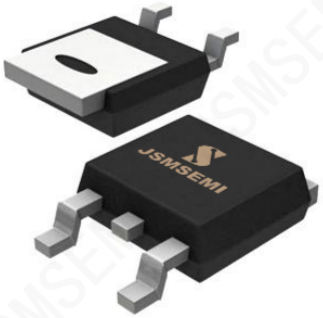
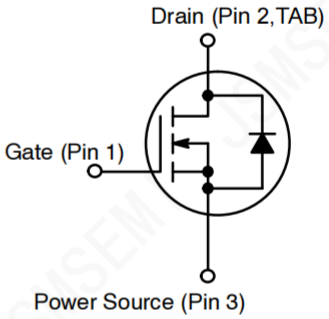
Product Summary

- V_{DS} 150V
- I_D 10A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜300mΩ
- 100% EAS Tested
- 100% ▽V_{DS} Tested



General Description

- Trench Power 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(Ta=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	10	A
Pulsed Drain Current [C]		I_{DM}	25	
Avalanche Current [C]		I_{AS}	10.8	A
Avalanche energy L=0.1 mH [C]		E_{AS}	7	mJ
Power Dissipation [B]	T_C=25°C	P_D	54	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C
Maximum Junction-to-Ambient [A]	t ≤ 10s	$R_{\theta JA}$	44	℃/W
Maximum Junction-to-Ambient [AD]	Steady-State		110	℃/W
Maximum Junction-to-Case	Steady-State	$R_{\theta JC}$	2.8	℃/W

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship, Quantity	Green
JSM10N15	TO-252	JSM10N15D	-55 to 150°C	1	T&R,2500	Rohs

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250μA, V_{GS}=0V	150	155		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=150V, V_{GS}=0V			1	μA
		T_J=125°C			5	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1		3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=7A		182	300	mΩ
		V_{GS}=4.5V, I_D=6A		183	450	
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V			1	V

Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz		660		pF
Output Capacitance	C_{oss}			74		
Reverse Transfer Capacitance	C_{rss}			17		
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		2.6		Ω
Turn-On Delay Time	t_D(on)	V_{GS}=10V, V_{DS}=75V, I_D=5A, R_L=14.7Ω, R_{GEN}=50Ω			60	ns
Turn-On Rise Time	t_r				250	
Turn-Off Delay Time	t_D(off)				135	
Turn-Off Fall Time	t_f				135	
Body Diode Reverse Recovery Time	t_{rr}	ISD=4A, dI/dt=100A/ms		200		ns

A. The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a st ill air environment with T_A =25°C. The
Power dissipation PDSM is based on R qJA and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design, and the maximum temperature of 150°C may be used if the PCB allows it.
B. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance,an d is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.
C. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C. Ratings are based on low frequency and duty cycles to keep initial T_J =25°C.
D. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to case $R_{\theta JC}$ and case to ambient.

