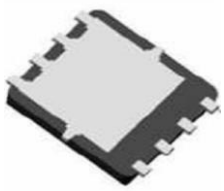
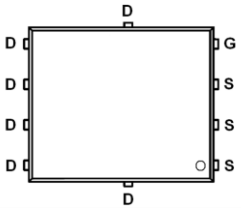
Main Product Characteristics:

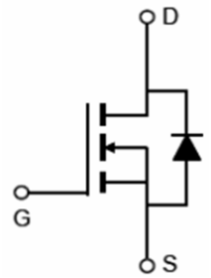
V_{DSS}	150V
R_{DS}(on)	9mΩ(typ.)
I_D	80A



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℃ operating temperature

Description:

It utilizes the latestprocessing techniquesto achieve the high cell density and reduces the on-resistancewith high repetitiveavalanche rating. These features combine to makethis design an extremely efficient and reliable devicefor use in power switching applicationand a wide varietyof otherapplications.

AbsoluteMax Rating:

Symbol	Parameter	Max.	Units
I_D @ T_C = 25°C	Continuous Drain Current, V_{GS} @ 10V①	80	A
I_{DM}	Pulsed Drain Current②	240	
P_D @T_C = 25°C	Power Dissipation③	160	W
V_{DS}	Drain-Source Voltage	150	V
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy @ L=0.3mH	80	mJ
T_J T_{STG}	Operating Junction and Storage TemperatureRange	-55 to +150	°C

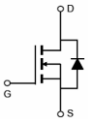
Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-case③	—	0.78	℃/W

Electrical Characterizes@T_A=25℃unless otherwise specified

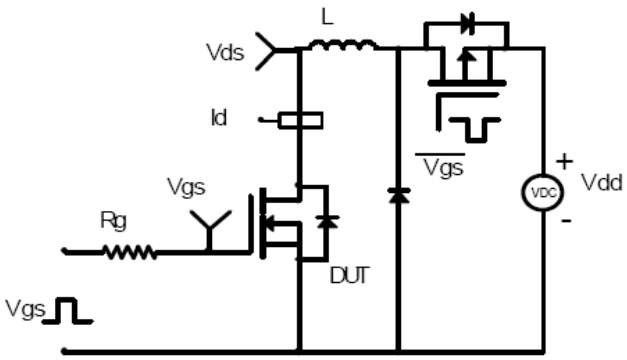
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	150	—	—	V	V_{GS} = 0V, I_D = 250μA
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	9	10	mΩ	V_{GS}=10V,I_D =20A
$V_{GS(th)}$	Gate threshold voltage	3	—	4.5	V	V_{DS} = V_{GS}, I_D =250μA
I_{DSS}	Drain-to-Source leakage current	—	—	1	μA	V_{DS} =135V,V_{GS} = 0V
I_{GSS}	Gate-to-Source forward leakage	—	—	100	nA	V_{GS} =20V
		—	—	-100		V_{GS} = -20V
Q_g	Total gate charge	—	70	—	nC	I_D = 44A,
Q_{gs}	Gate-to-Source charge	—	27	—		V_{DS}=75V,
Q_{gd}	Gate-to-Drain("Miller") charge	—	18	—		V_{GS} = 10V
$t_{d(on)}$	Turn-on delay time	—	21	—	ns	V_{GS}=10V, V_{DS}=75V,
t_r	Rise time	—	21	—		R_{GEN}=2Ω
$t_{d(off)}$	Turn-Off delay time	—	36	—		I_D = 44A
t_f	Fall time	—	9	—		
C_{iss}	Input capacitance	—	5130	—	pF	V_{GS} = 0V
C_{oss}	Output capacitance	—	1670	—		V_{DS} =25V
C_{rss}	Reverse transfercapacitance	—	175	—		f = 100kHz

