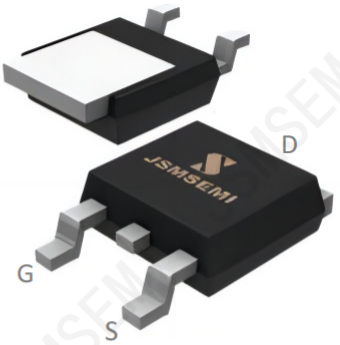
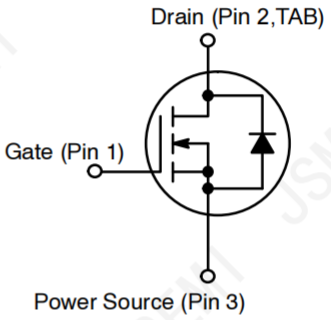
Product Summary

- V_{DS} 60V
- I_D 70A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜12mΩ
- 100% EAS Tested
- 100% ▽V_{DS} Tested



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	Limit	Unit
Drain-source Voltage		V_{DS}	60	V
Gate-source Voltage		V_{GS}	±20	V
Drain Current	T_C=25℃	I_D	70	A
	T_C =100℃		40	
Pulsed Drain Current [A]		I_{DM}	250	A
Avalanche energy [B]		EAS	67	mJ
Total Power Dissipation [C]	T_C=25℃	P_D	85	W
	T_C=100℃		46	
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	℃

■Thermal resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient [D]	Steady-State	$R_{\theta JA}$		55	℃/W
Thermal Resistance Junction-to-Case	Steady-State	$R_{\theta JC}$		1.9	

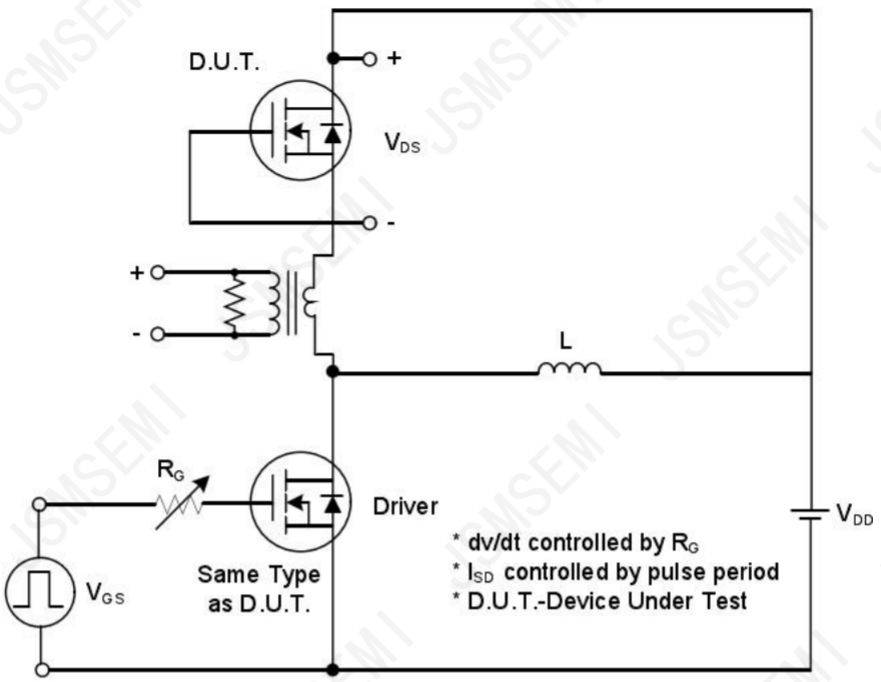
Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship,Quantity	Green
JSM80N06D	TO-252	JSM80N06D	-55 to 150°C	1	T&R,2500	Rohs

