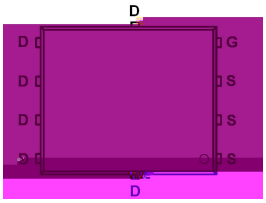
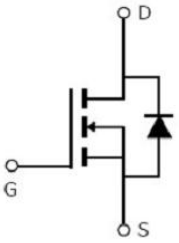
Main Product Characteristics:

V_{DSS}	30V
R_{DS}(on)	1.5mΩ (typ.)
I_D	130A

PDFN5x6-8L



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 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°C	Continuous Drain Current, V_{GS} @ 10V	130	A
I_D @ T_C = 100°C	Continuous Drain Current, V_{GS} @ 10V	80	
I_{DM}	Pulsed Drain Current	520	
P_D @T_C = 25°C	Power Dissipation	58	W
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy @ L=0.5mH	576	mJ
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to +150	°C

Thermal Resistance

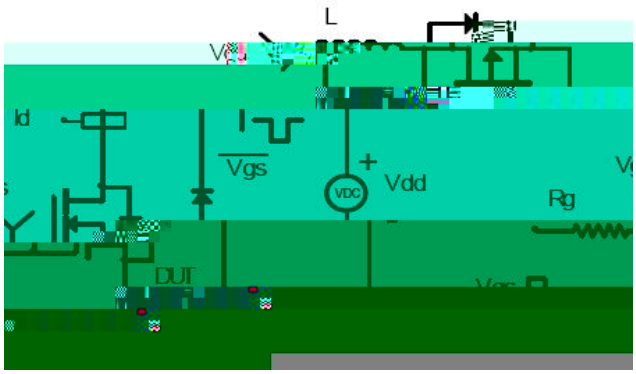
Symbol	Characterizes	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-case	—	2.15	/W

Electrical Characterizes @T_A=25 unless otherwise specified

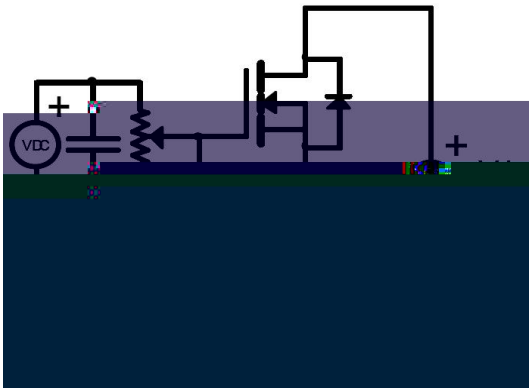
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	30	—	—	V	V_{GS} = 0V, I_D = 250μA
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	1.5	2	mΩ	V_{GS}=10V,I_D = 20A
		—	2.4	3.2		V_{GS}=4.5V,I_D = 20A
$V_{GS(th)}$	Gate threshold voltage	1	—	2.5	V	V_{DS} = V_{GS}, I_D = 250μA
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
C_{iss}	Input capacitance	—	6530	—		V_{GS} = 0V
C_{oss}	Output capacitance	—	760	—	pF	V_{DS} = 15V
C_{rss}	Reverse transfer capacitance	—	460	—		f = 1MHz
Q_g	Total gate charge	—	115	—		I_D = 20A,
Q_{gs}	Gate-to-Source charge	—	15	—	nC	V_{DS}=15V,
Q_{gd}	Gate-to-Drain("Miller") charge	—	27	—		V_{GS} = 10V
$t_{d(on)}$	Turn-on delay time	—	20	—		
t_r	Rise time	—	18	—	ns	V_{GS}=10V, V_{DS} =15V,
t						R_{GEN}=3Ω,R_L=0.75Ω

Test Circuits and Waveforms

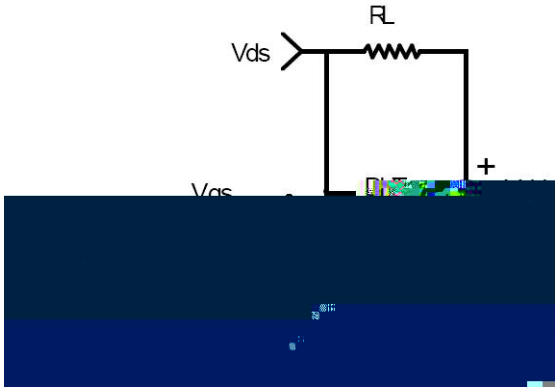
EAS Test Circuit:



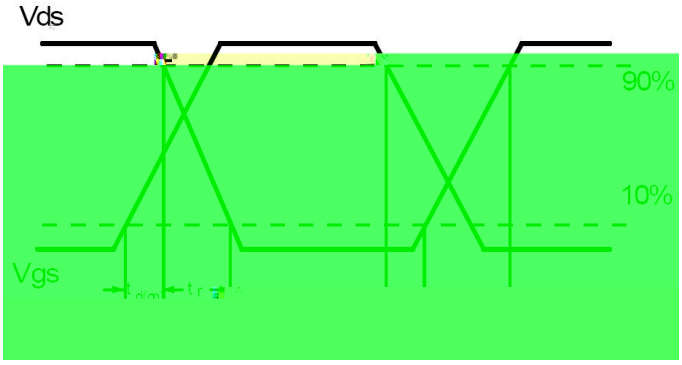
Gate Charge Test Circuit:



Switching Time Test Circuit:



Switching Waveforms:



Notes:

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

Typical Electrical and Thermal Characteristics

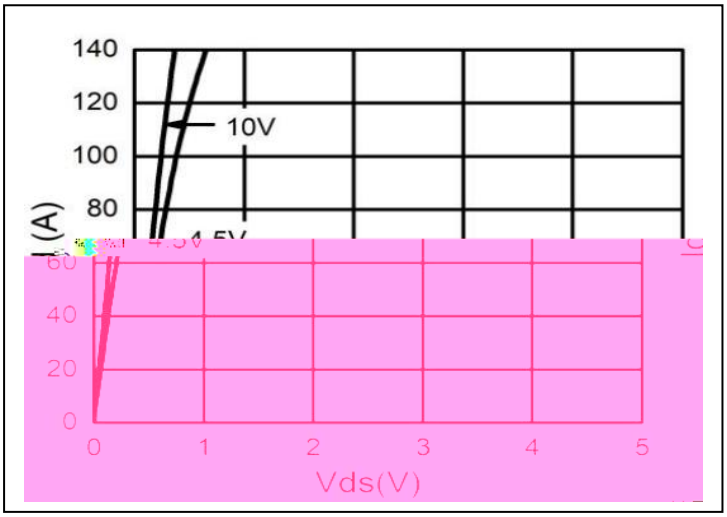


Figure1. Typical Output Characteristics