Electrical Characteristic Curve

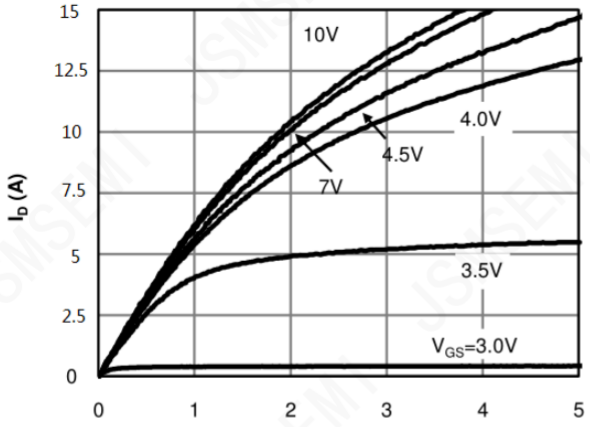


Fig 1: On-Region Characteristics

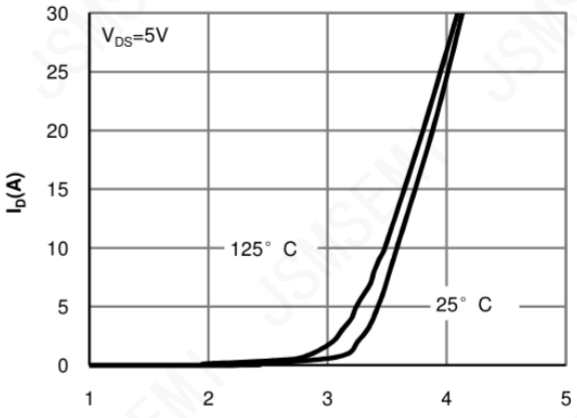


Figure 2: Transfer Characteristics

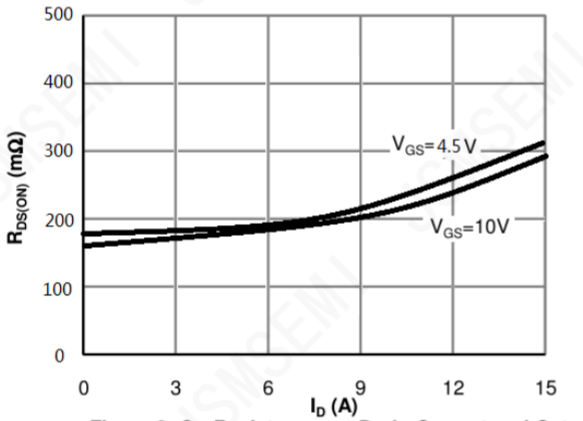


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

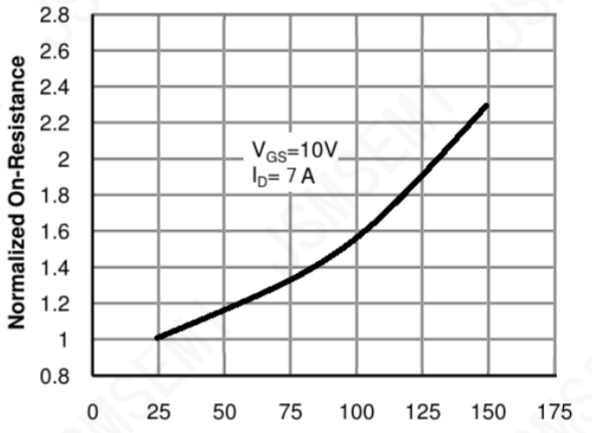


Figure 4: On-Resistance vs. Junction Temperature

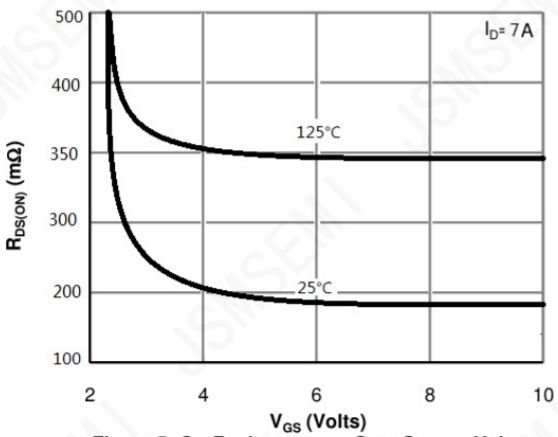


Figure 5: On-Resistance vs. Gate-Source Voltage

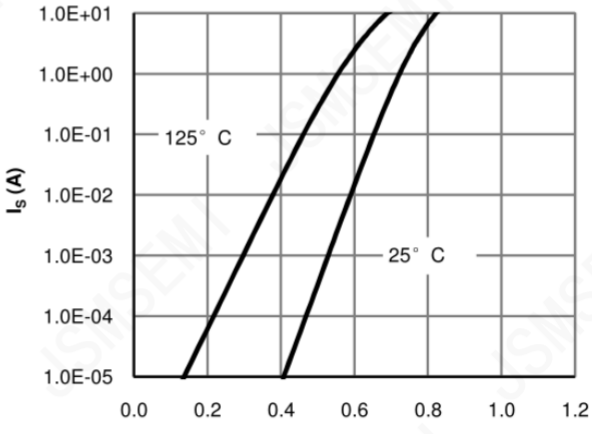


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

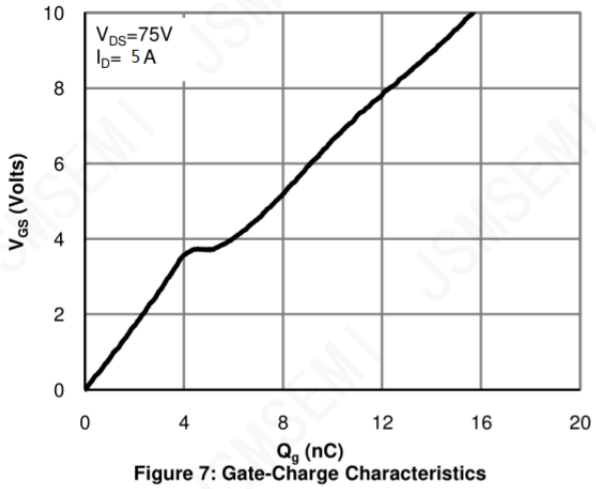


Figure 7: Gate-Charge Characteristics

