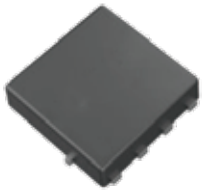
FEATURES

- Surface-mounted package
- Advanced trench cell design
- Super Trench



PDFN3×3-8L

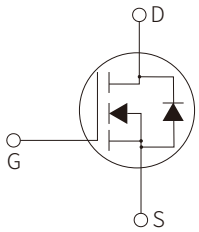
APPLICATION

- LCD TV appliances
- LCDM 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_C=25°C		V_{DS}	40	V
Pulsed Source Current T_C=25°C,V_{GS}=10V		I_{DM}*,**,***	144	A
Drain Current T_C=25°C,V_{GS}=10V	T_C=25°C	I_D*	50	A
	T_C=100°C		33	A
Gate-Source Voltage T_C=25°C		V_{GS}	±20	V
Total Power Dissipation T_C=25°C		P_{tot}	20.8	W
Diode Forward Current T_C=25°C		I_S	50	A
Single Pulsed Avalanche Energy V_{DD}= 40V , L=1.0mH		E_{AS}	91	mJ
Junction Temperature		T_J	150	°C
Storage Temperature		T_{STG}	-55 to 150	°C
Thermal Resistance –Junction to Ambient		$R_{\theta JA}$*	62.5	°C/W
Thermal Resistance- Junction to Case		$R_{\theta JC}$*	6	°C/W

Notes:
* Surface Mounted on 1 in² pad area, t ≤10 sec
** Pulse width≤10 us, duty cycle≤ 1 %
*** 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=250μA	40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=250μA	1.3		2.5	V
Drain Leakage Current	I_{DSS}	V_{DS}=36V,V_{GS}=0V			1	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±20V ,V_{DS}=0V			±10	μA
Drain-Source On-State Resistance	$R_{DS(on)}$[a]	V_{GS}=10V,I_D=10A		7.0	7.5	mΩ
		V_{GS}=4.5V,I_D=5A		12.5	13.5	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		19		nS
Reverse Recovery Charge	Q_{rr}			10		nC
Dynamic Characteristics[b]						
Input capacitance	C_{iss}	V_{GS}=0V,V_{DS}=22.5V, Frequency = 1 MHz		658		pF
Output capacitance	C_{oss}			142		pF
Reverse transfer capacitance	C_{rss}			9		pF
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=22.5V,V_{GEN}=10V R_G= 3.9Ω, R_L=2.25Ω, I_{DS}=10A		6		nS
Turn-on Rise Time	t_r			23		nS
Turn-Off Delay Time	$t_{d(off)}$			17		nS
Turn-Off Fall Time	t_f			19		nS
Gate Charge Characteristics[b]						
Total Gate Charge	Q_g	V_{DS}=22.5V,V_{GS}=10V,I_{DS}=10A		15		nC
Gate-Source Charge	Q_{gs}			3		nC
Gate-Drain Charge	Q_{gd}			3.1		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