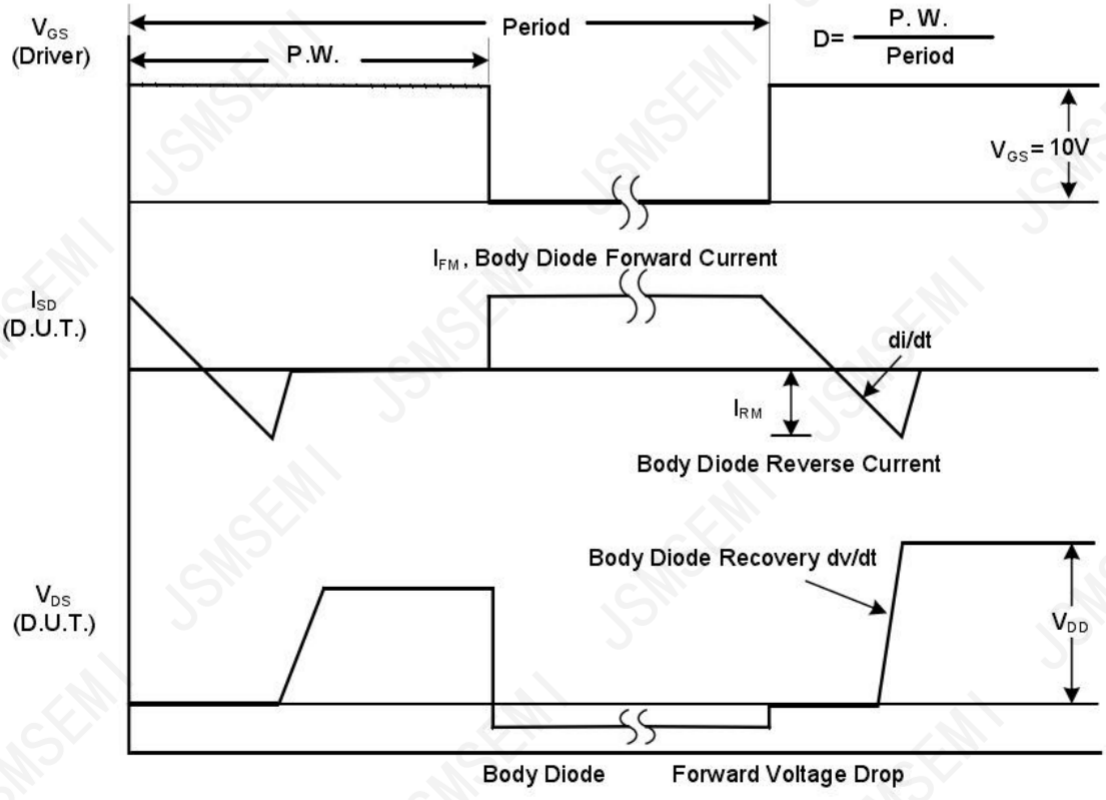
■ **Electrical Characteristics** (T_J=25℃ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Stactrical Parameter						
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=250μA, V_{GS}=0V	60			V
I_{GSS}	Gate-Body leakage current	V_{DS}=0V, V_{GS}= ±20V			100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=60V, V_{GS}=0V			1	μA
		TJ=55° C			5	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} I_D=250μA	1.1	1.8	2.5	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V, I_D=20A		8.5	12	mΩ
	Static Drain-Source On-Resistance	V_{GS}=4.5V, I_D=10A		10.5	15	mΩ
Diode Characteristics						
V_{SD}	Diode Forward voltage	I_S=1.0A V_{GS}=0V		0.7	1.2	V
Dynamic Characteristics						
Ciss	Input Capacitance	V_{GS}=0V, V_{DS}=15V, f=1MHz		1050		pF
Coss	Output Capacitance	V_{GS}=0V, V_{DS}=15V, f=1MHz		415		pF
Crss	Reverse Transfer Capacitance	V_{GS}=0V, V_{DS}=15V, f=1MHz		18		pF
Rg	Gate resistance	V_{GS}=0V, V_{DS}=0V, f=1MHz		1.7		Ω
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=15V, R_L=2.7Ω V_{GS}=10V,R_{GEN}=3Ω		8		nS
t_r	Turn-on Rise Time			2		nS
$t_{d(off)}$	Turn-off Delay Time			29		nS
t_f	Turn-off Fall Time			4		nS
Q_g	Total Gate Charge	V_{DS}=15V,I_D=5.8A, V_{GS}=4.5V		34.8		nC
Q_{gs}	Gate-Source Charge			7		nC
Q_{gd}	Gate-Drain Charge			5.3		nC

