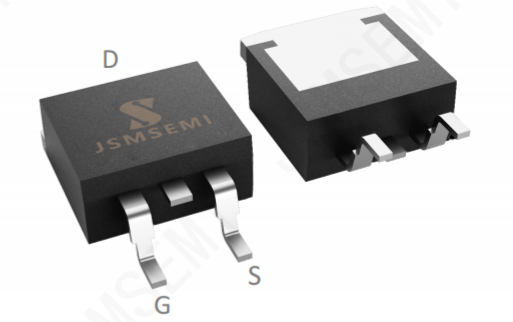
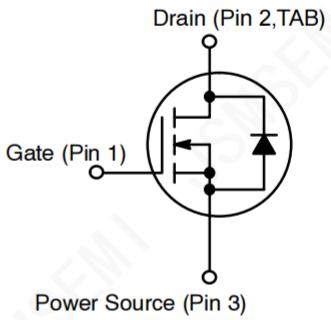
Product Summary

- V_{DS} 100V
- I_D 120A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜5.5mΩ
- 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 (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Tc=25℃) (1)	I_D	120	A
Continuous Drain Current (Tc=100℃)	I_D	105	A
Pulsed Drain Current (1)	I_{DM}	480	A
Drain Power Dissipation	P_D	180	W
Single Pulsed Avalanche Energy (2)	E_{AS}	340	mJ
Thermal Resistance from Junction to Ambient (3)	$R_{\theta JA}$	43	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	1.0	℃/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}=50V, V_G=10V, L=1.0mH, R_g=25Ω, I_{AS}=44.7A
3) The value of RθJA Mounted on FR4 Board（25.4mm*25.4mm*t1.6mm）With 2oz Copper TA=25℃

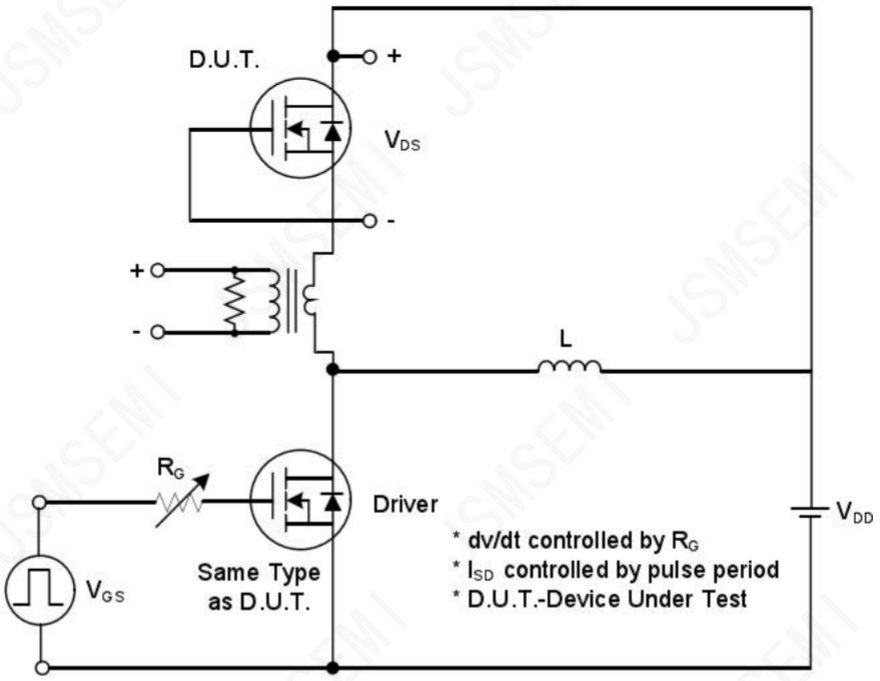
MOSFET ELECTRICAL CHARACTERISTICS(T_J=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	100	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =100V, 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	3.0	4.0	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A	-	4.0	5.5	mΩ
Forward transconductance	R_g	V_{GS}= 0V, V_{DS}= 0V, f=1.0MHz	-	2.0	-	Ω
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =50V, VGS=0V, f=1MHz	-	4628	-	pF
Output Capacitance	C_{oss}		-	1624	-	
Reverse Transfer Capacitance	C_{rss}		-	19	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=50V, I_D=20A, R_G=3Ω, V_{GS}=10V	-	12	-	nS
Turn-on rise time	t_r		-	26	-	
Turn-off delay time	$t_{d(off)}$		-	38	-	
Turn-off fall time	t_f		-	31	-	
Total Gate Charge	Qg	V_{DS}=50V, I_D=20A, V_{GS}=10V	-	61	-	nC
Gate-Source Charge	Qgs		-	19.5	-	
Gate-Drain Charge	Qgd		-	8.7	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	T_J=25℃, V_{GS} =0V, I_S=20A	-	0.8	1.2	V
Diode Forward current	I_S	T_C=25℃	-	-	120	A
Body Diode Reverse Recovery Time	trr	T_J=25℃, I_F=20A,di/dt=100A/us	-	77	-	nS
Body Diode Reverse Recovery Charge	Qrr		-	189	-	nC

