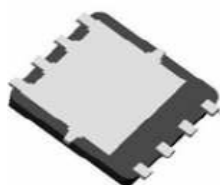
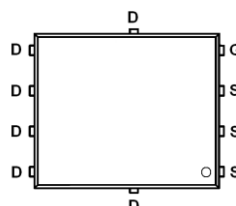


Main Product Characteristics:

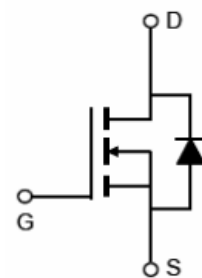
V_{DSS}	60V
$R_{DS(on)}$	6.25m Ω (typ.)
I_D	80A



PDFN 5x6-8L



Pin Assignments



Schematic Diagram

Features and Benefits:

- Advanced MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- 150°C operating temperature


Description:

It utilizes the latest processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications.

Absolute Max Rating:

Symbol	Parameter	Max.	Units
$I_D @ TC = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$ ①	80	A
I_{DM}	Pulsed Drain Current ②	320	
$P_D @ TC = 25^\circ C$	Power Dissipation ③	74	W
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy @ $L=0.5mH$	173	mJ
$T_J \quad T_{STG}$	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ C$

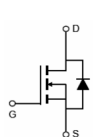
Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-case ③	—	1.7	°C/W

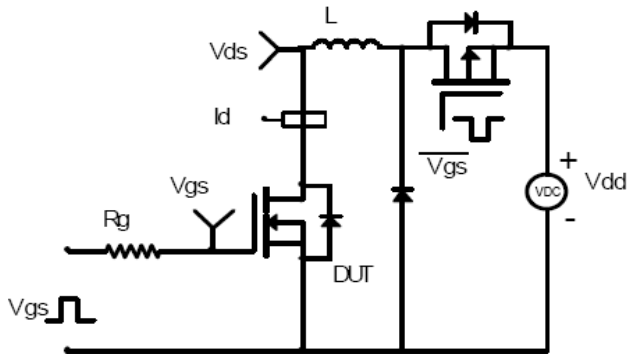
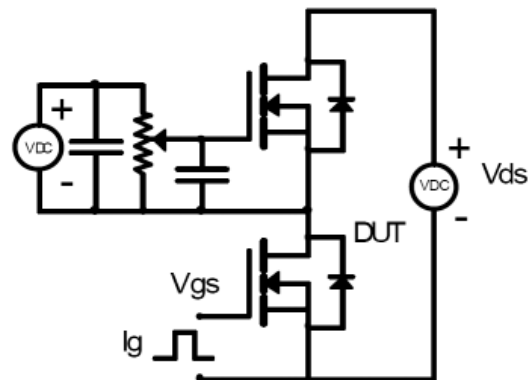
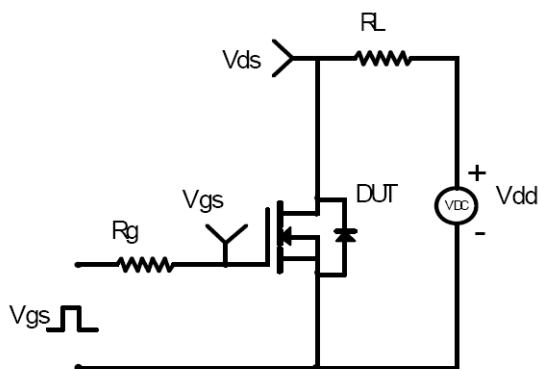
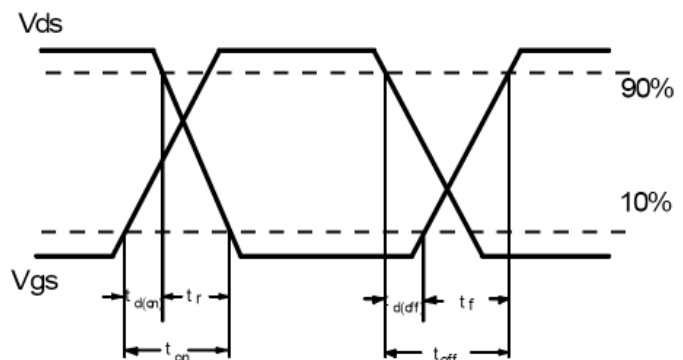
Electrical Characterizes @ $T_A=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	60	—	—	V	$V_{GS} = 0V, I_D = 250\mu A$
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	6.25	8	m Ω	$V_{GS}=10V, I_D=20A$
$V_{GS(th)}$	Gate threshold voltage	2	—	4	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
I_{DSS}	Drain-to-Source leakage current	—	—	1	μA	$V_{DS} = 60V, V_{GS} = 0V$
I_{GSS}	Gate-to-Source forward leakage	—	—	100	nA	$V_{GS} = 20V$
		—	—	-100		$V_{GS} = -20V$
Q_g	Total gate charge	—	72	—	nC	$I_D = 20A,$ $V_{DS}=30V,$ $V_{GS} = 10V$
Q_{gs}	Gate-to-Source charge	—	16	—		
Q_{gd}	Gate-to-Drain("Miller") charge	—	20	—		
$t_{d(on)}$	Turn-on delay time	—	18.6	—	ns	$V_{GS}=10V, V_{DS}=30V,$ $R_{GEN}=3\Omega$ $R_L = 9\Omega$
t_r	Rise time	—	18	—		
$t_{d(off)}$	Turn-Off delay time	—	52	—		
t_f	Fall time	—	14	—		
C_{iss}	Input capacitance	—	3450	—	pF	$V_{GS} = 0V$
C_{oss}	Output capacitance	—	173	—		$V_{DS} = 50V$
C_{riss}	Reverse transfer capacitance	—	6.8	—		$f = 1MHz$

