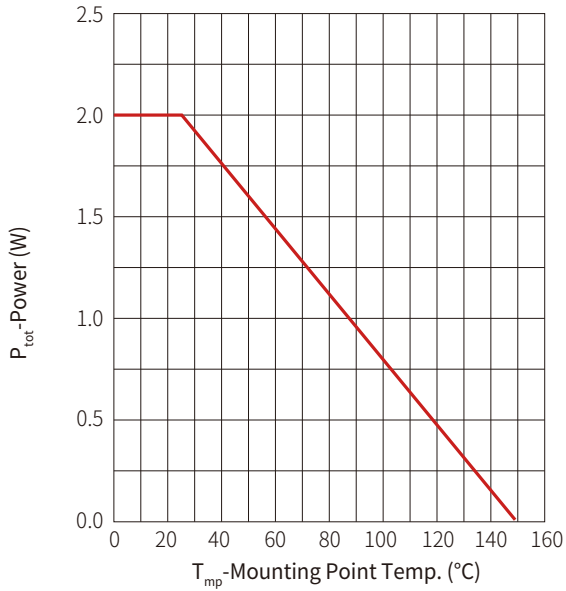


Figure2: Current Capability

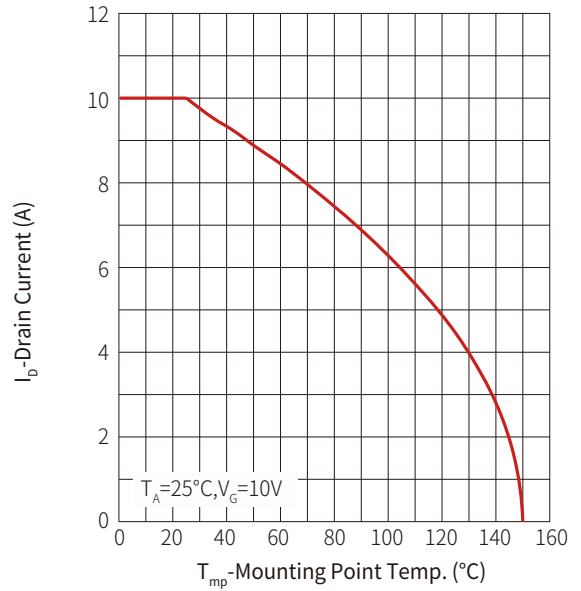


Figure3: Safe Operating Area

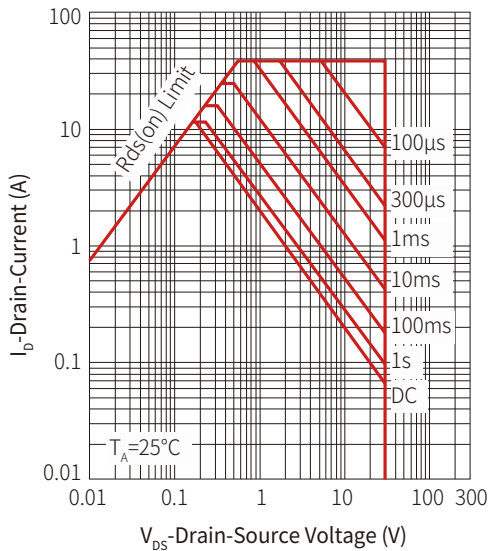


Figure 4: Transient Thermal Impedance

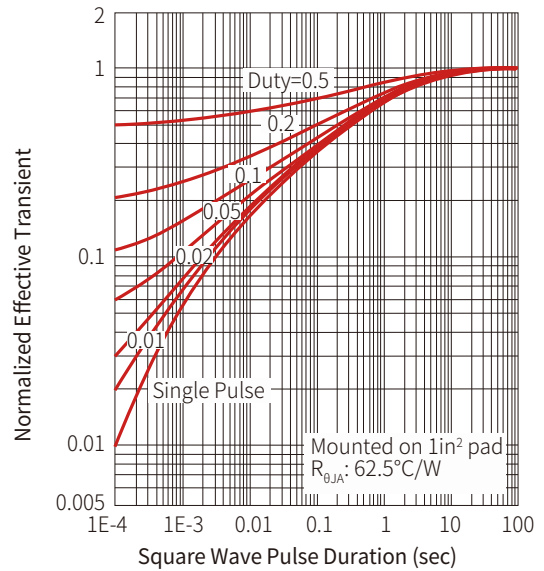


Figure 5: Output Characteristics

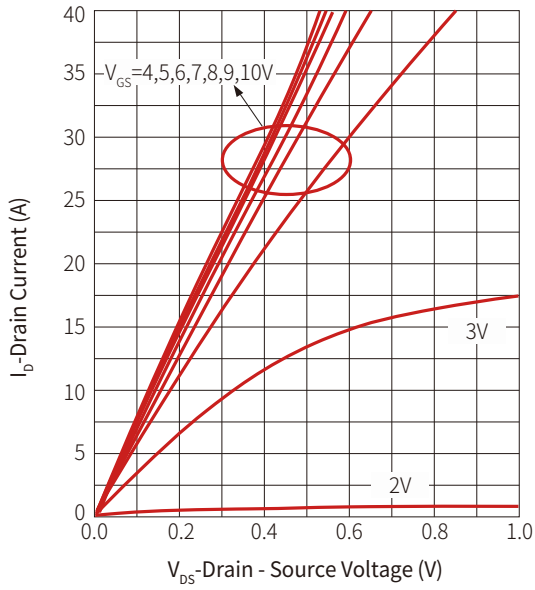


Figure 6: On Resistance

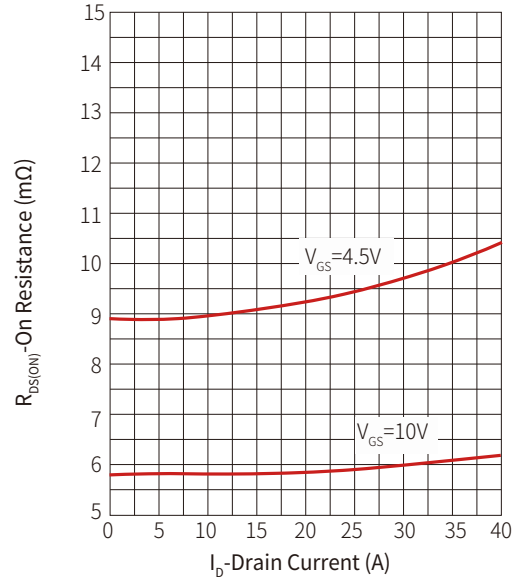


Figure 7: Transfer Characteristics

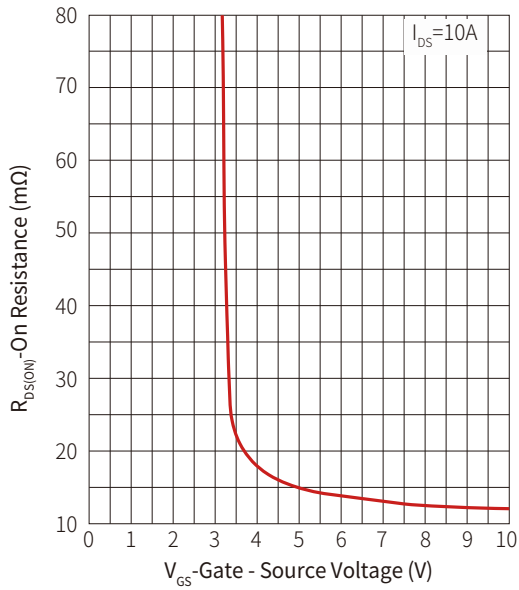