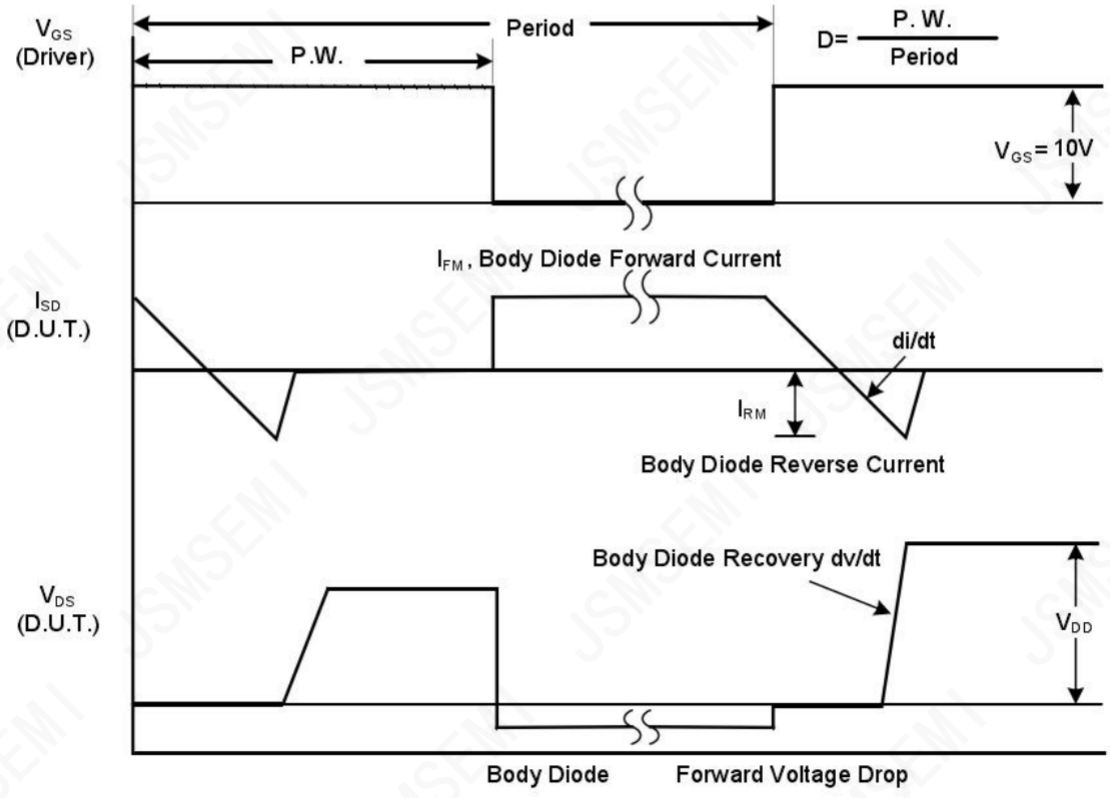
Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship, Quantity	Green
BUK965R8-100E-JSM	TO-263	035N10BGH	-55 to 150°C	1	T&R,800	Rohs

