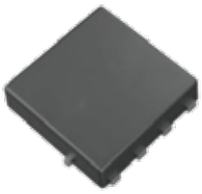
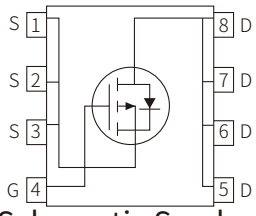
FEATURES

- Low gate charge
- Low Ciss
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability



PDFN3x3-8L



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		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current (Package Limited)	T_C=25°C	I_D	-55	A
	T_C=100°C		-33	A
Pulsed Drain Current(Note1)		I_{DM}	-160	A
Total Power DissipationT_C=25°C		P_D	25	W
Thermal resistance, junction - case		$R_{th(ch-c)}$	5	°C/W
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55 to 150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=-250μA	-20			V
Gate- Source Leakage Current	I_{GSS}	V_{GS}=±12V,V_{DS}=0V			±100	nA
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=-20V,V_{GS}=0V			-1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-0.4	-0.65	-1.0	V
Static Drain-source On Resistance	$R_{DS(on)}$	V_{GS}=-4.5V,I_{DS}=-15A		5.8	7.6	mΩ
		V_{GS}=-2.5V,I_{DS}=-10A		7.8	10.2	mΩ
Input Capacitance	C_{iss}	V_{DS}=-10V,f=1MHz		6590		pF
Output Capacitance	C_{oss}			724		pF
Reverse Transfer Capacitance	C_{rss}			487		pF
Turn–on Delay Time	$t_{d(on)}$	V_{DD}=-10V,R_G=10Ω V_{GS}=-10V,R_L=1.3Ω		8.2		ns
Turn–on Rise Time	t_r			3.5		ns
Turn–Off Delay Time	$t_{d(off)}$			263		ns
Turn–off Fall Time	t_f			8		ns
Total Gate Charge	Q_g	V_{DS}=-10V,I_D=-12A V_{GS}=-4.5V		97		nC
Gate-Source Charge	Q_{gs}			17		nC
Gate-Drain Charge	Q_{gd}			12		nC
Reverse diode						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=-9A			-1.2	V
Reverse Recovery Time	t_{rr}	V_D=-30V,I_F=-1A di/dt=100A/μs,(Note2)		135		ns
Reverse Recovery Charge	Q_{rr}			122		nC