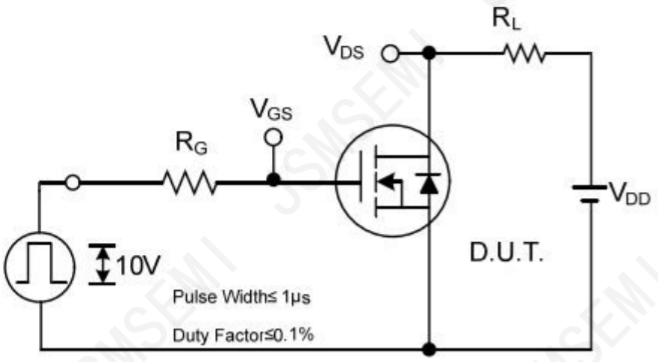
■ RATING AND CHARACTERISTIC CURVES



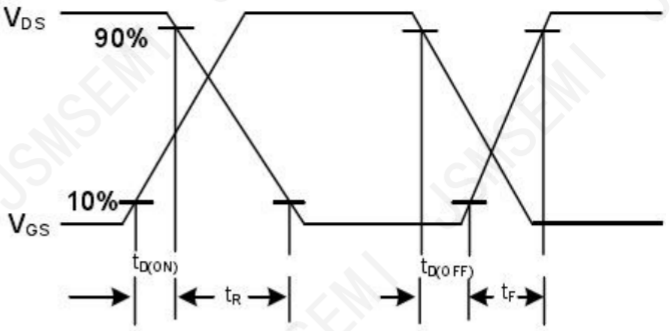
Peak Diode Recovery dv/dt Test Circuit



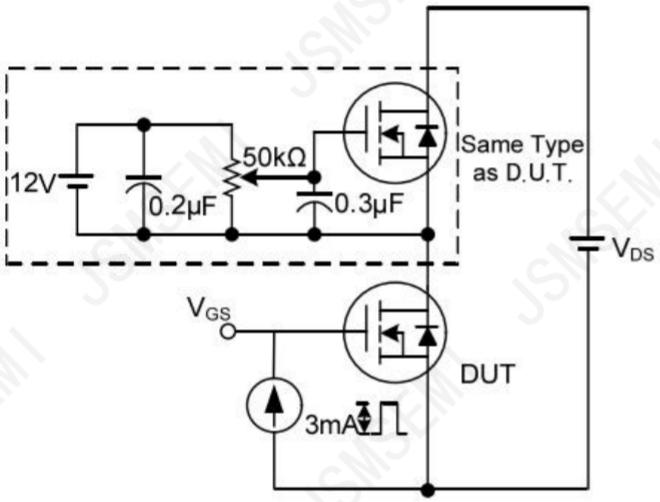
Peak Diode Recovery dv/dt Waveforms



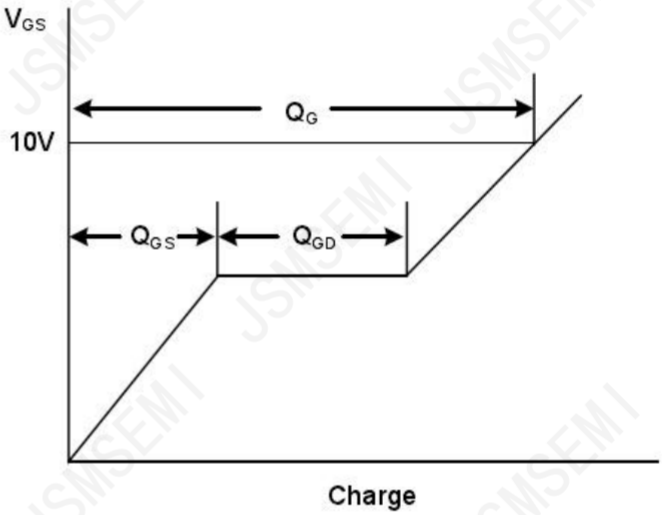