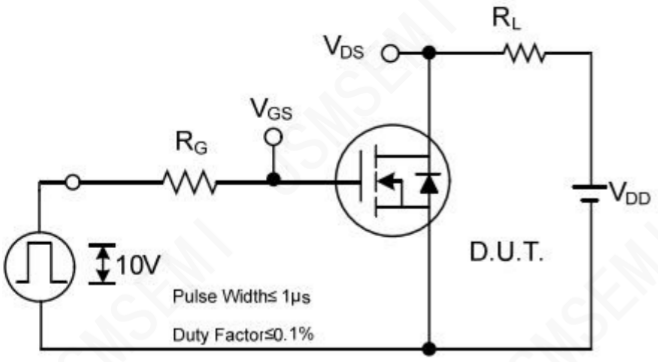
■ RATING AND CHARACTERISTIC CURVES



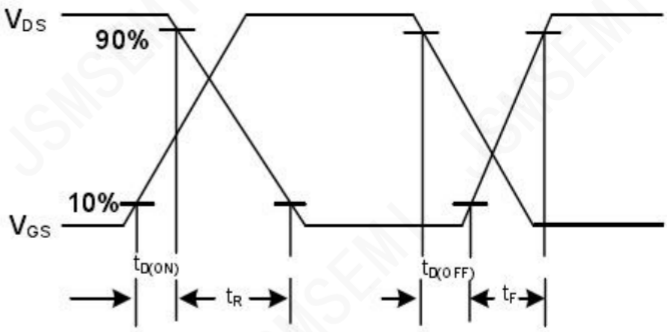
Peak Diode Recovery dv/dt Test Circuit



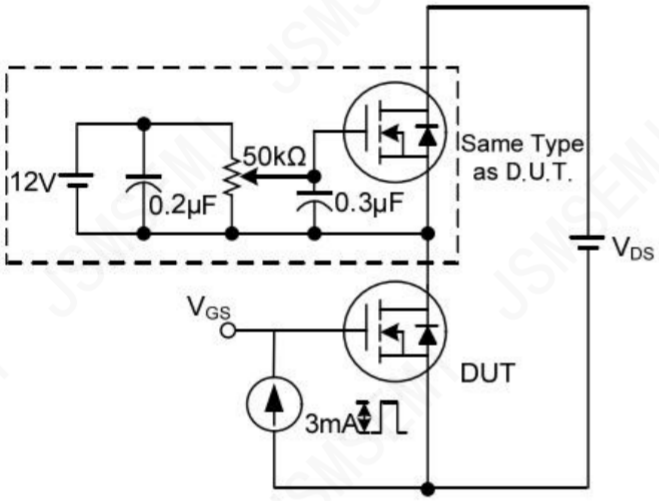
Peak Diode Recovery dv/dt Waveforms



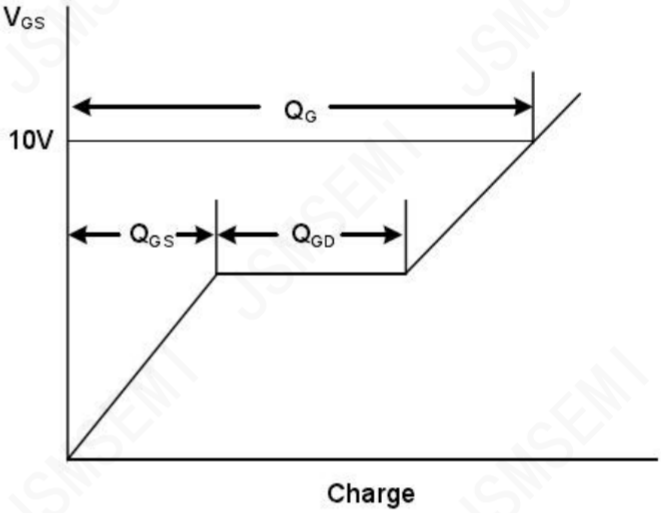
Switching Test Circuit



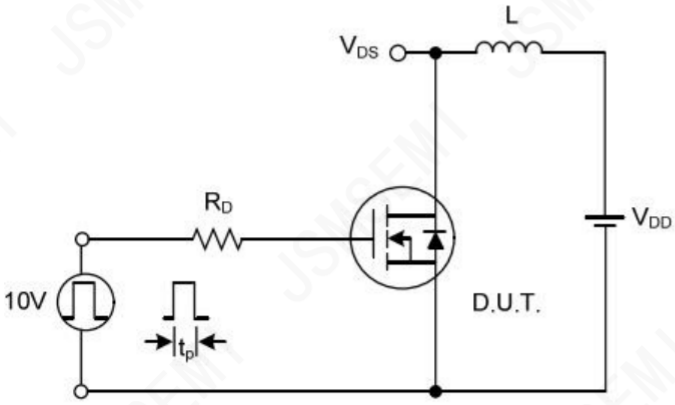
Switching Waveforms



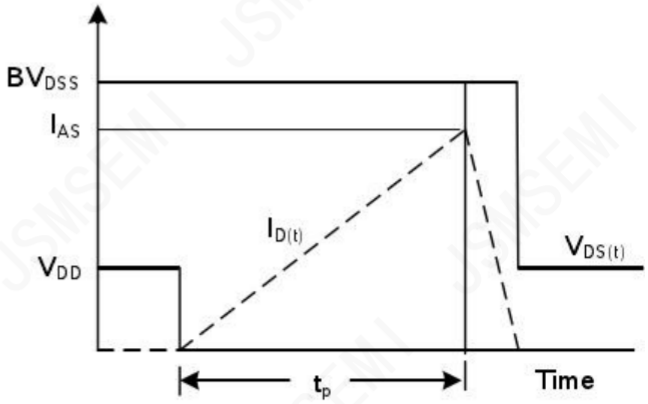
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