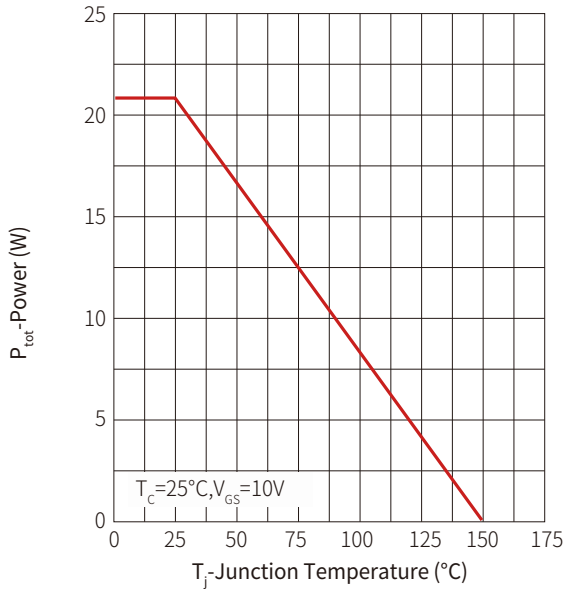


Figure2: Current Capability

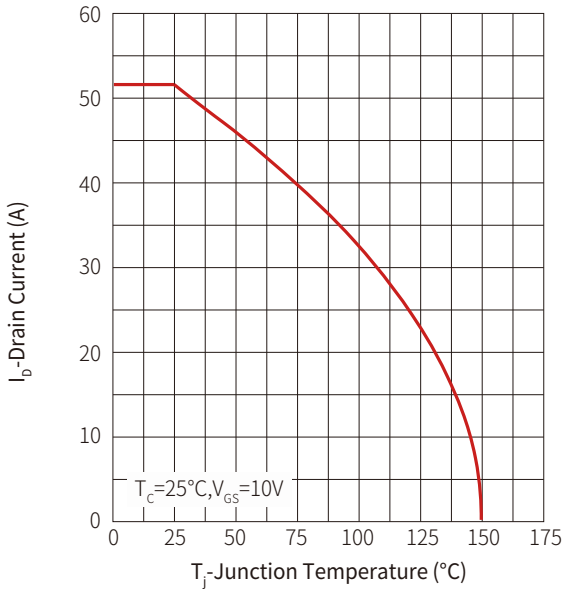


Figure3: Safe Operating Area

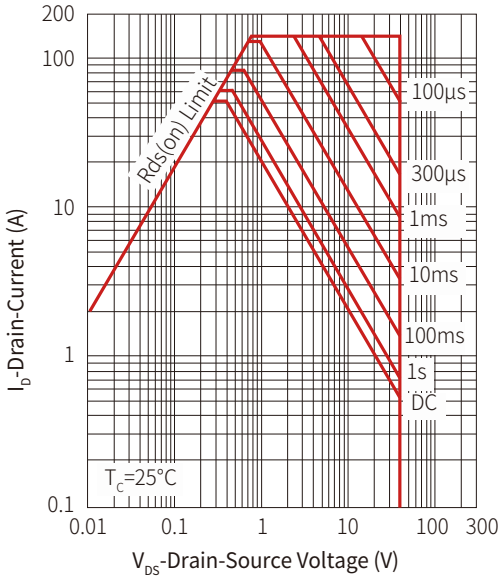


Figure 4: Transient Thermal Impedance

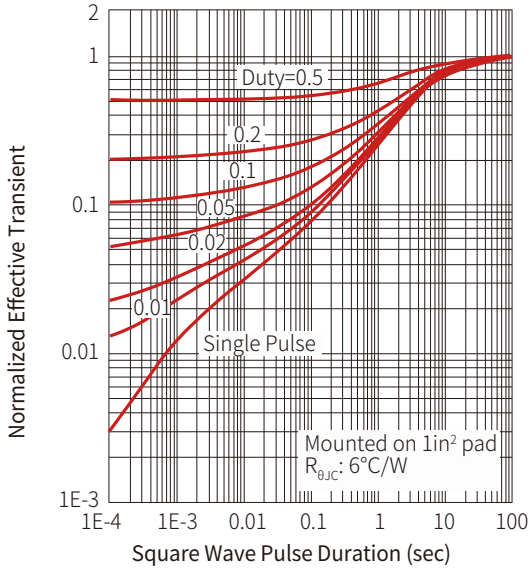


Figure 5:Output Characteristics

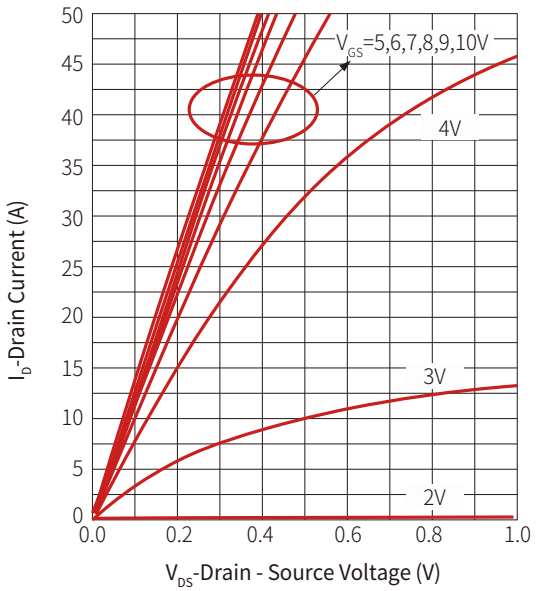


