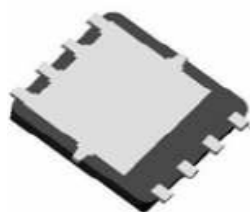
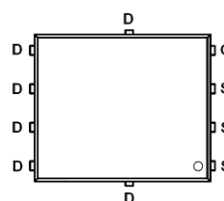


Main Product Characteristics:

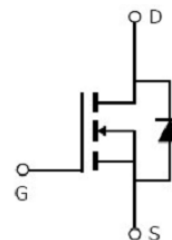
V_{DS}	30V
$R_{DS(on)}$	6.7m Ω (typ.)
I_D	25A



PQFN 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 @ $T_C = 25^\circ\text{C}$	Continuous Drain Current, V_{GS} @ 10V ①	25	A
I_D @ $T_C = 100^\circ\text{C}$	Continuous Drain Current, V_{GS} @ 10V ①	17	
I_{DM}	Pulsed Drain Current ②	50	
P_D @ $T_C = 25^\circ\text{C}$	Power Dissipation ③	30	W
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy @ $L=0.5\text{mH}$	68	mJ
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 150	$^\circ\text{C}$

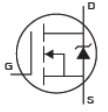
Thermal Resistance

Symbol	Characteristics	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-case ^③	—	4.2	°C/W

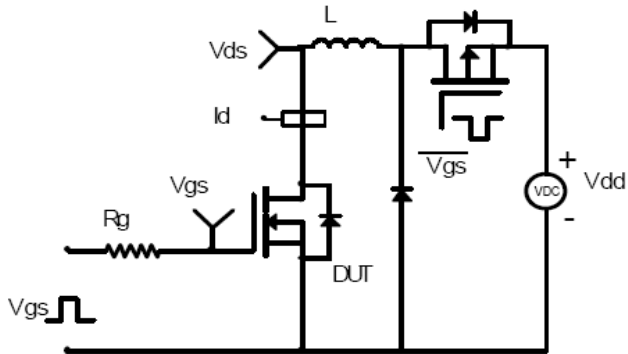
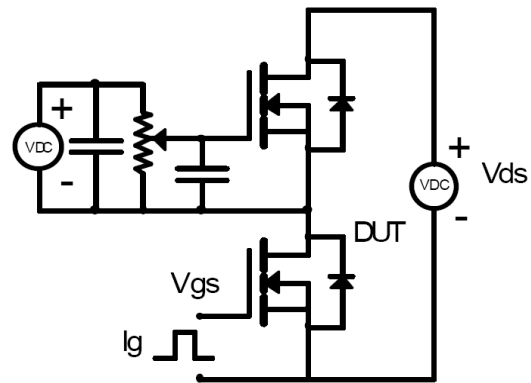
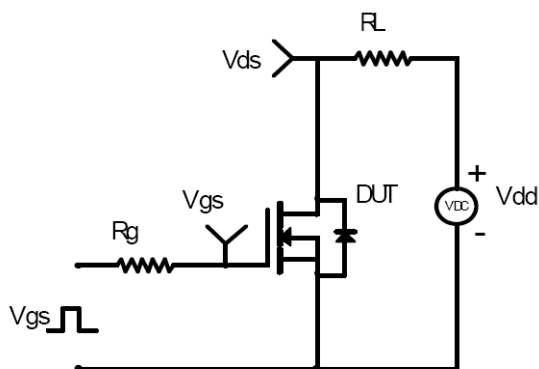
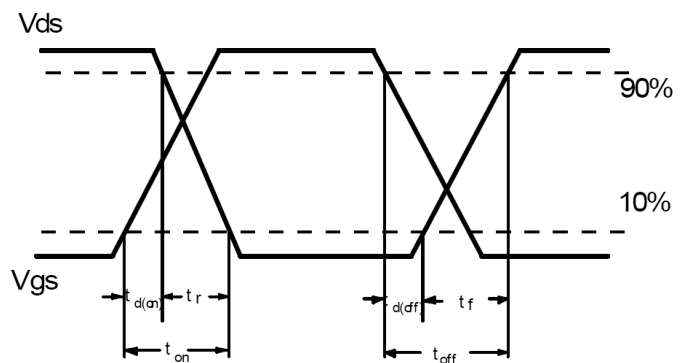