Typical Characteristics

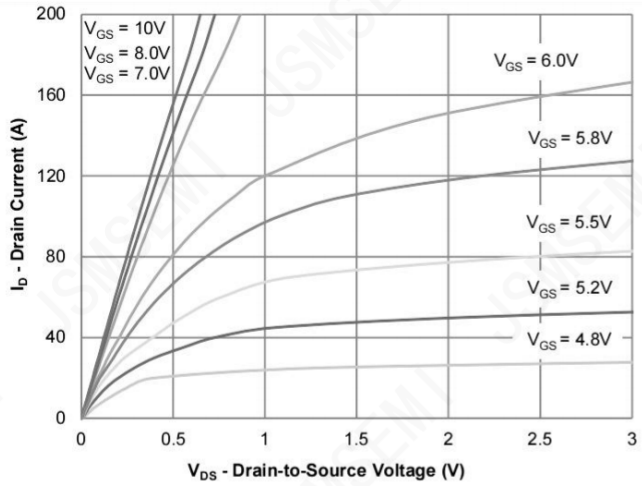


Figure 1: Output Characteristics

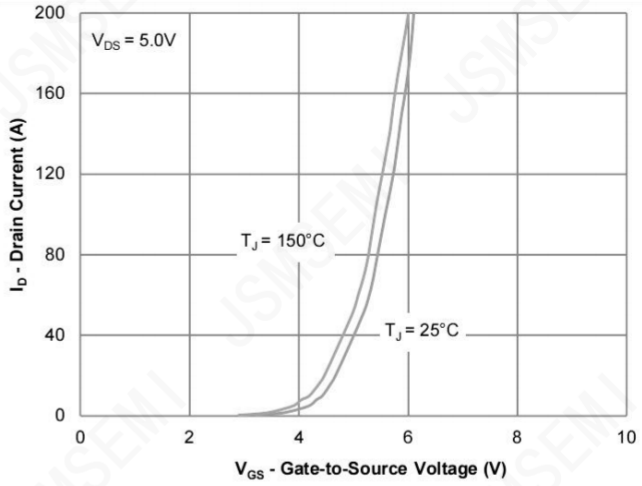


Figure 2: Transfer Characteristics

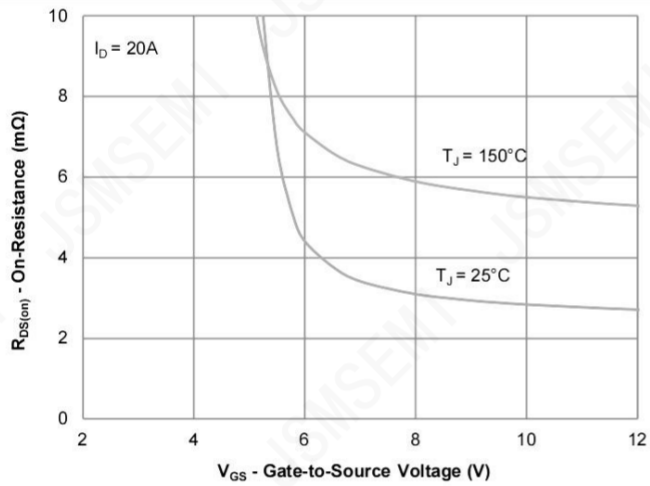


Figure 3: On-Resistance vs. Gate-Source Voltage

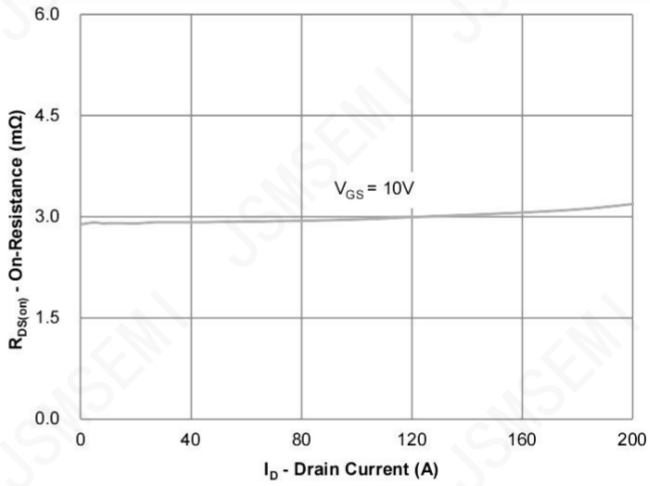