Source-Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	80	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode)	—	—	320	A	
V_{SD}	Diode Forward Voltage	—	—	1.2	V	$I_S=30A, V_{GS}=0V$
t_{rr}	Reverse Recovery Time	—	26	—	ns	$I_S=20A, di/dt=100A/us$
Q_{rr}	Reverse Recovery Charge	—	30	—	nC	

Test Circuits and Waveforms

EAS Test Circuit:

Gate Charge Test Circuit:

Switching Time Test Circuit:

Switching Waveforms:


Notes:

- ① Calculated continuous current based on maximum allowable junction temperature.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation PD is based on max. junction temperature, using junction-to-case thermal resistance.

Typical Electrical and Thermal Characteristics

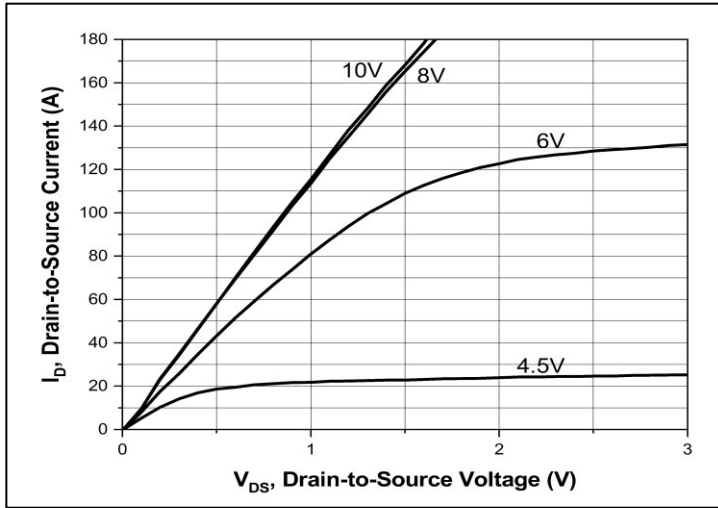


Figure1. Typical Output Characteristics

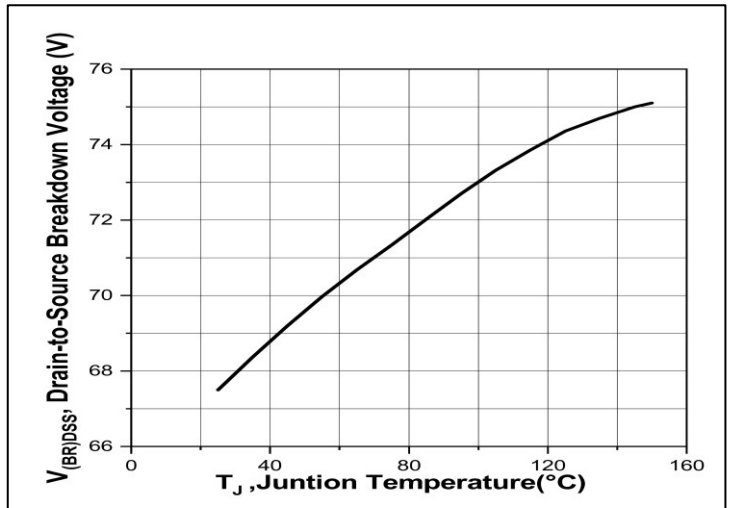


Figure2. Drain-to-Source Breakdown Voltage vs. Junction Temperature

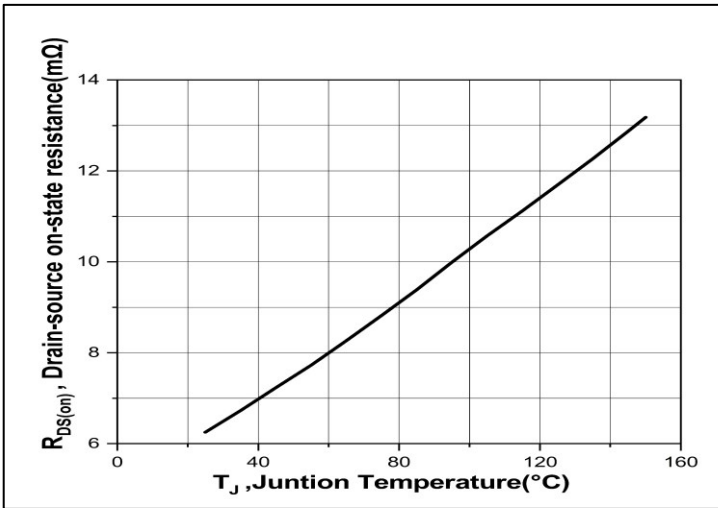


Figure3. R_DS(on) vs. Junction Temperature

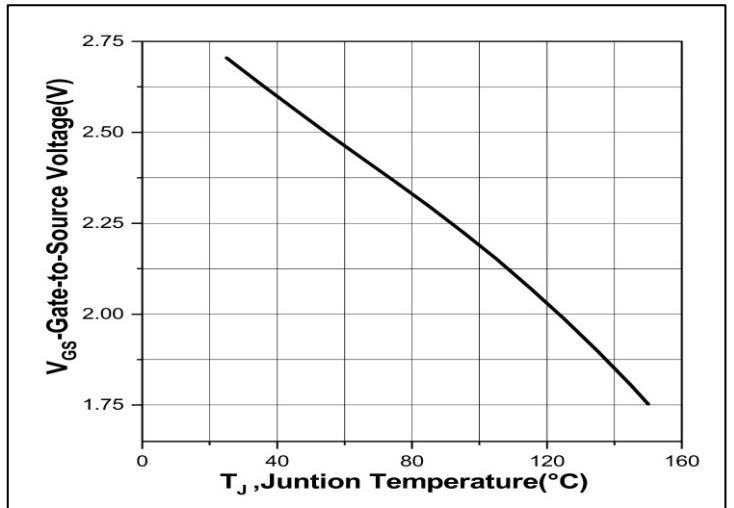


Figure4. V_{th} vs. Junction Temperature

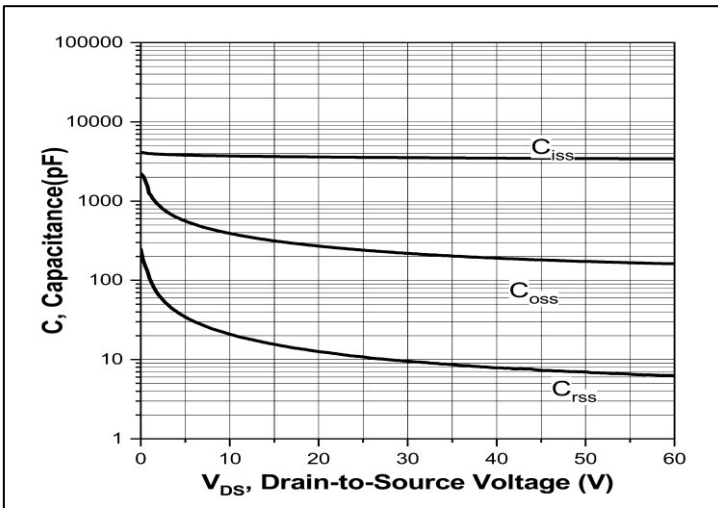


Figure5. Capacitance