Source-Drain Ratings and Characteristics

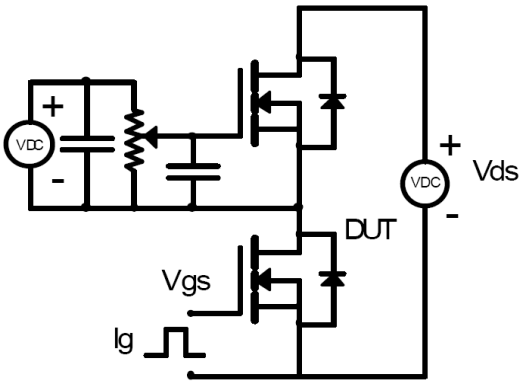
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	80	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode)	—	—	240	A	
V_{sd}	Diode Forward Voltage	—	—	1.3	V	I_S=20A, V_{GS}=0V
trr	Reverse Recovery Time	—	75	—	ns	I_F=I_S,di/dt=100A/us
Qrr	Reverse Recovery Charge	—	285	—	nC	

Test Circuits and Waveforms

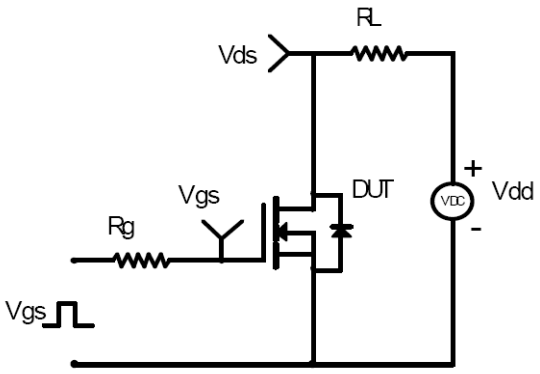
EAS Test Circuit:



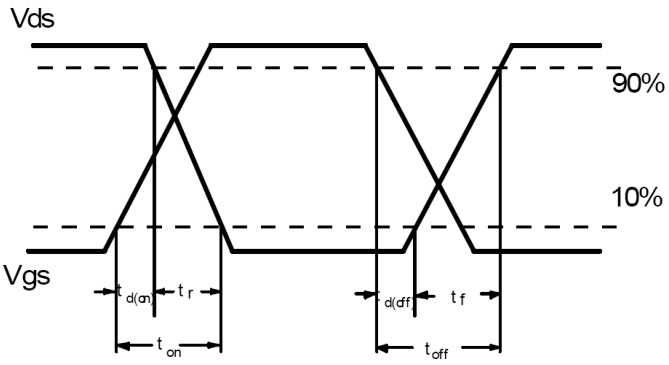
Gate Charge Test Circuit:



Switching Time Test Circuit:



Switching Waveforms:



Notes:

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

Typical Electrical and Thermal Characteristics

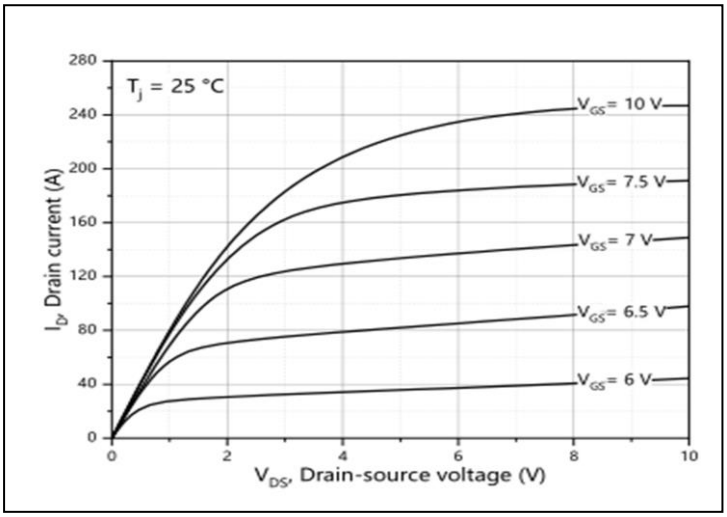


Figure1.Typical Output Characteristics

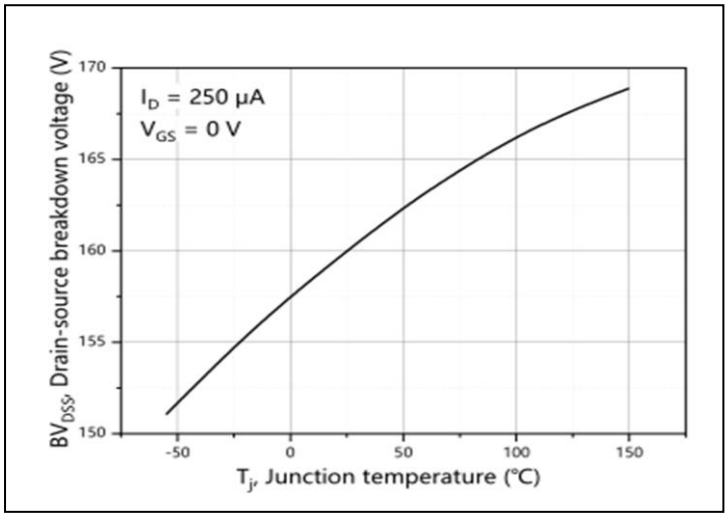


Figure2.Drain-to-Source Breakdown Voltage vs. Temperature

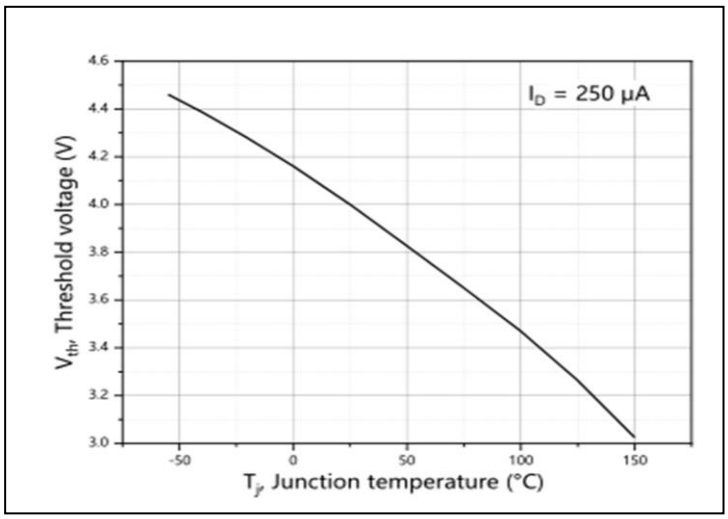


Figure3.Gate to Source Cut-off Voltage

