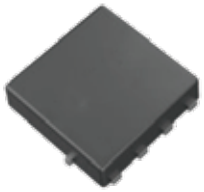
FEATURES

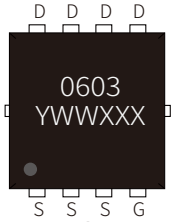
- Surface-mounted package
- Advanced trench cell design



PDFN3×3-8L

APPLICATION

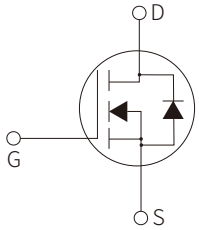
- Motor appliances
- High power inverter system



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

Notes:
* Surface Mounted on 1 in^2 pad area, t≤10 sec
** Pulse width≤300μs, duty cycle≤ 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

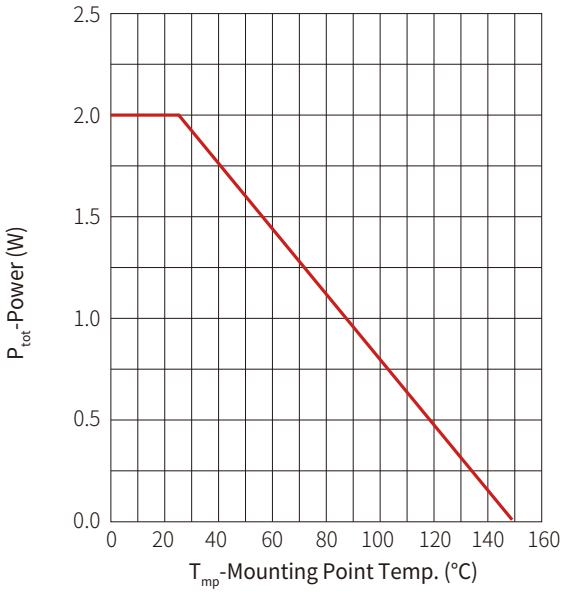


Figure2: Current Capability

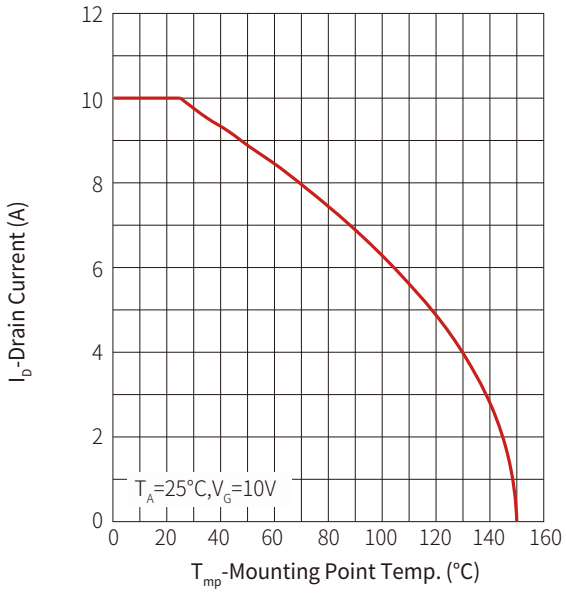


Figure3: Safe Operating Area

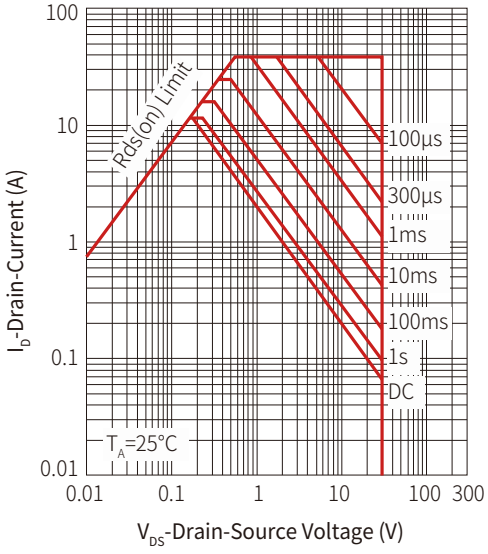


Figure 4: Transient Thermal Impedance

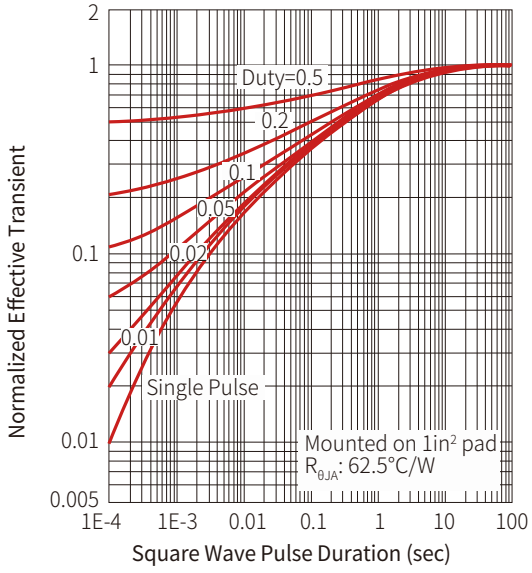