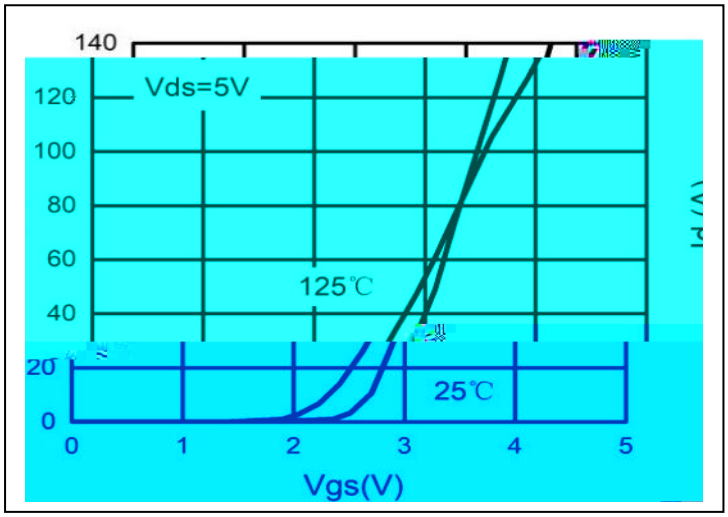


Figure2. Transfer Characteristics

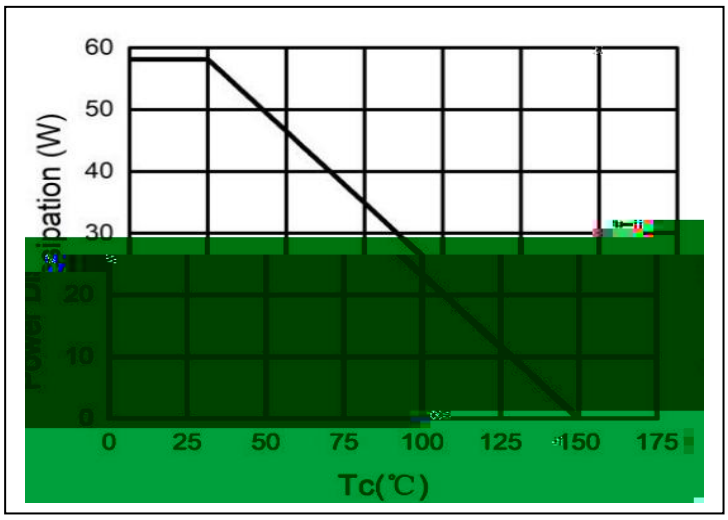


Figure3. Power Dissipation

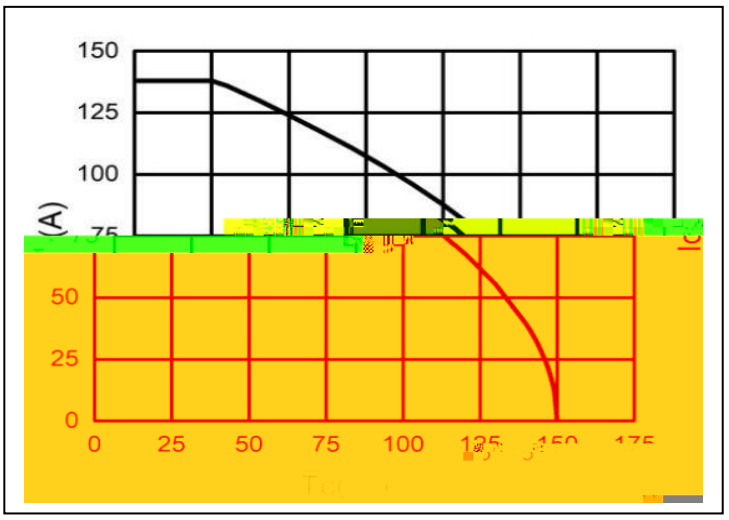


Figure 4. Drain Current

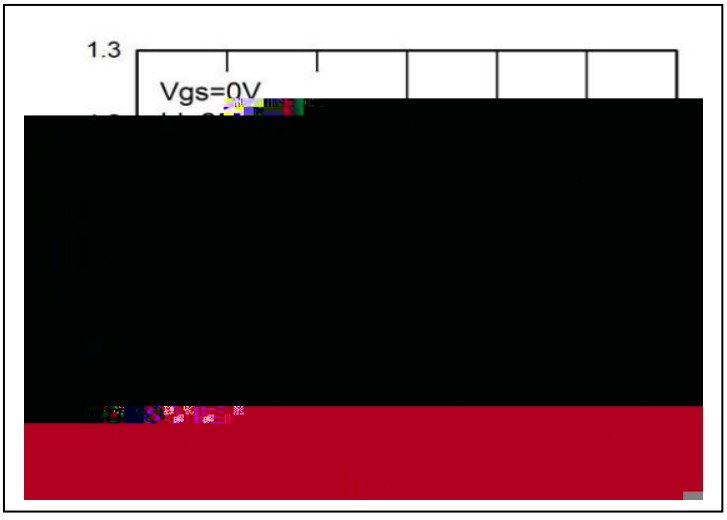


Figure5. BV_{DSS} vs Junction Temperature