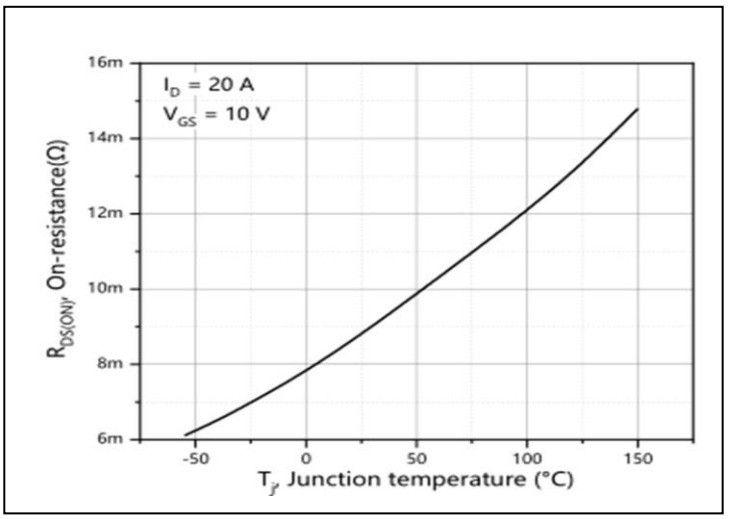


Figure4.Normalized On-Resistance vs. Junction Temperature

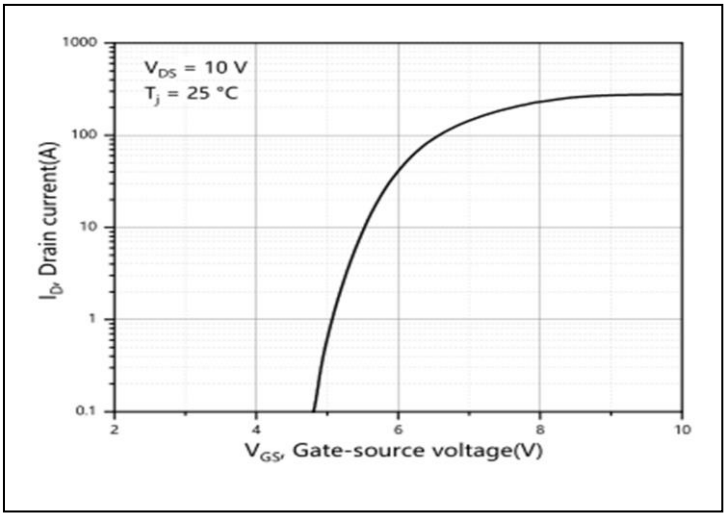


Figure5.Typical Transfer Characteristics

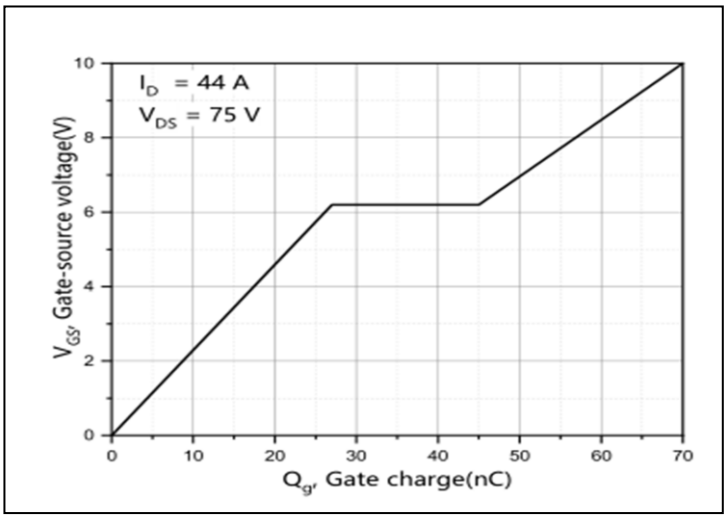


Figure6. Typ. Gate Charge

Typical Electrical and Thermal Characteristics

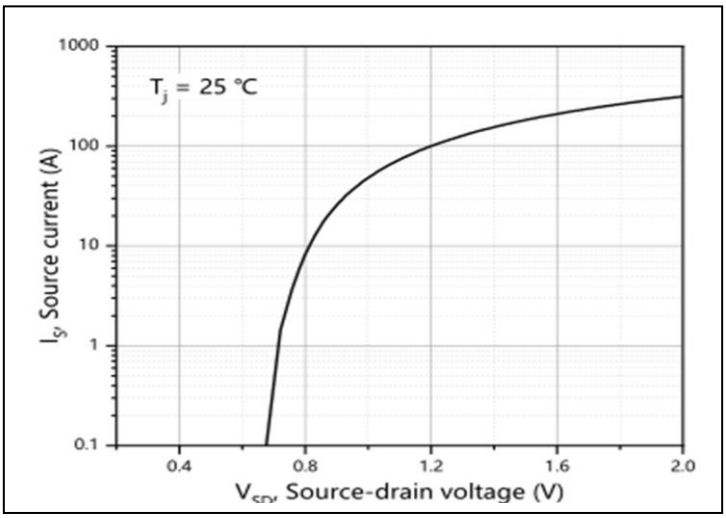