Notes

1. Repetitive Rating:pulse width limited by maximum junction temperature.

2. Pulse width≤300us,duty cycle≤2%.

PARAMETER CHARACTERISTIC CURVE

Figure 1: Typical Output Characteristics

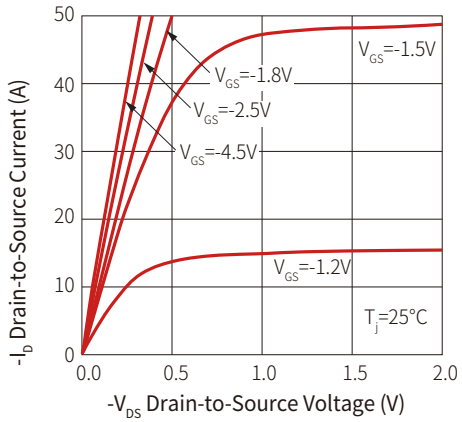


Figure 2: Typical Gate Charge vs Gate to Source Voltage

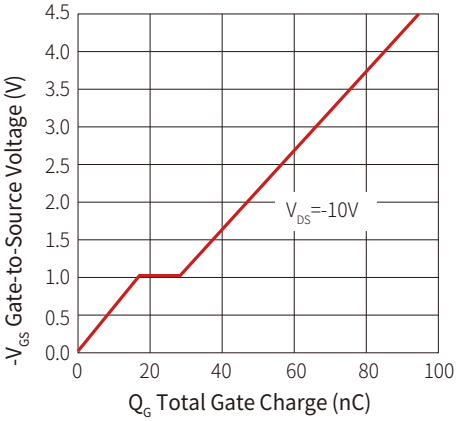


Figure 3: Typical Body Diode Transfer Characteristics

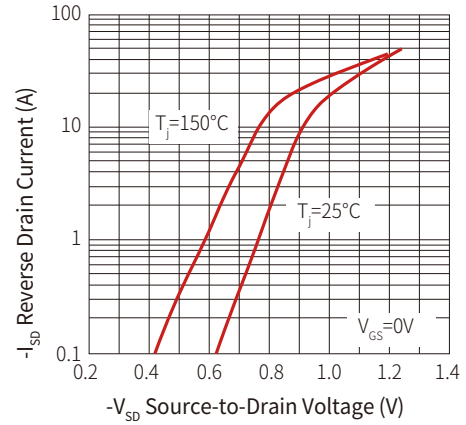


Figure 4: Typical Capacitance vs Drain to Source Voltage

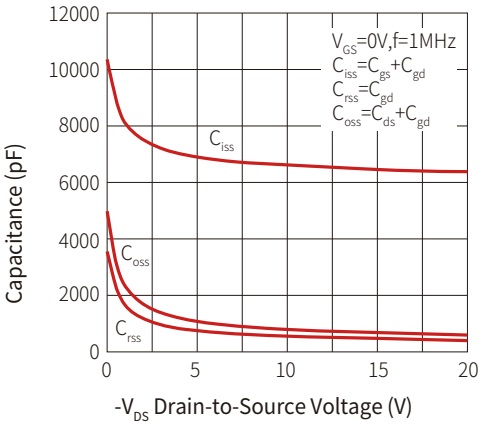


Figure 5: Typical Breakdown Voltage vs Junction Temperature

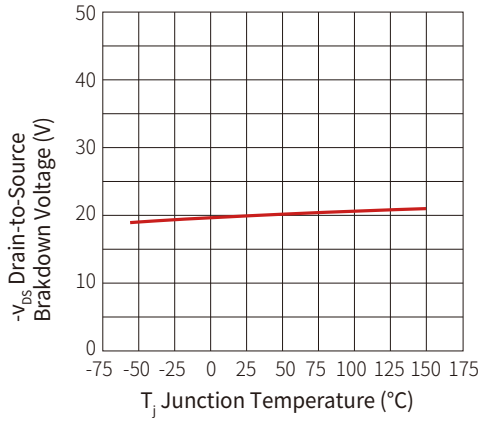


Figure 6: Typical Drain to Source on Resistance vs Junction Temperature

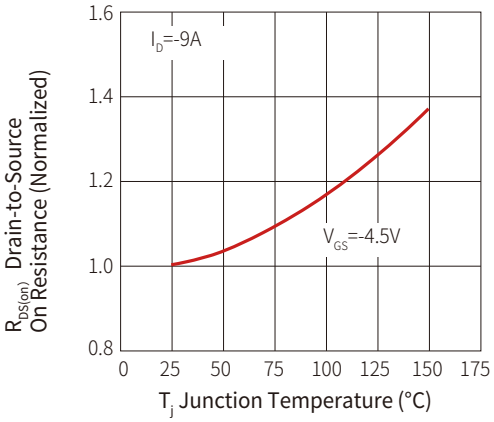


Figure 7: Maximum Forward Bias Safe Operating Area