Figure 6: On Resistance

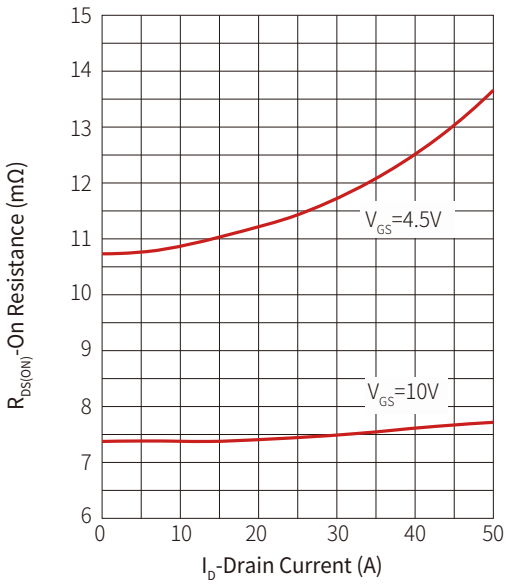


Figure 7:Transfer Characteristics

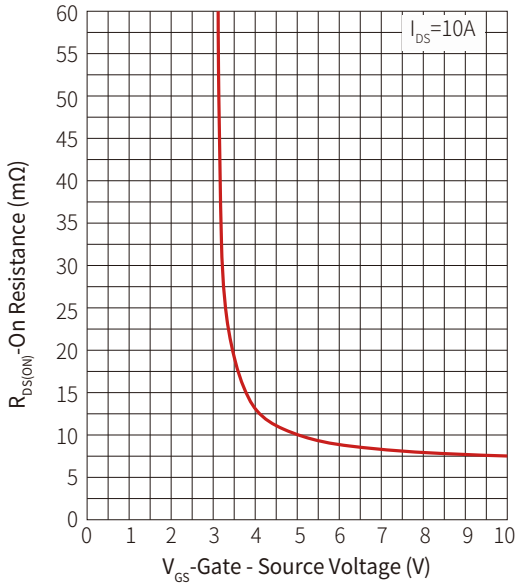


Figure 8: Normalized Threshold Voltage

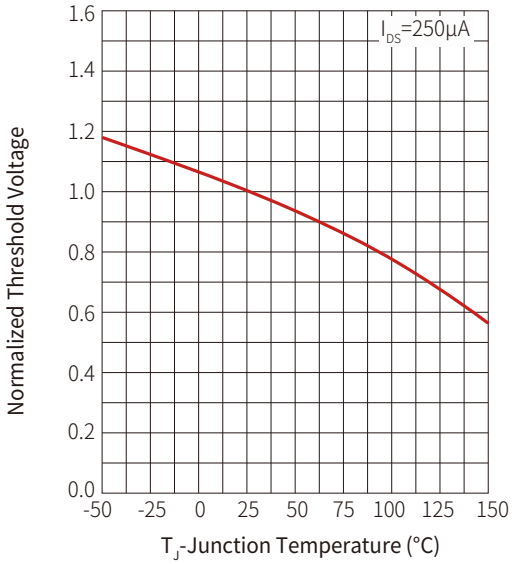


Figure 9:Normalized On Resistance

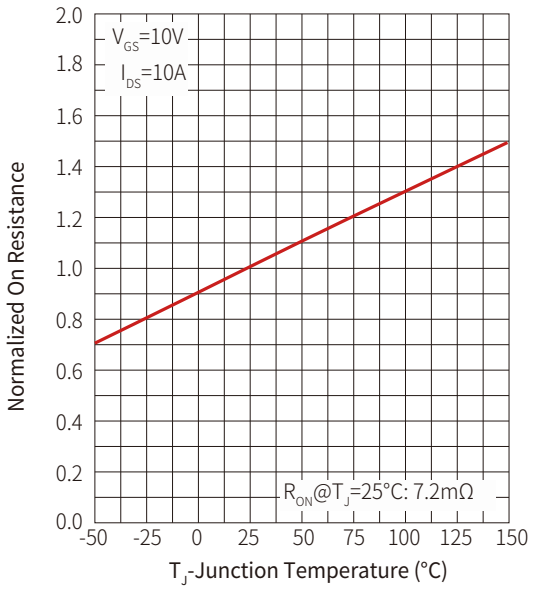


Figure 10: Diode Forward Current