Figure7.Forward Characteristics of Body Diode

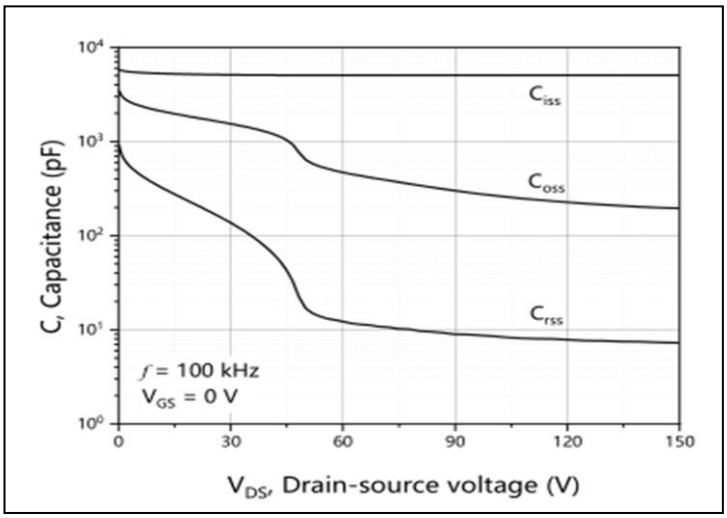


Figure8.Capacitance

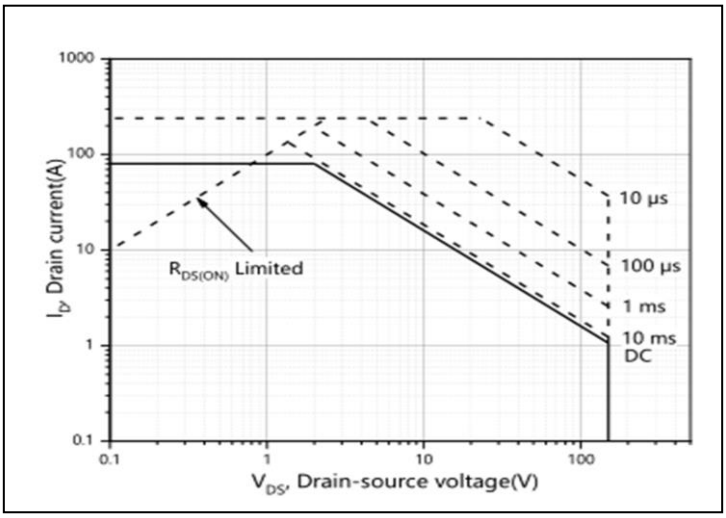


Figure9. Maximum Safe Operating Area

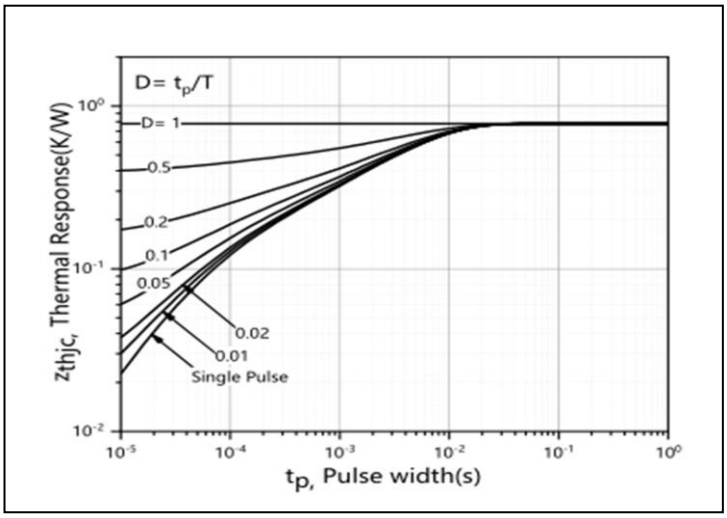
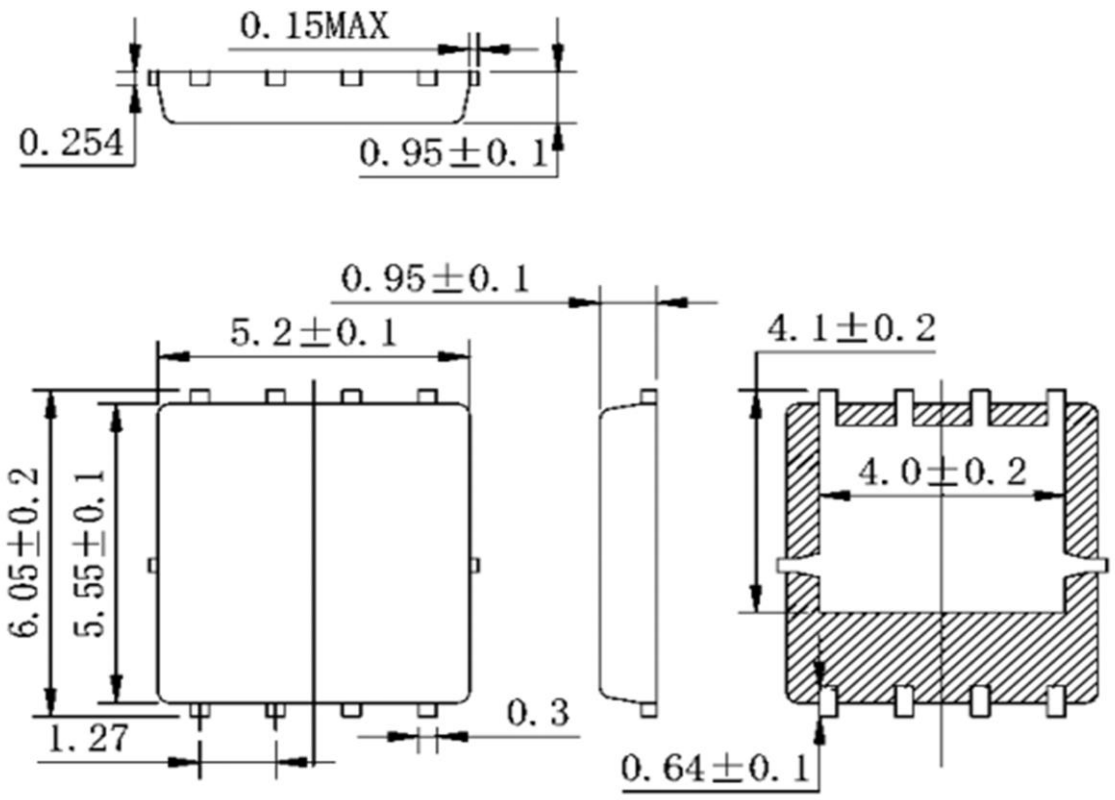


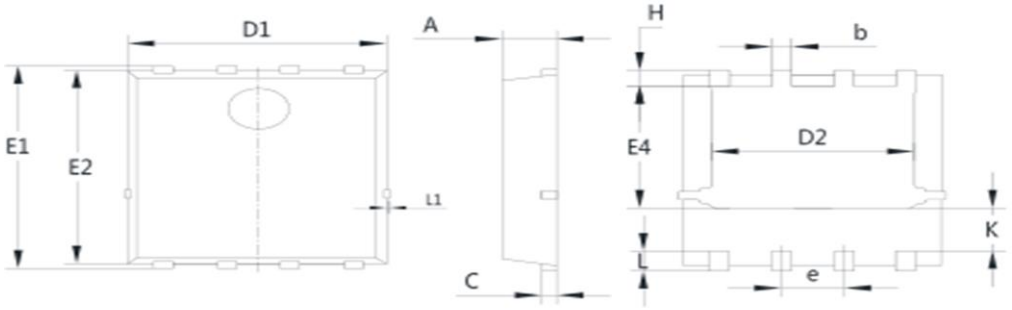
Figure10. Normalized Maximum Transient Thermal

Mechanical Data：

Option1



Option2



Symbol	mm		
	Min	Nom	Max
A	1.00	1.10	1.20
b	0.30	0.40	0.50
c	0.154	0.254	0.354
D1	5.00	5.20	5.40
D2	3.80	4.10	4.25
e	1.17	1.27	1.37
E1	5.95	6.15	6.35
E2	5.66	5.86	6.06
E4	3.52	3.72	3.92
H	0.40	0.50	0.60
L	0.30	0.60	0.70
L1	0.12 REF		
K	1.15	1.30	1.45

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