Electrical Characteristics @ $T_A=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	30	—	—	V	$V_{GS} = 0V, I_D = 250\mu A$
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	6.7	10	mΩ	$V_{GS}=10V, I_D = 15A$
		—	12	16		$V_{GS}=4.5V, I_D = 10A$
$V_{GS(th)}$	Gate threshold voltage	1.0	—	2.5	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
I_{DSS}	Drain-to-Source leakage current	—	—	1	μA	$V_{DS} = 30V, V_{GS} = 0V$
I_{GSS}	Gate-to-Source forward leakage	—	—	100	nA	$V_{GS} = 20V$
		—	—	-100		$V_{GS} = -20V$
Q_g	Total gate charge	—	12	—	nC	$I_D = 15A,$ $V_{DS}=15V,$ $V_{GS} = 10V$
Q_{gs}	Gate-to-Source charge	—	3	—		
Q_{gd}	Gate-to-Drain("Miller") charge	—	4	—		
$t_{d(on)}$	Turn-on delay time	—	8.3	—	ns	$V_{GS}=10V,$ $V_{DS} = 22V,$ $R_{GEN}=2.2\Omega,$ $I_D = 10A$
t_r	Rise time	—	19.3	—		
$t_{d(off)}$	Turn-Off delay time	—	23.1	—		
t_f	Fall time	—	5.5	—		
C_{iss}	Input capacitance	—	960	—	pF	$V_{GS} = 0V$ $V_{DS} = 25V$ $f = 1MHz$
C_{oss}	Output capacitance	—	144	—		
C_{rss}	Reverse transfer capacitance	—	120	—		

