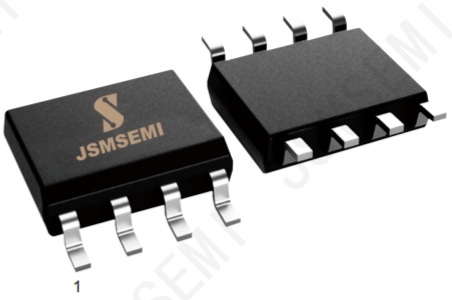
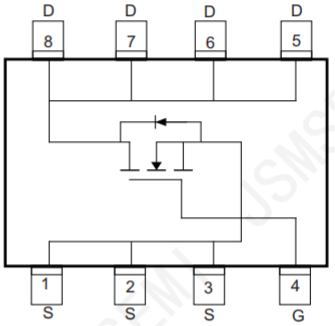
Product Summary

- V_{DS} 150V
- I_D 8A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜50mΩ
- 100% EAS Tested
- 100% ▽V_{DS} Tested



Top View



General Description

- Split gate trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- Power switching application
- Uninterruptible power supply
- DC-DC convertor
- Motor drivers

■ Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Tc=25℃) (1)	I_D	8	A
Continuous Drain Current (Tc=100℃)	I_D	6	A
Pulsed Drain Current (1)	I_{DM}	32	A
Drain Power Dissipation	P_D	20	W
Single Pulsed Avalanche Energy (2)	E_{AS}	150	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	51	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	2.6	℃/W
Junction Temperature	T_J	-55~ +150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

Notes:

1) Repetitive Rating: pulse width limited by maximum junction temperature
2) EAS condition : T_J=25℃, V_{DD}=75V, V_G=10V, L=0.5mH, R_g=25Ω, I_{AS}=26A

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship,Quantity	Green
PHK5NQ15T518-JSM	SOP-8	5U15-	-55 to 150°C	1	T&R,3000	Rohs

■ Electrical Characteristics (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D =250μA	150	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=150V, V_{GS}=0V	-	-	1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS}=0V	-	-	±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.0	3.4	4.0	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=5A	-	42	50	mΩ
		V_{GS}=6V, I_D=4A	-	50	56	mΩ
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1.0MHz	-	1.5	-	Ω
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS}=75V,V_{GS}=0V, f=1MHz	-	1240	-	pF
Output Capacitance	C_{oss}		-	115	-	
Reverse Transfer Capacitance	C_{rss}		-	3.5	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=75V RG=3Ω , I_D=10A	-	8.9	-	ns
Turn-on rise time	t_r		-	4.3	-	
Turn-off delay time	$t_{d(off)}$		-	14.1	-	
Turn-off fall time	t_f		-	4.8	-	
Total Gate Charge	Qg	V_{DS}=75V, I_D=10A, V_{GS}=10V	-	18.2	-	nC
Gate-Source Charge	Qgs		-	6.2	-	
Gate-Drain Charge	Qgd		-	3.8	-	
Gate Plateau	$V_{plateau}$		-	5	-	V
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	T_J=25℃, V_{GS} =0V, I_D=10A	-	-	1.2	V
Diode Forward current	I_S	T_C=25℃	-	-	8	A
Body Diode Reverse Recovery Time	Trr	T_J=25℃,di/dt=100A/us, I_D=10A	-	70.6	-	ns
Body Diode Reverse Recovery Charge	Qrr		-	182.2	-	nC