Figure 4: On-Resistance vs. Gate-Source Voltage

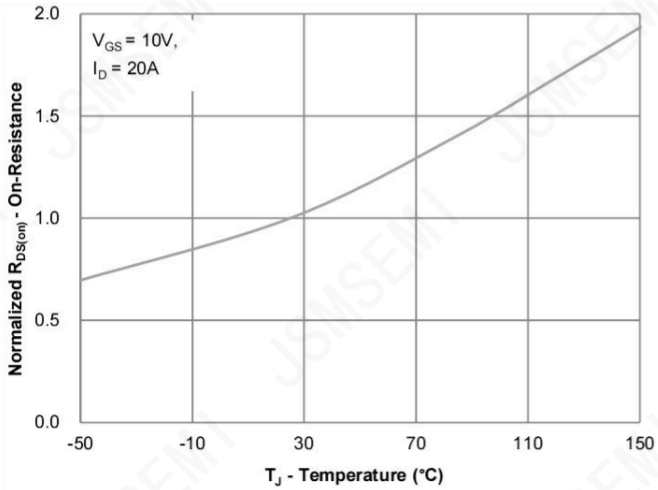


Figure 5: On-Resistance vs. Junction Temperature

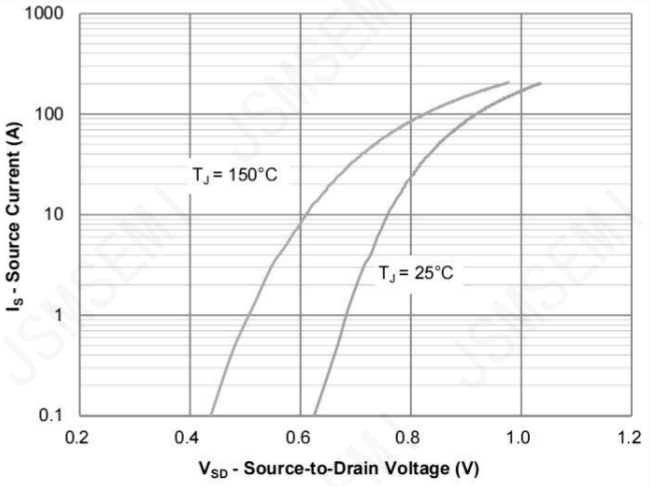


Figure 6: Source-Drain Diode Forward Voltage

Typical Characteristics

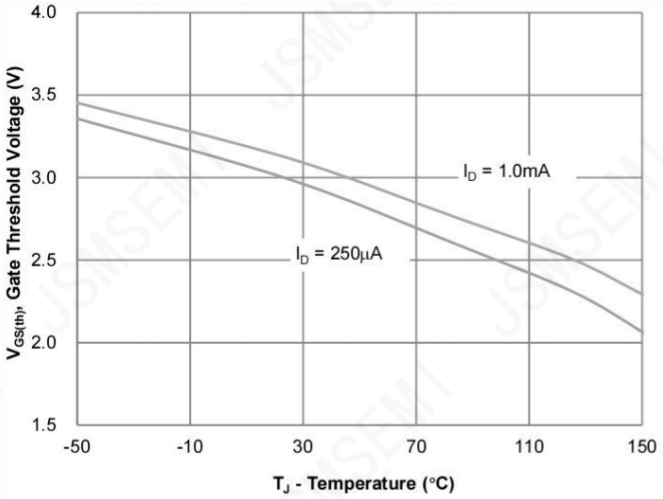