Switching Test Circuit



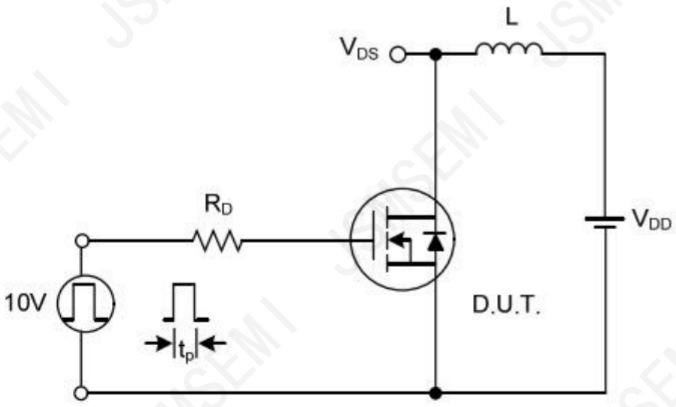
Switching Waveforms



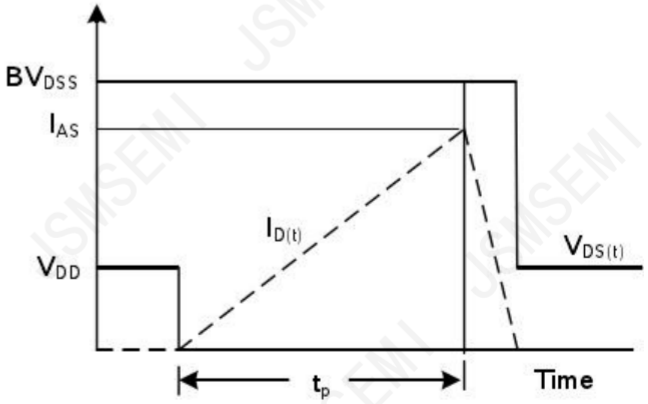
Gate Charge Test Circuit



Gate Charge Waveform

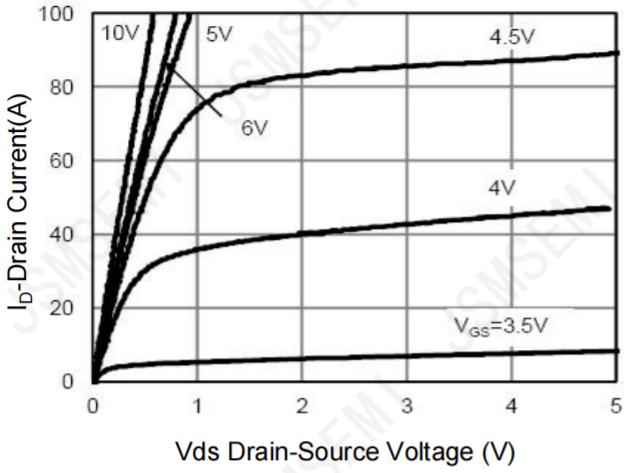


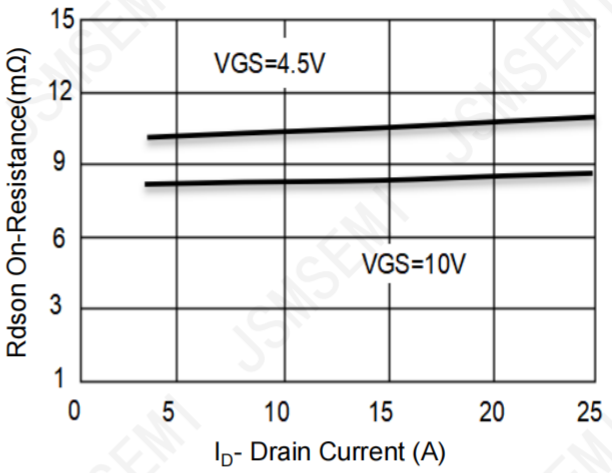
Unclamped Inductive Switching Test Circuit