Source-Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	25	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode)	—	—	50	A	
V_{SD}	Diode Forward Voltage	—	—	1.2	V	$I_S=15A, V_{GS}=0V$
t_{rr}	Reverse Recovery Time	—	12	—	ns	$T_J = 25^{\circ}\text{C}, I_F = 10A,$ $di/dt = 100A/\mu s$
Q_{rr}	Reverse Recovery Charge	—	4	—	nC	

Test Circuits and Waveforms

EAS Test Circuit

Gate Charge Test Circuit

Switching Time Test Circuit

Switching Waveforms


Notes:

- ① Continuous current tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 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

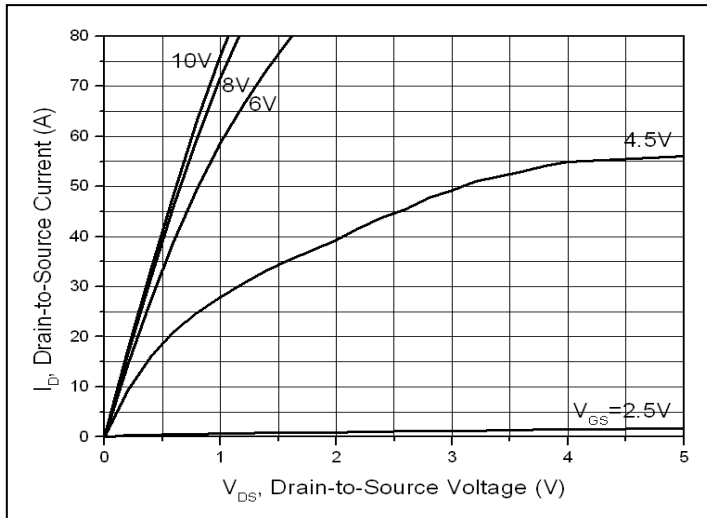


Figure 1. Typical Output Characteristics

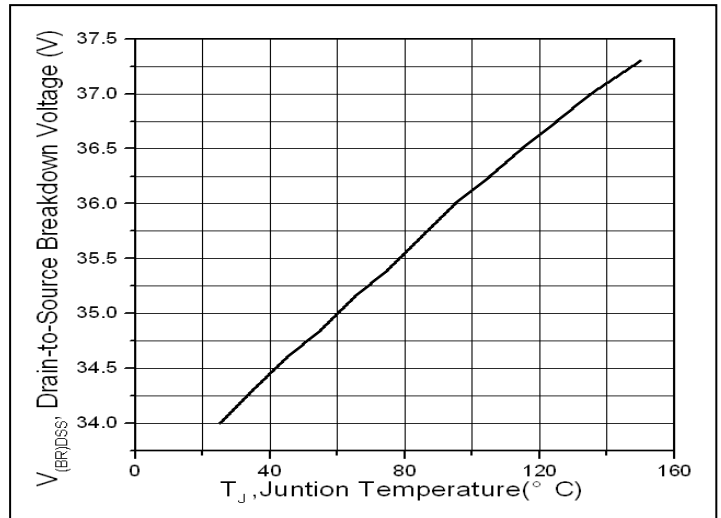


Figure2. BVDSS vs. Junction Temperature

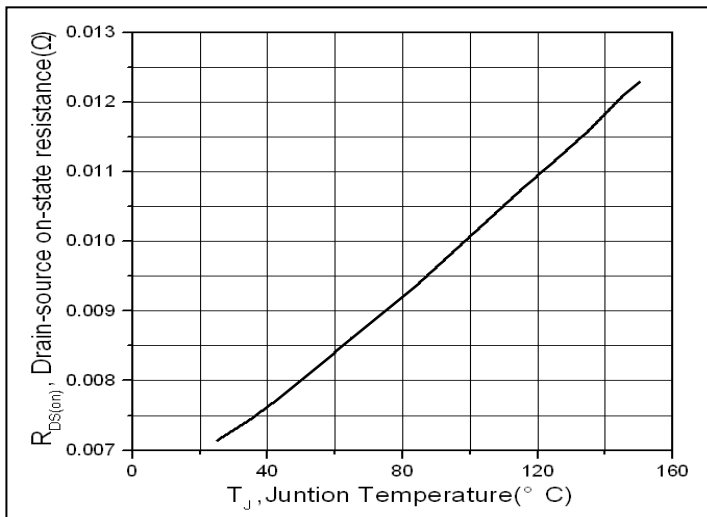


Figure 3. Normalized On-Resistance vs. Junction Temperature

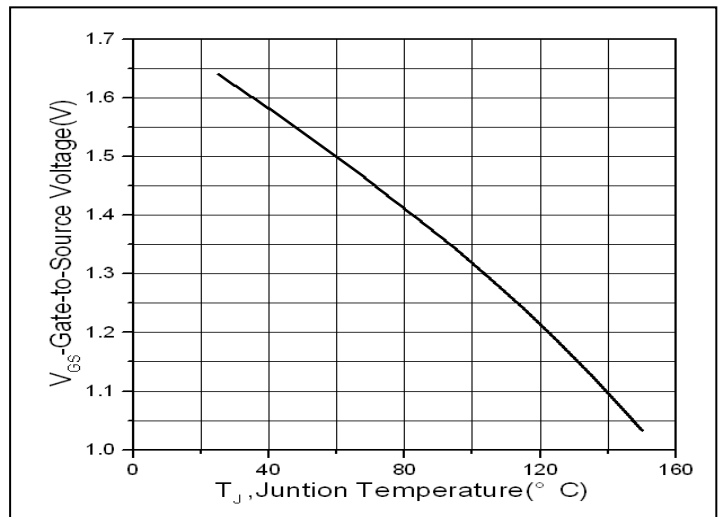


Figure 4. Normalized $V_{GS(th)}$ vs. Junction Temperature

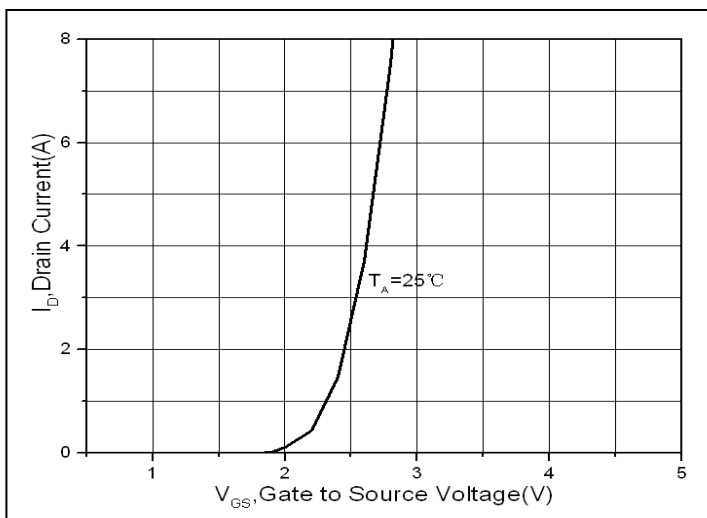