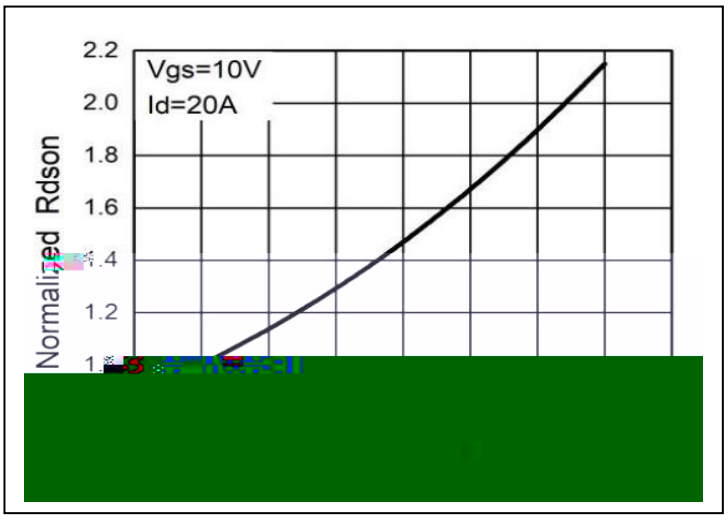


Figure6. $R_{DS(ON)}$ vs Junction Temperature

Typical Electrical and Thermal Characteristics

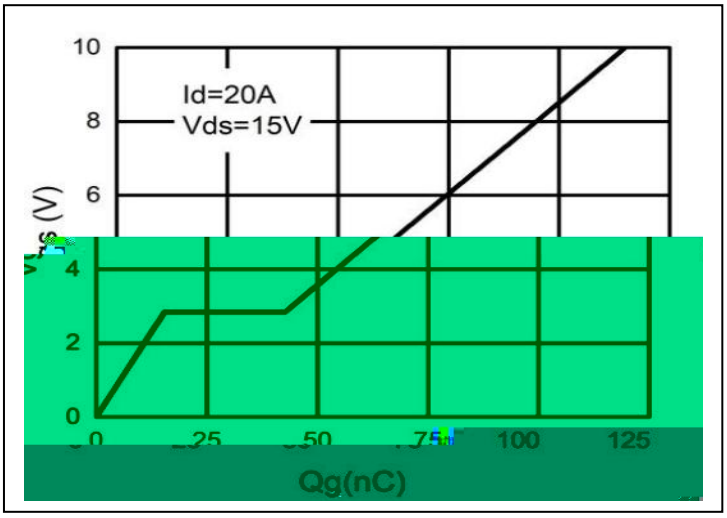


Figure7. Gate Charge Waveforms

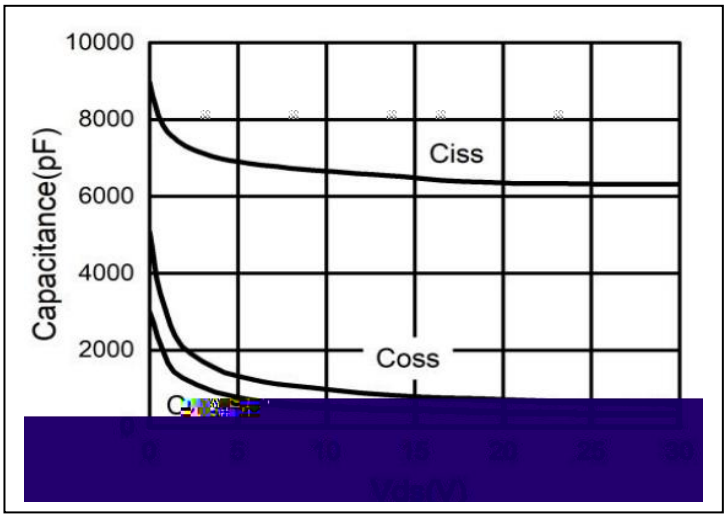


Figure8. Capacitance

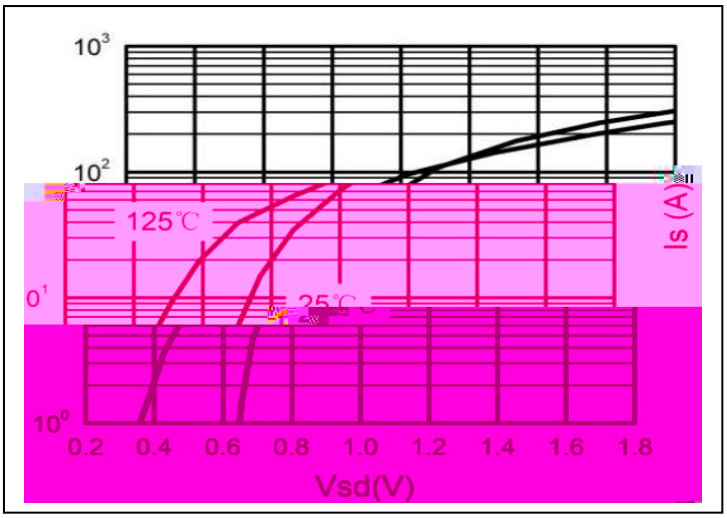