Figure 5:Output Characteristics

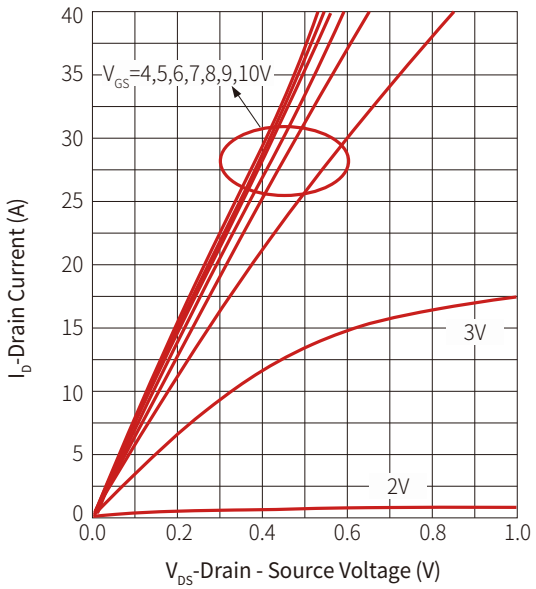


Figure 6: On Resistance

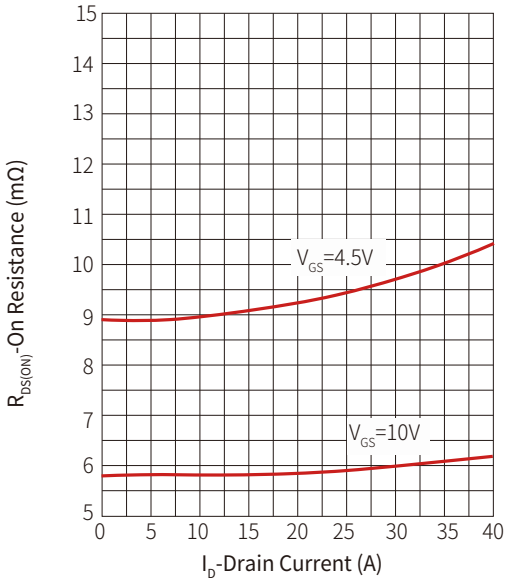


Figure 7:Transfer Characteristics

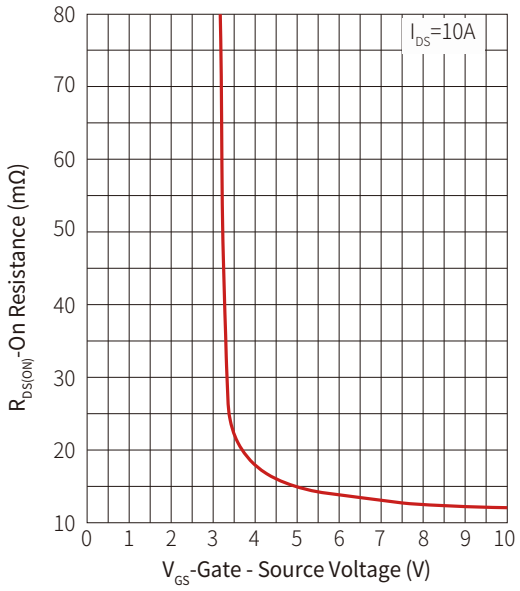


Figure 8: Normalized Threshold Voltage

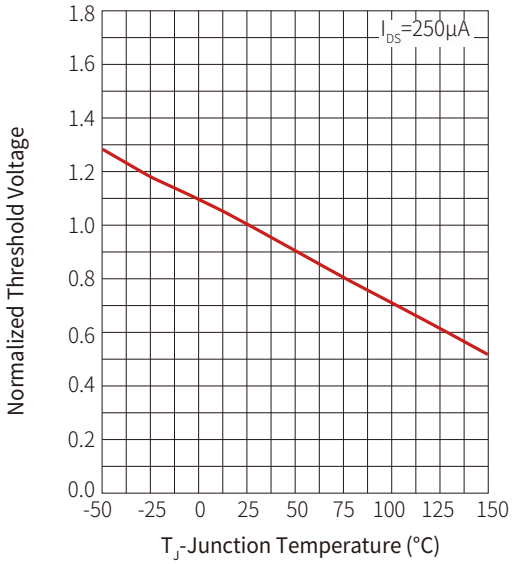


Figure 9:Drain-Source On Resistance

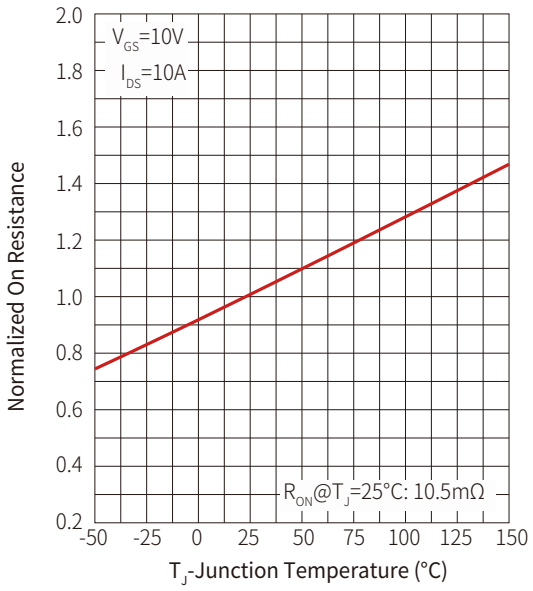