Figure 5. Transfer Characteristics

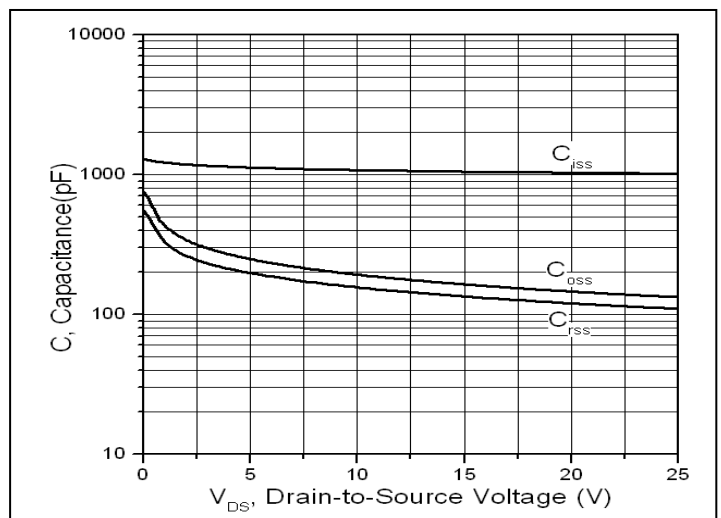


Figure 6. Capacitance Characteristics

Typical Electrical and Thermal Characteristics

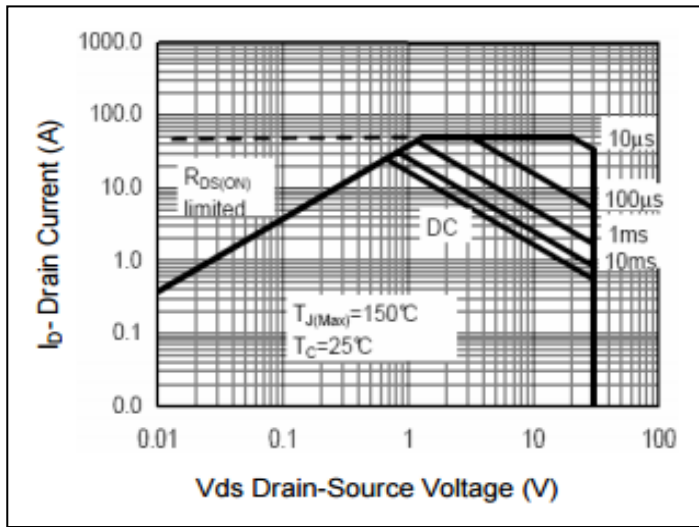


Figure 7. Safe Operation Area

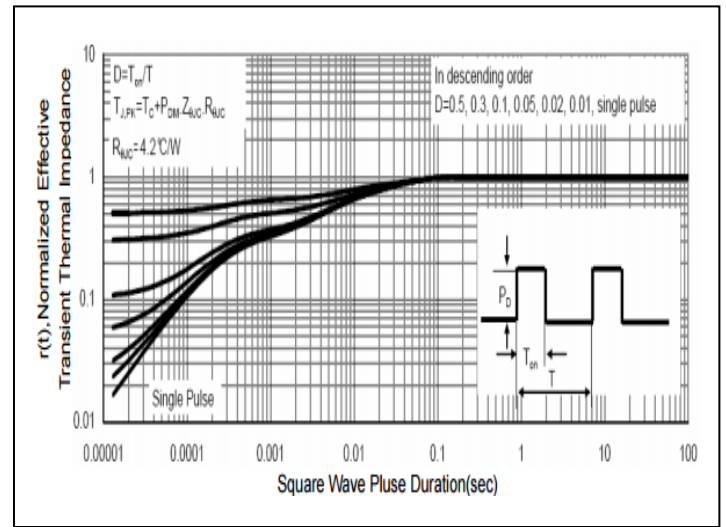
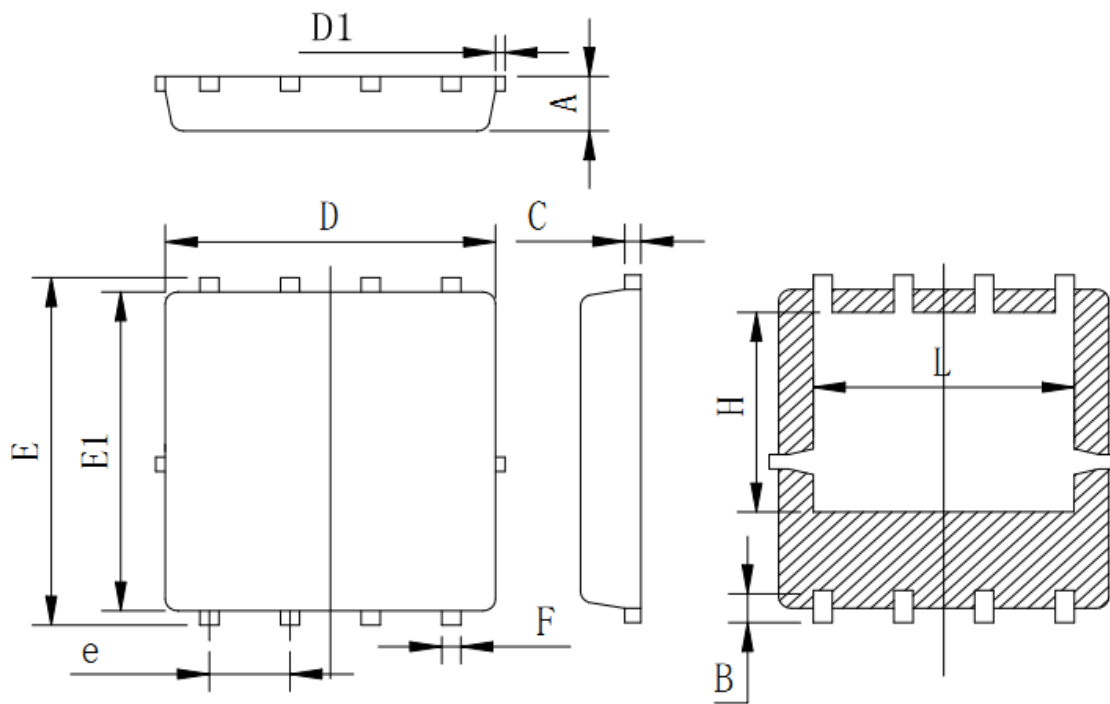


Figure 8. Transient Thermal Impedance

Mechanical Data

PDFN5*6 Package Outline (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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