Figure 8: Normalized Threshold Voltage

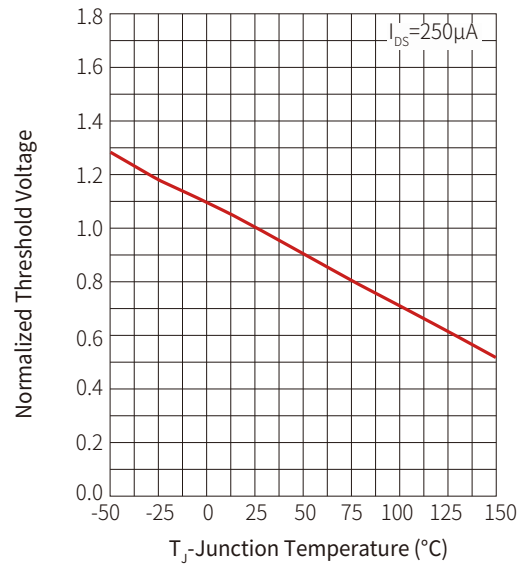


Figure 9: Drain-Source On Resistance

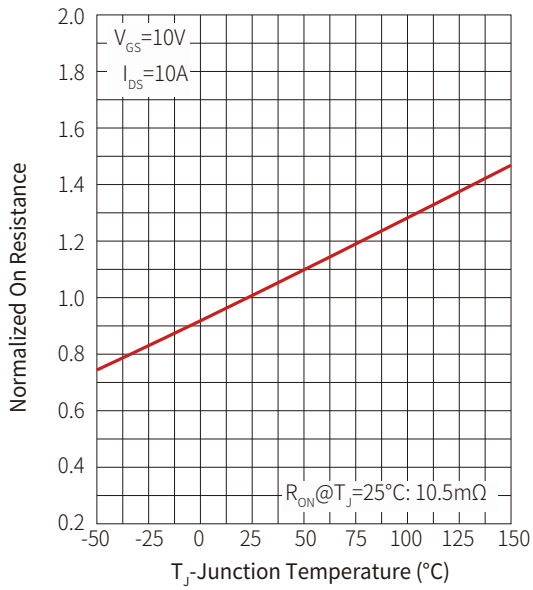


Figure 10: Body Diode Characteristics

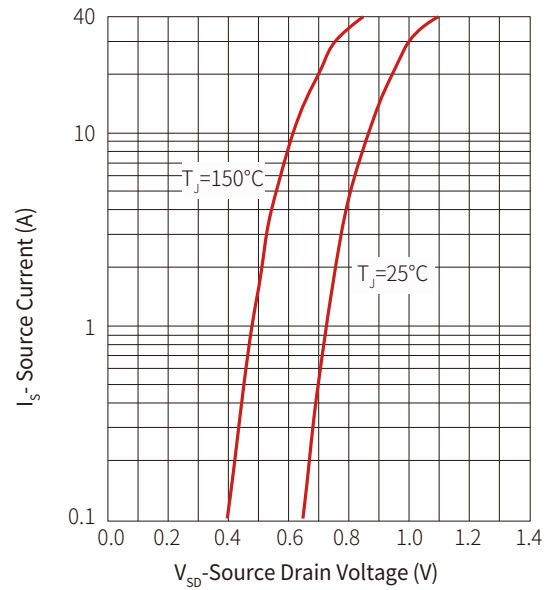


Figure 11: Capacitance

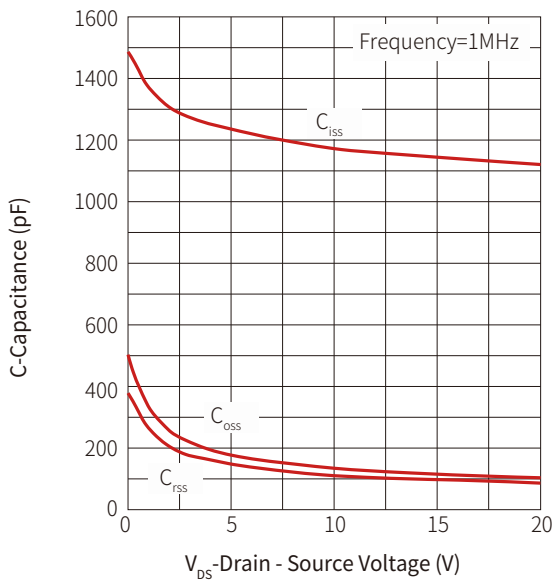
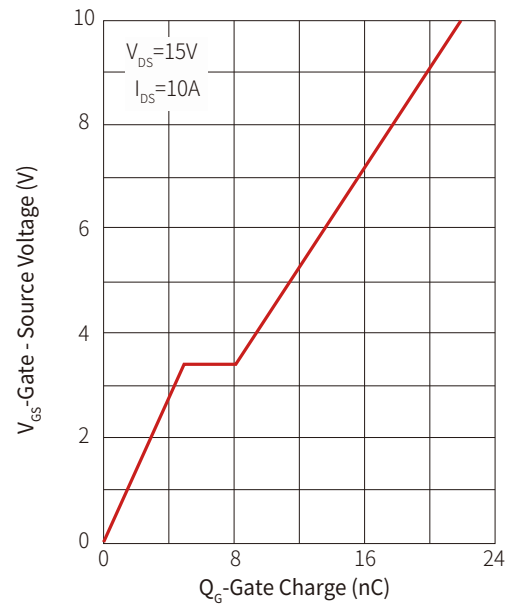
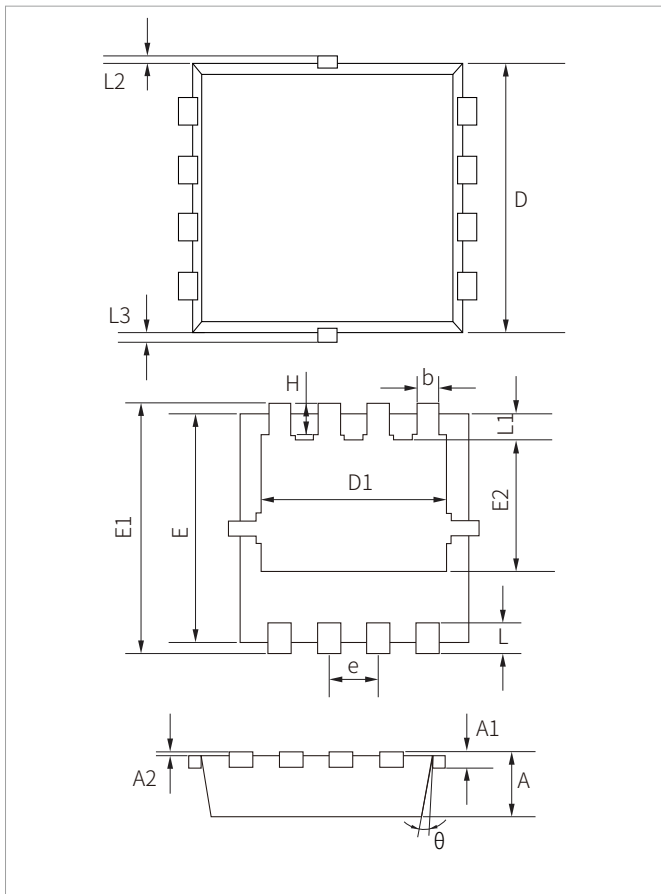


Figure 12: Gate Charge



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
SNM0603Q	PDFN3x3-8L	5000PCS	13"

Headquarters

No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline

400-021-5756

Web

<https://www.semiware.com>

Sales Center

Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service

Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support

Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions

Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

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