Figure 10: Body Diode Characteristics

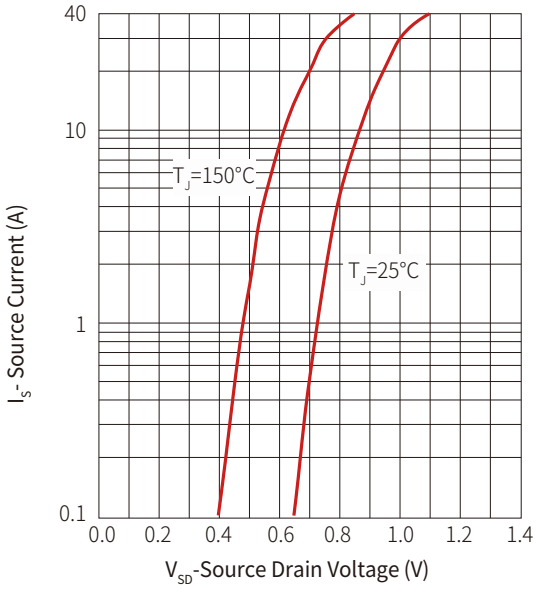


Figure 11:Capacitance

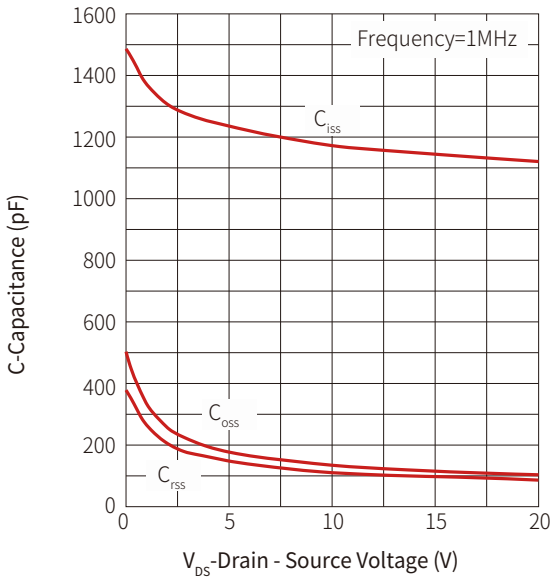
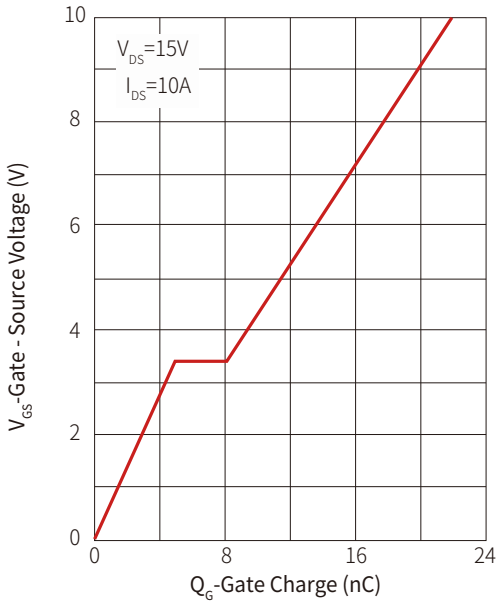
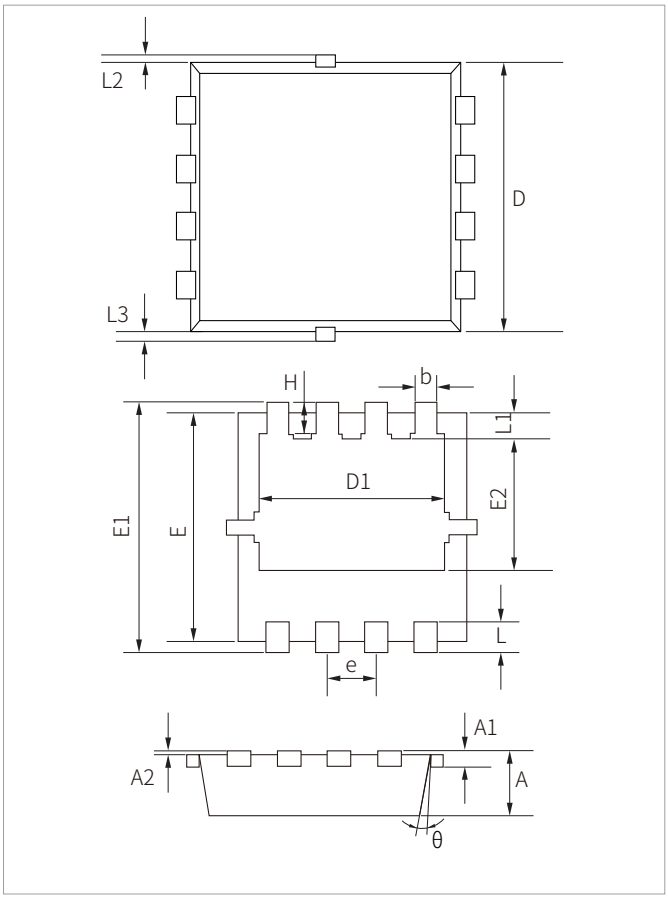


Figure 12: Gate Charge



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”

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