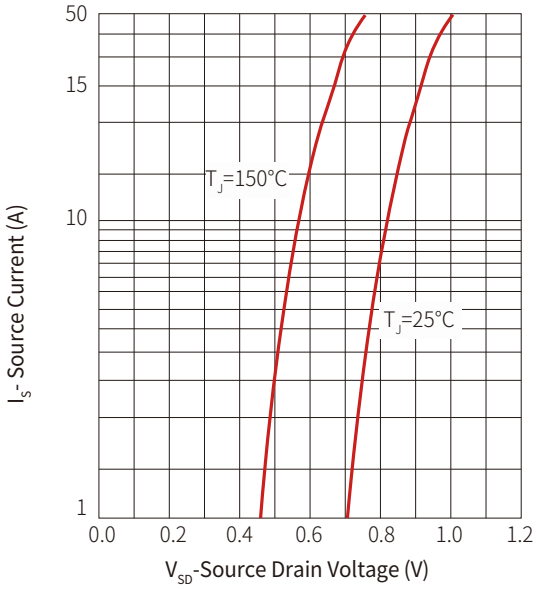


Figure 11:Capacitance

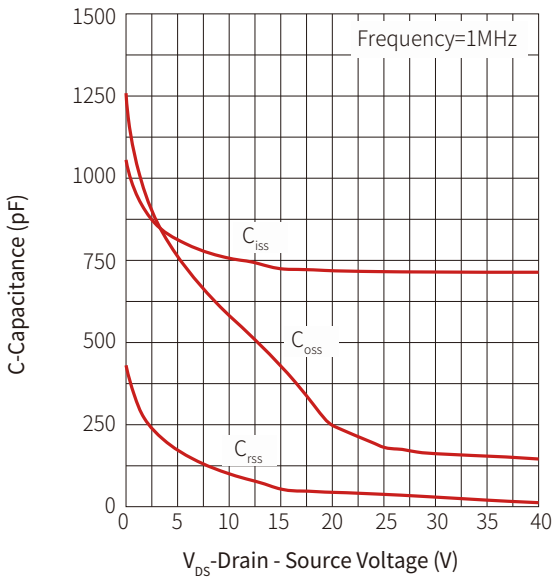
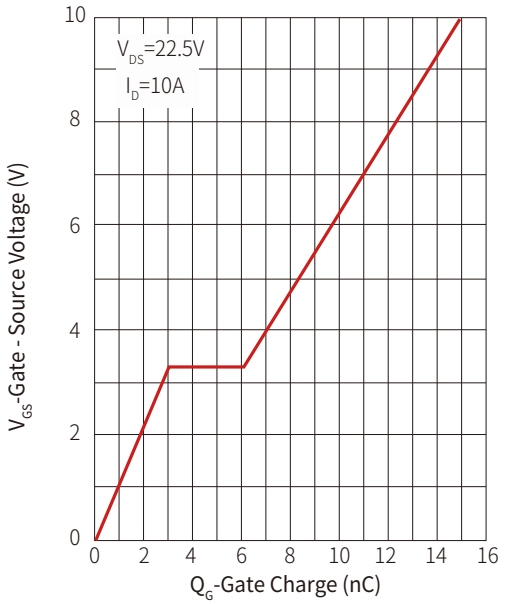
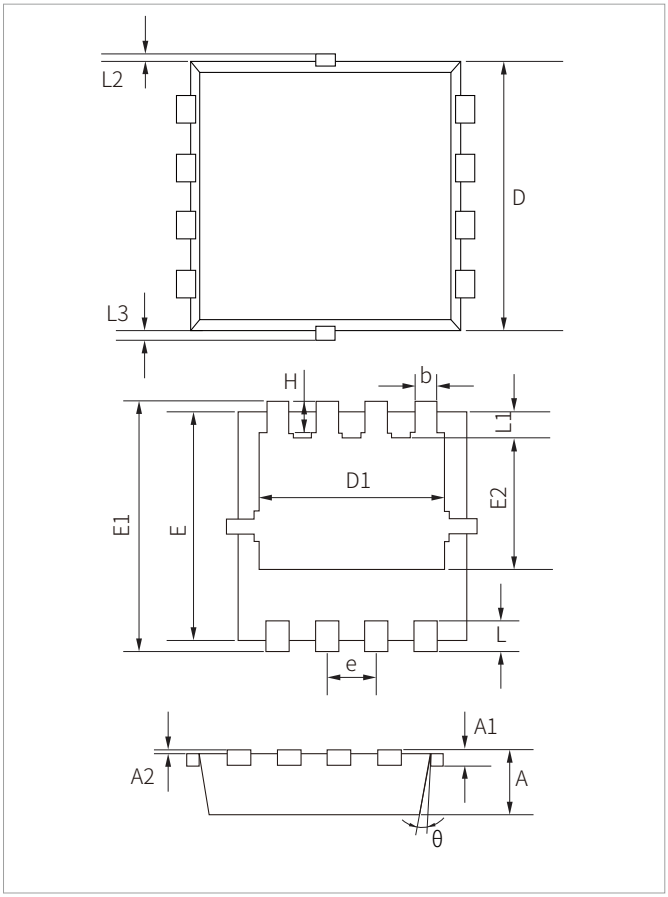


Figure 12: Gate Charge



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
SNM0804Q	PDFN3x3-8L	5000PCS	13”

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