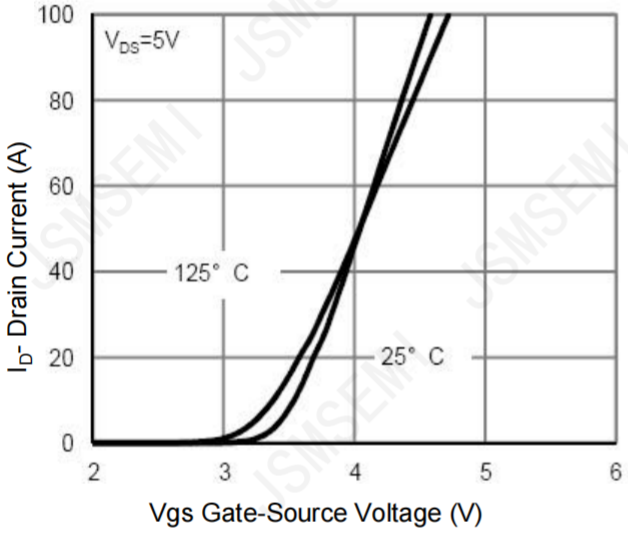


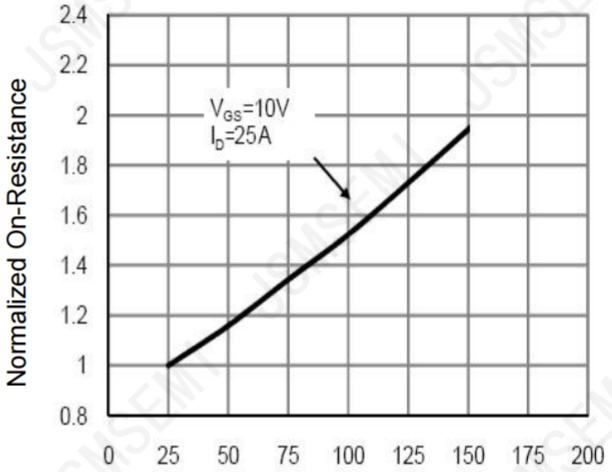
Unclamped Inductive Switching Waveforms

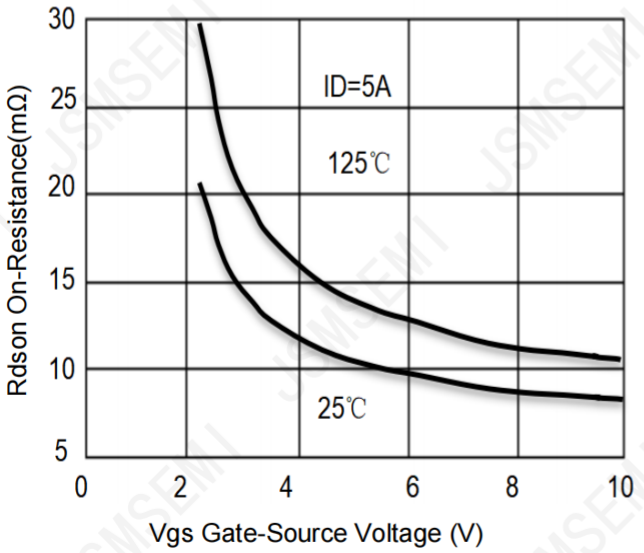
■Typical Electrical and Thermal Characteristics Diagrams