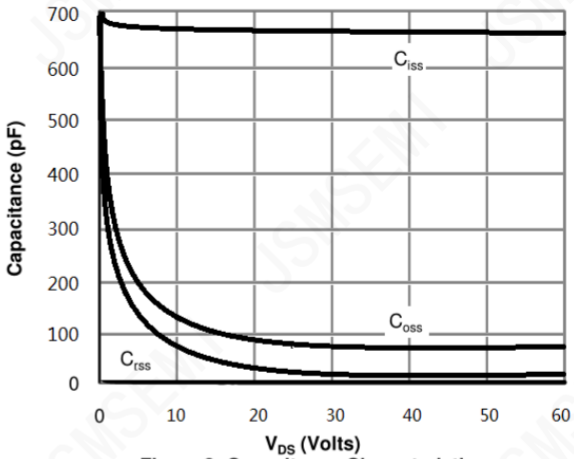


Figure 8: Capacitance Characteristics

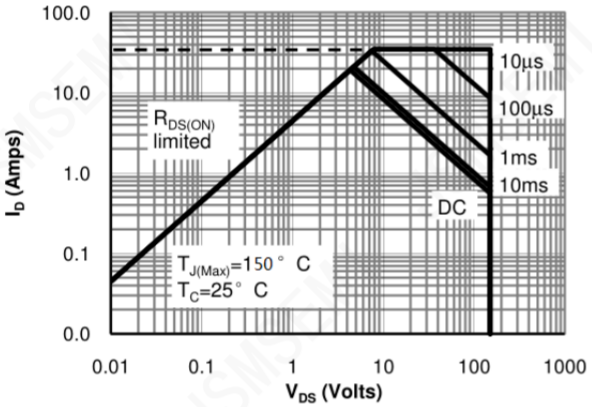


Figure 9: Maximum Forward Biased Safe Operating Area

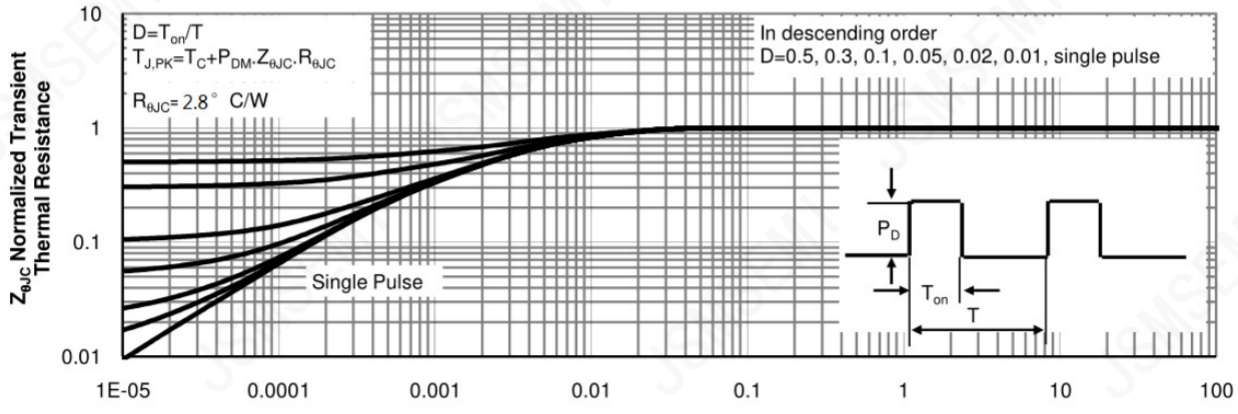
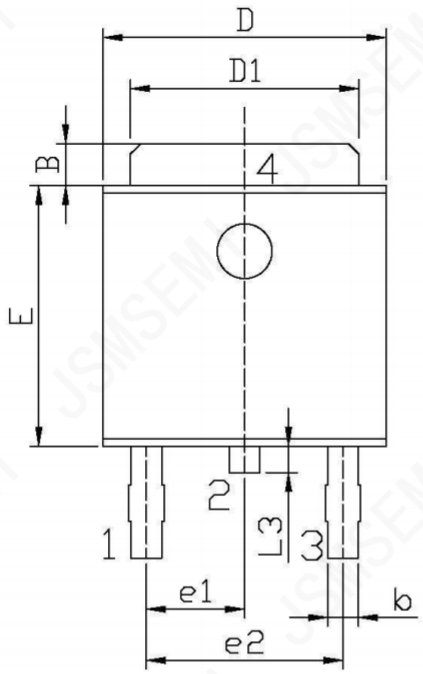
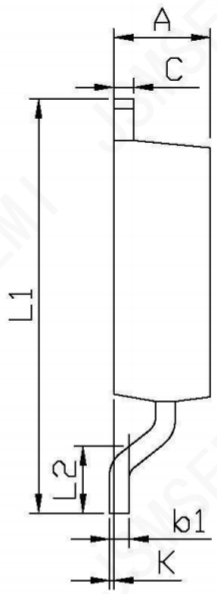


Figure 10: Normalized Maximum Transient Thermal Impedance

Package Dimensions





单位：mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.50	0.70	e2	4.43	4.73
b1	0.45	0.55	L1	9.45	9.95
C	0.45	0.55	L2	1.25	1.75
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10

Revision History

Rev.	Change	Date
V1.0	Initial version	6/27/2021

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