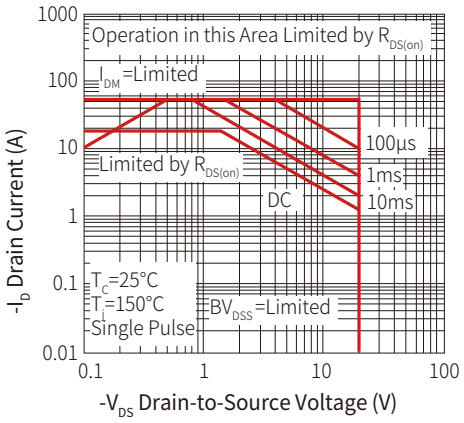


Figure 8: Typical Drain to Source ON Resistance vs Drain Current

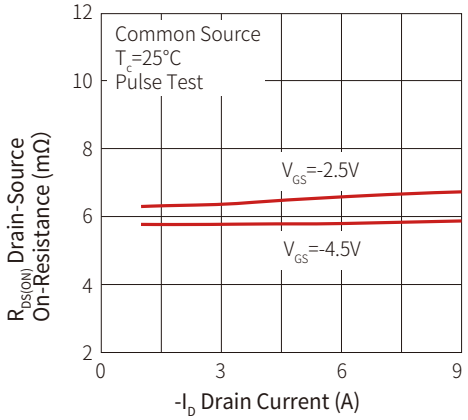


Figure 9: Typical Threshold Voltage vs Case Temperature

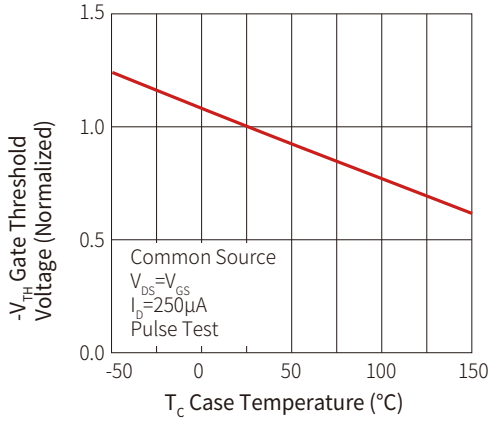


Figure 10: Typical Transfer Characteristics

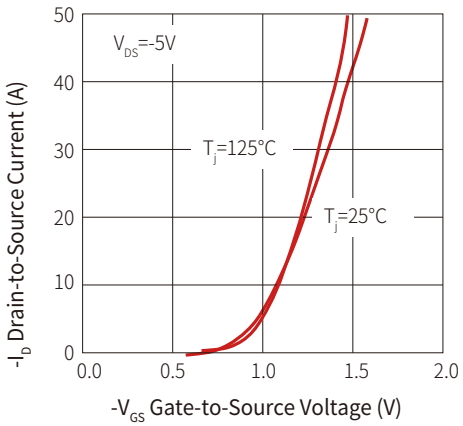


Figure 11: Maximum Power Dissipation vs Case Temperature

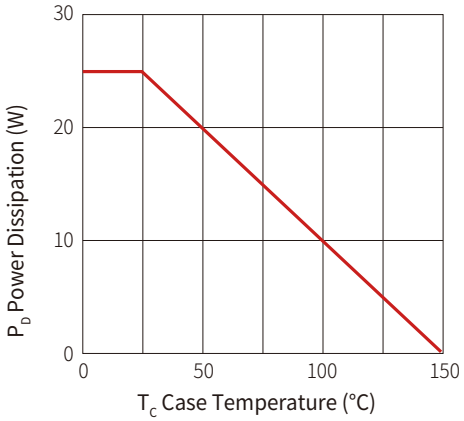
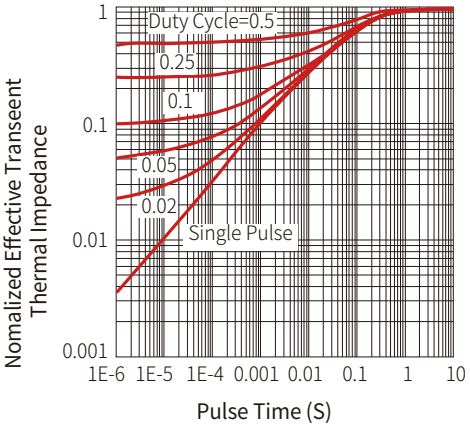
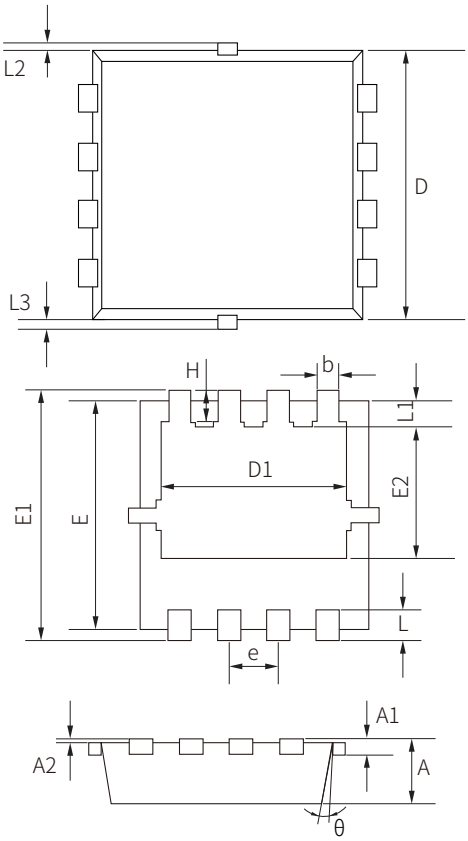


Figure 12: Maximum Effective Thermal Impedance , Junction to Case



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	Marking	QTY/Reel	Reel Size
SPM55P02Q	PDFN3×3-8L	55P02 XXXX	5000PCS	13”

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