Figure9. Body-Diode Characteristics

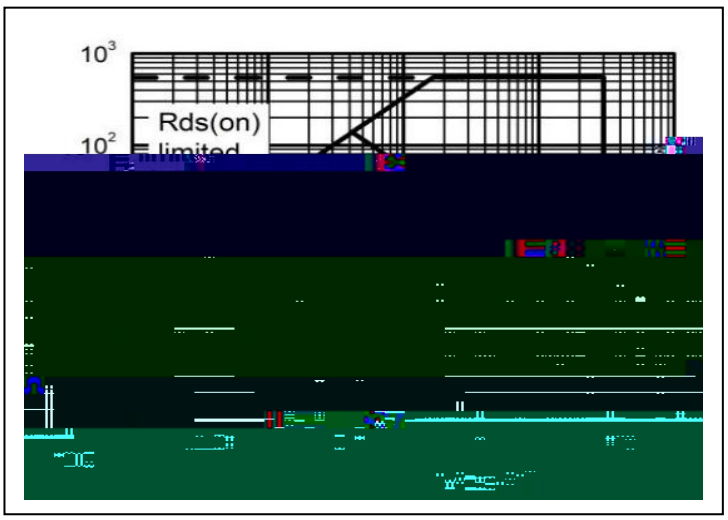
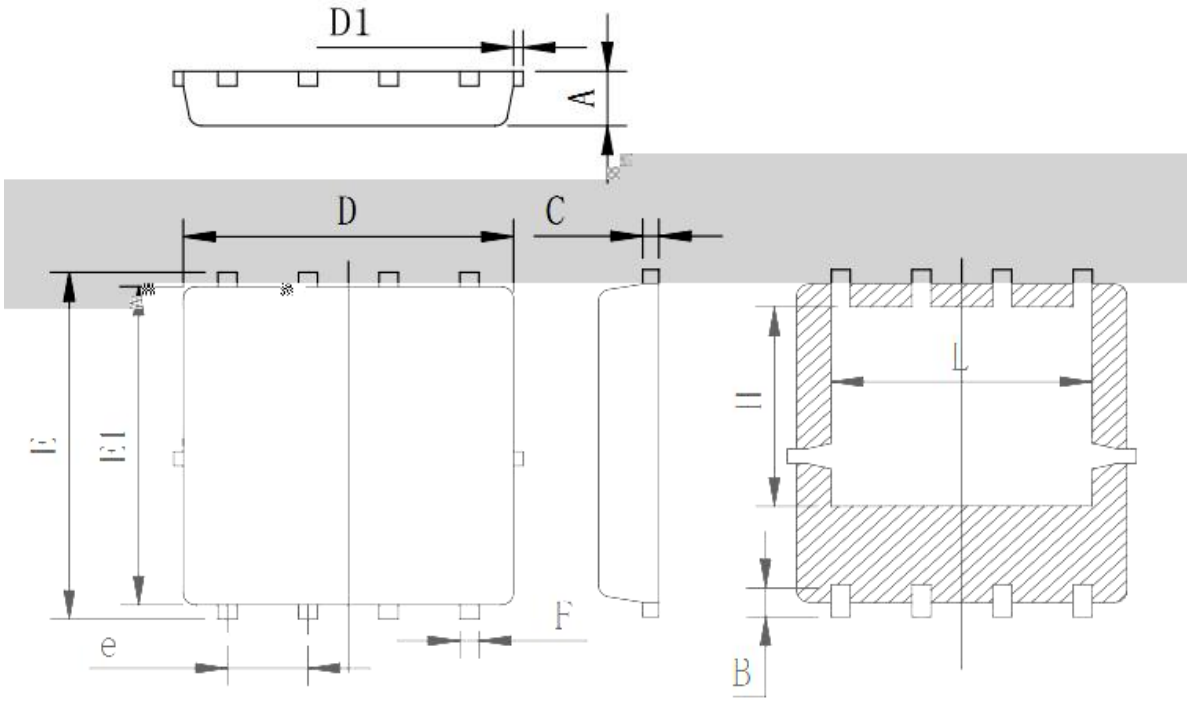


Figure10. Maximum Safe Operating Area

Mechanical Data



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

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