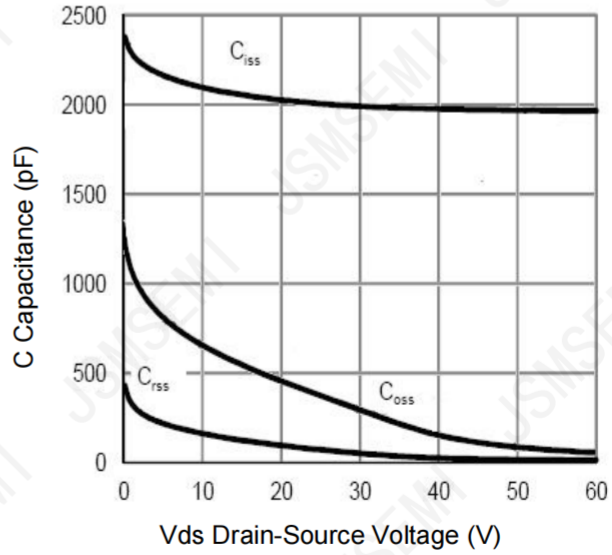


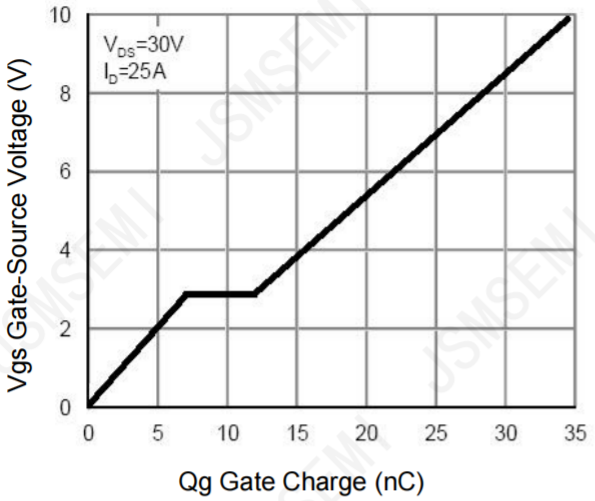


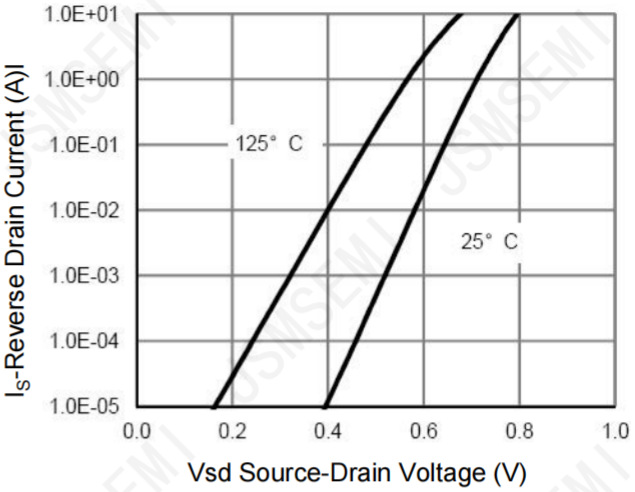


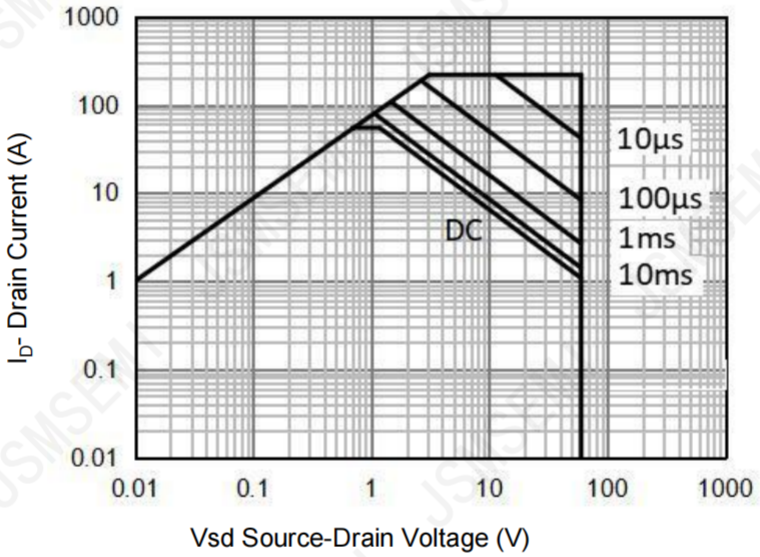


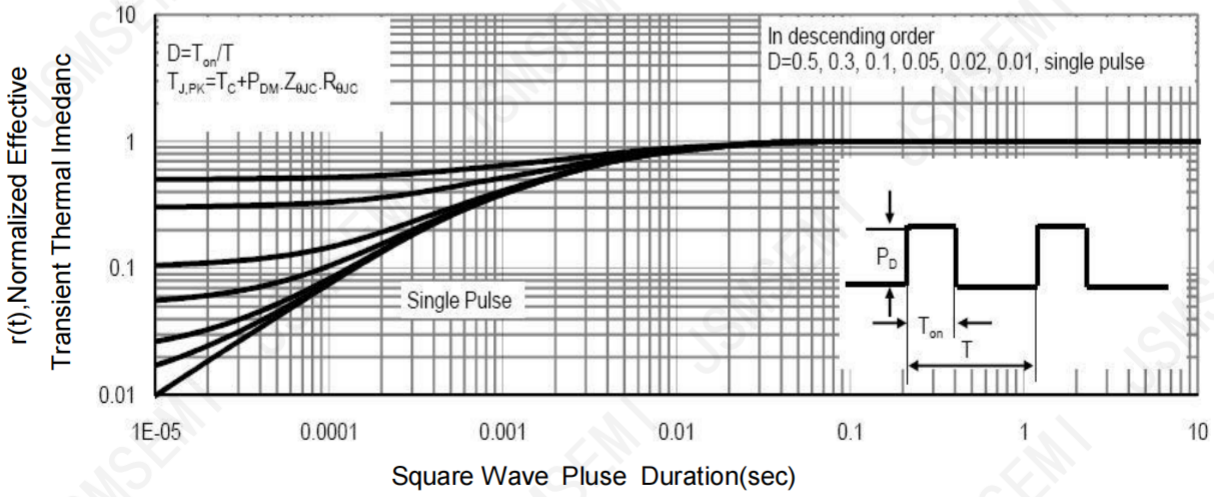





V_{DS}=30V
I_D=25A
Vgs Gate-Source Voltage (V)
Qg Gate Charge (nC)

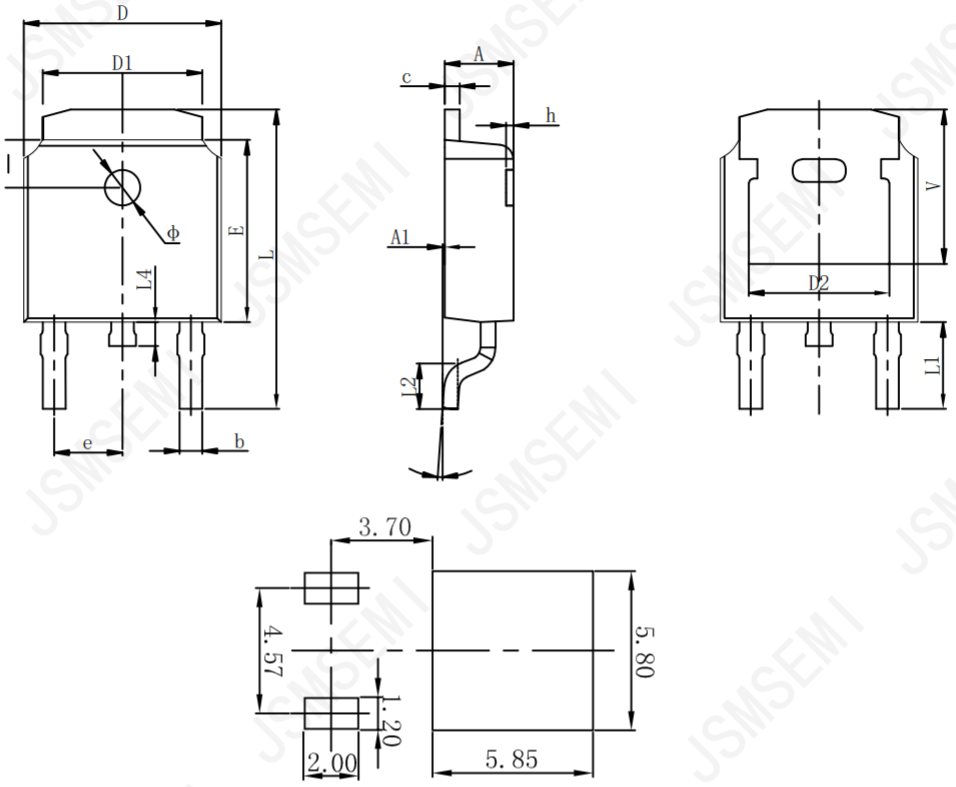

125° C
25° C
I_S-Reverse Drain Current (A)I
Vsd Source-Drain Voltage (V)


10µs
100µs
1ms
10ms
DC
I_D- Drain Current (A)
Vsd Source-Drain Voltage (V)


D=T_{on}/T
$T_{J,PK}$=T_C+P_{DM}.$Z_{\theta JC}$.$R_{\theta JC}$
In descending order
D=0.5, 0.3, 0.1, 0.05, 0.02, 0.01, single pulse
Single Pulse
P_D
T_{on}
T
r(t),Normalized Effective Transient Thermal Imedanc
Square Wave Pluse Duration(sec)

Package Information

TO-252-2



RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	

Revision History

Rev.	Change	Date
V1.0	Initial version	6/27/2021
V1.1	Revised version parameters	1/16/2022

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