■Typical Electrical and Thermal Characteristics Diagrams

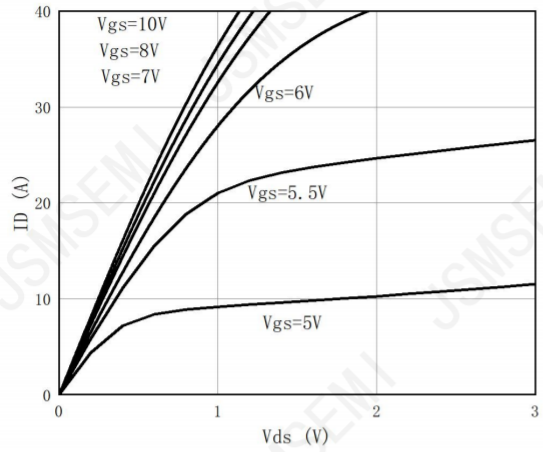


Figure 1. Output Characteristics

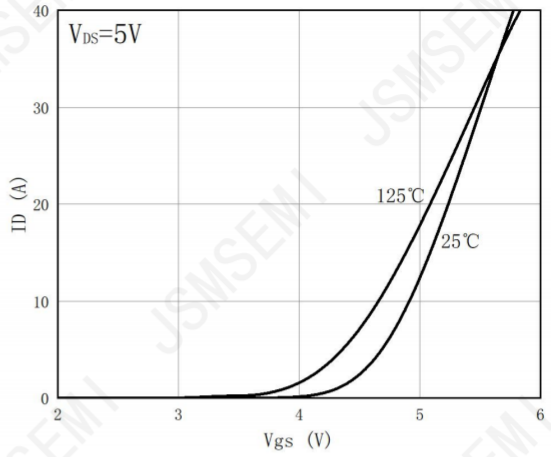


Figure 2. Transfer Characteristics

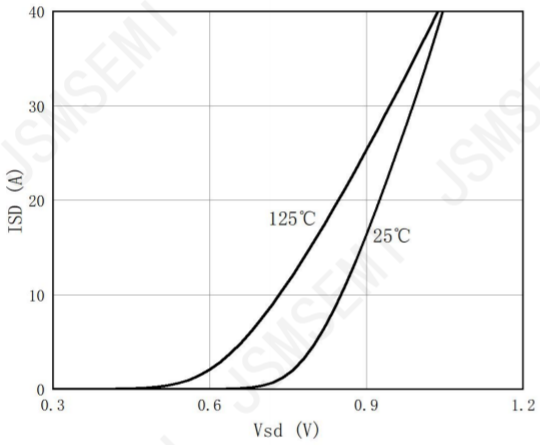


Figure 3. Source Drain Forward Characteristics

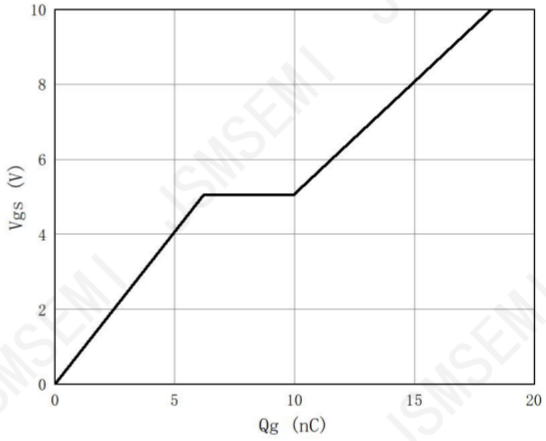


Figure 4. Gate-Charge Characteristics

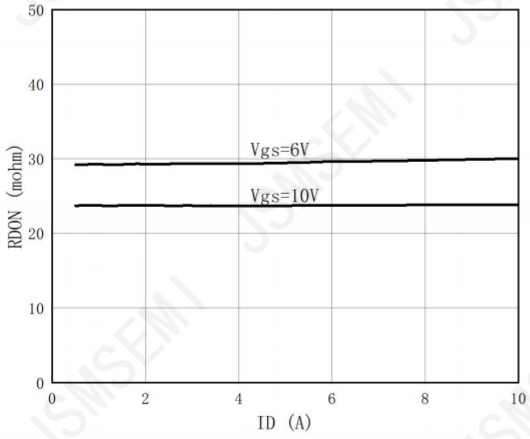


Figure 5. On-Resistance vs. Drain Current and Gate Voltage

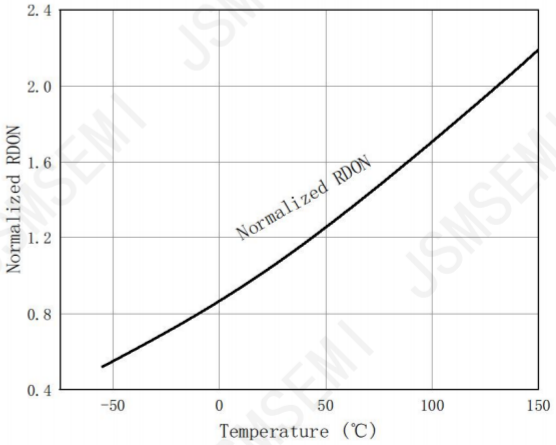


Figure 6. $R_{DS(ON)}$ vs Junction Temperature

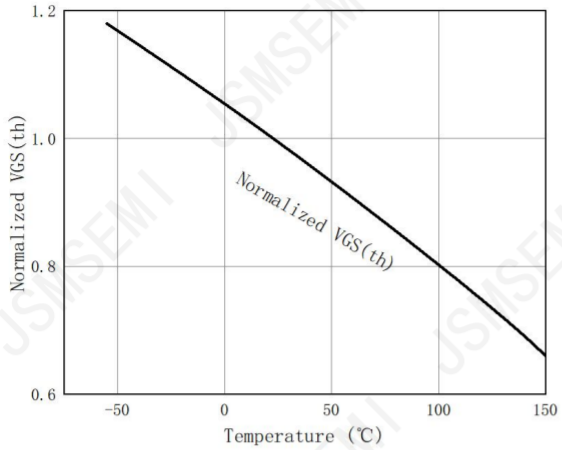


Figure 7: V_{th} vs Junction Temperature

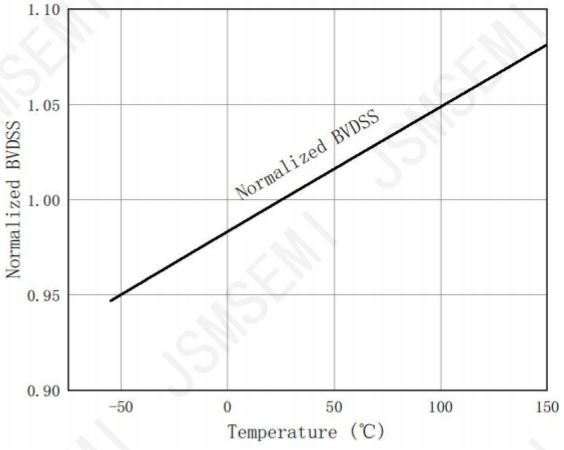


Figure 8.BVDSS vs. Junction Temperature