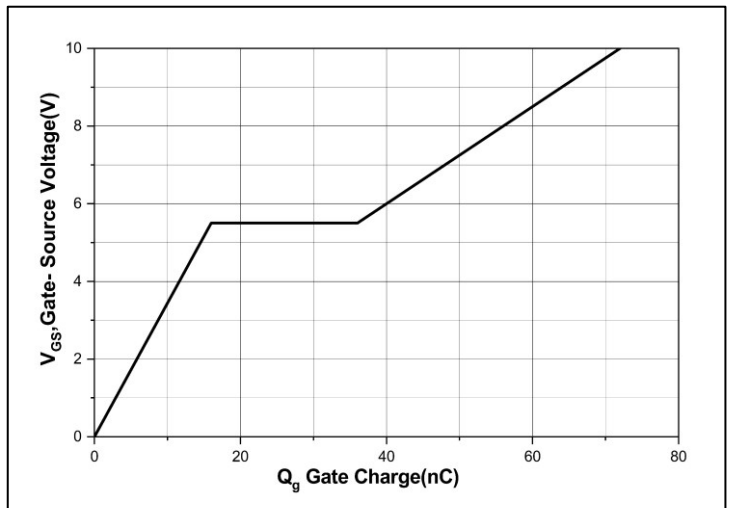


Figure6. Gate Charge

Typical Electrical and Thermal Characteristics

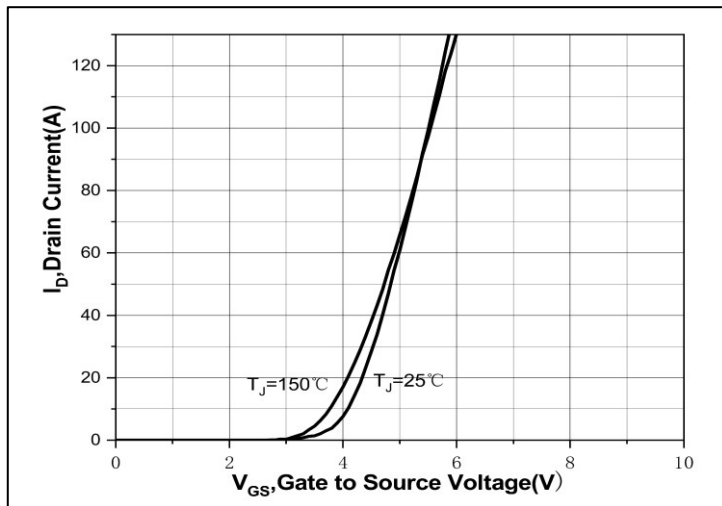


Figure7. Transfer Characteristics

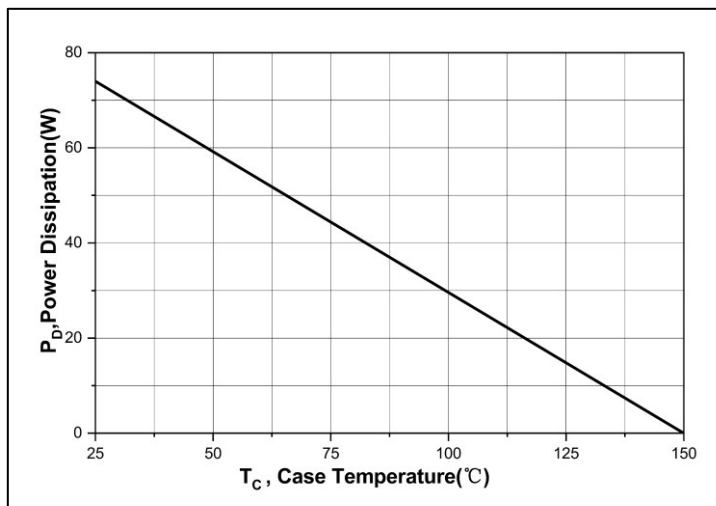
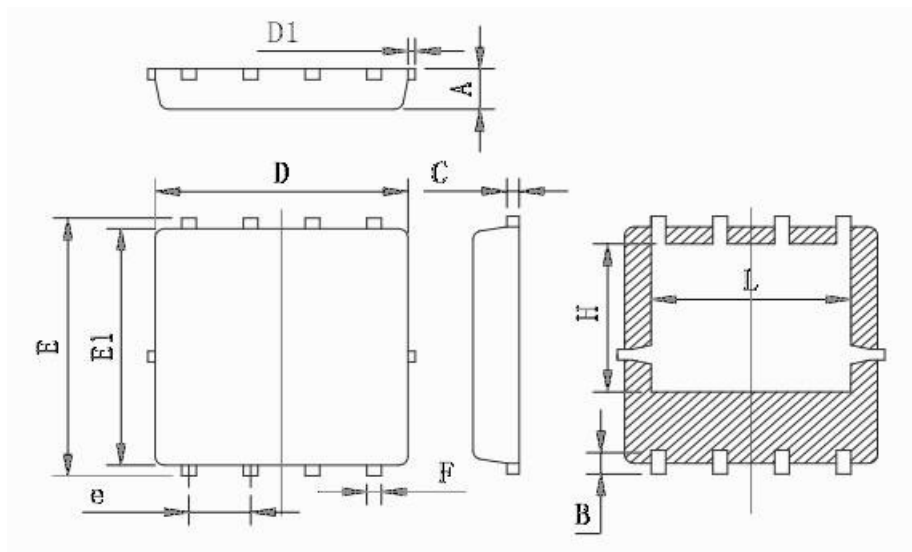


Figure8. Power Dissipation

Mechanical Data:

Unit:mm



Symbol	Min	Typ	Max
A	0.90	0.95	1.00
B	0.48	0.58	0.68
C	0.20	0.254	0.30
D	5.00	5.20	5.40
D1			0.15
E	5.90	6.05	6.20
E1	5.40	5.55	5.70
e	1.22	1.27	1.32
F	0.25	0.30	0.35
H	3.27	3.47	3.67
L	3.80	4.00	4.20

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