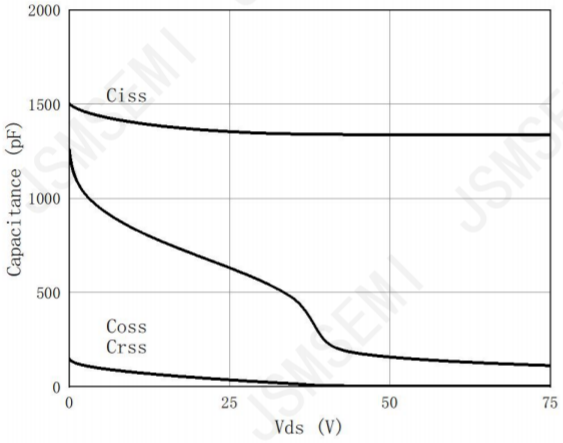


Figure 9. Capacitance

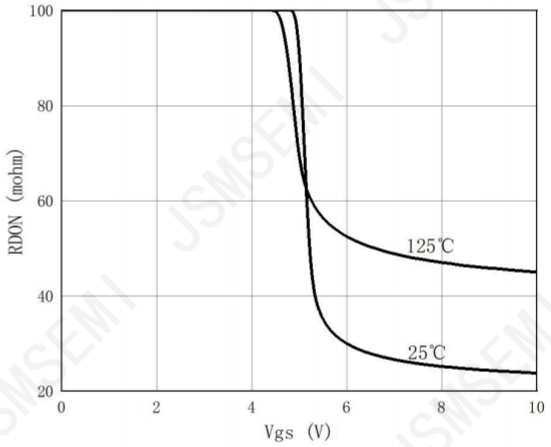


Figure 10. On-Resistance vs. Gate-Source Voltage

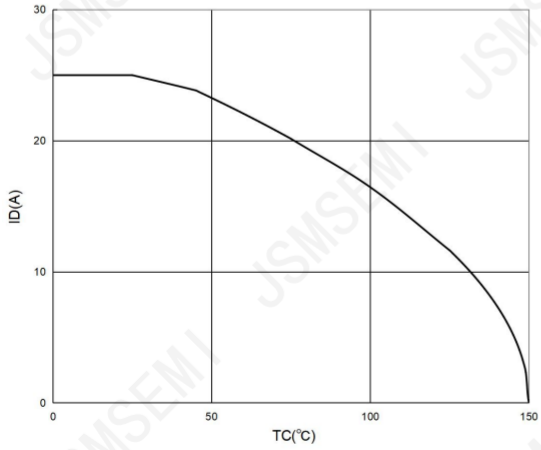


Figure 11. Current De-rating

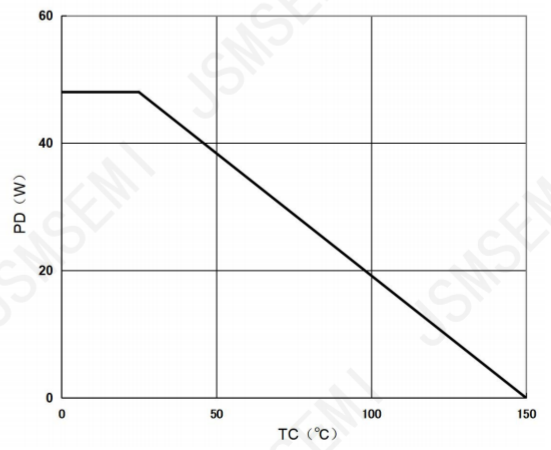


Figure 12. Power De-rating

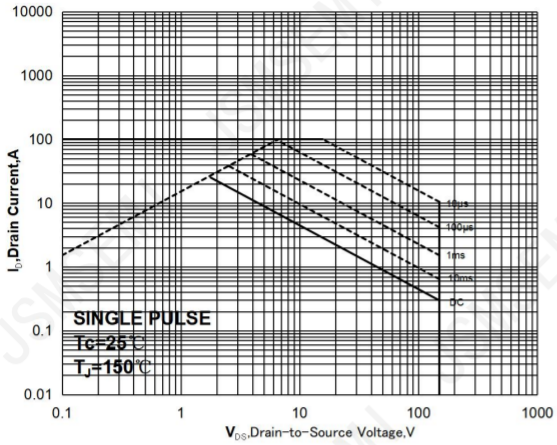


Figure 13. Safe Operating Area

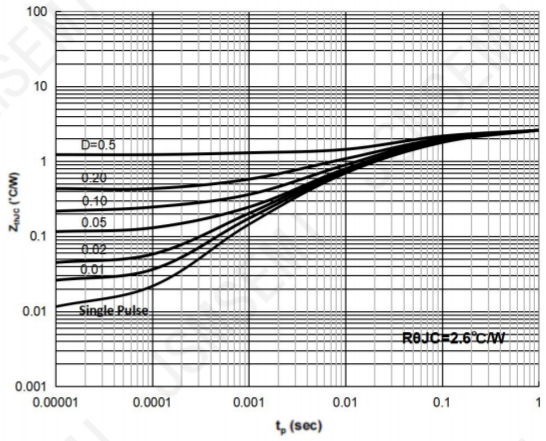
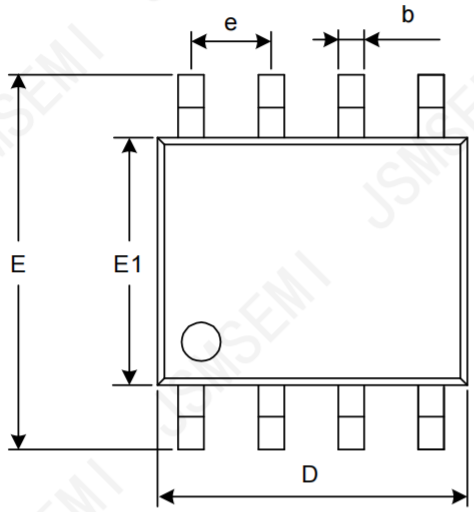
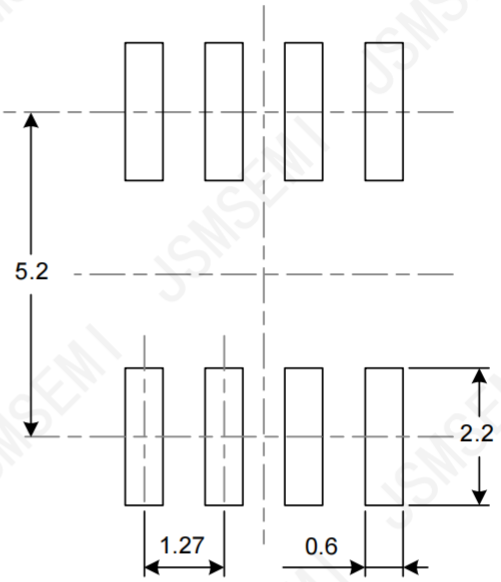


Figure 14. Normalized Maximum Transient Thermal Impedance

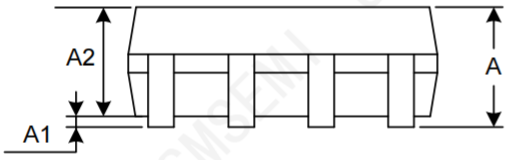
Package Information

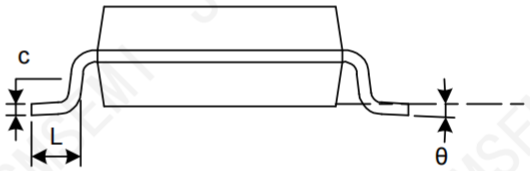
SOIC-8





RECOMMENDED LAND PATTERN (Unit: mm)





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

Revision History

Rev.	Change	Date
V1.0	Initial version	9/17/2021

Important Notice

JSMSEMI Semiconductor (JSMSEMI) PRODUCTS ARE NEITHER DESIGNED NOR INTENDED FOR USE IN MILITARY AND/OR AEROSPACE, AUTOMOTIVE OR MEDICAL DEVICES OR SYSTEMS UNLESS THE SPECIFIC JSMSEMI PRODUCTS ARE SPECIFICALLY DESIGNATED BY JSMSEMI FOR SUCH USE. BUYERS ACKNOWLEDGE AND AGREE THAT ANY SUCH USE OF JSMSEMI PRODUCTS WHICH JSMSEMI HAS NOT DESIGNATED FOR USE IN MILITARY AND/OR AEROSPACE, AUTOMOTIVE OR MEDICAL DEVICES OR SYSTEMS IS SOLELY AT THE BUYER’S RISK.

JSMSEMI assumes no liability for application assistance or customer product design. Customers are responsible for their products and applications using JSMSEMI products.

Resale of JSMSEMI products or services with statements diferent from or beyond the parameters stated by JSMSEMI for that product or service voids all express and any implied warranties for the associated JSMSEMI product or s ervice. JSMSEMI is not responsible or liable for any such statements.

JSMSEMI All Rights Reserved. Information and data in this document are owned by JSMSEMI wholly and may not be edited, reproduced, or redistributed in any way without the express written consent from JSMSEMI.

Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc.When designing equipment, refer to the "Delivery Specification" for the JSMSEMI product that you intend to use.

For additional information please contact Kevin@ jsmsemi.com or visit www.jsmsemi.com