Figure 7: Gate Threshold Variation vs. Junction Temperature

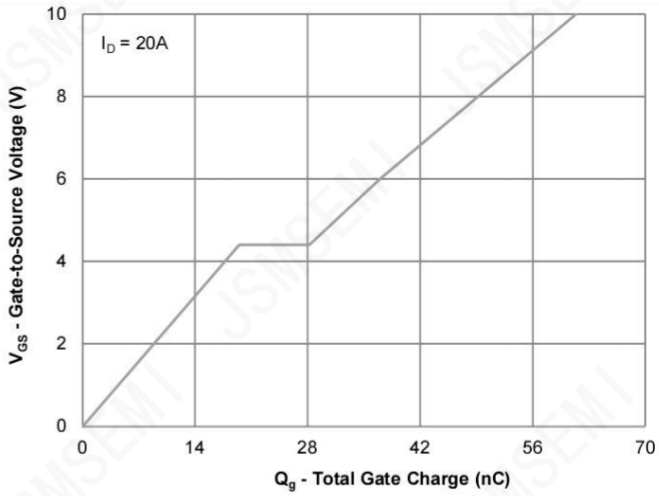


Figure 8: Gate Charge Characteristics

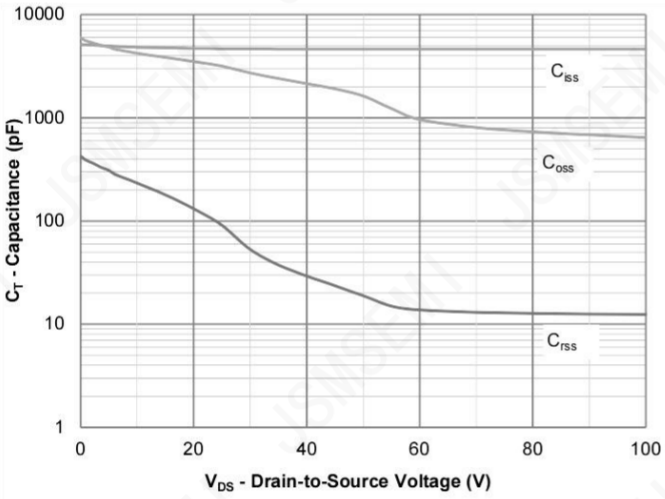


Figure 9: Capacitance Characteristics

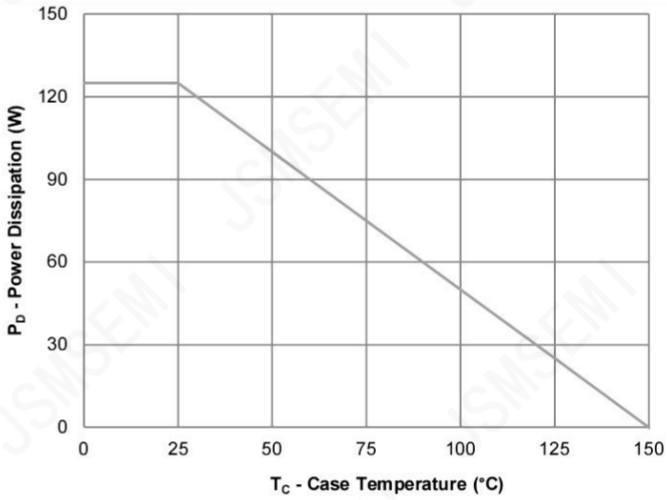


Figure 10: Power Derating

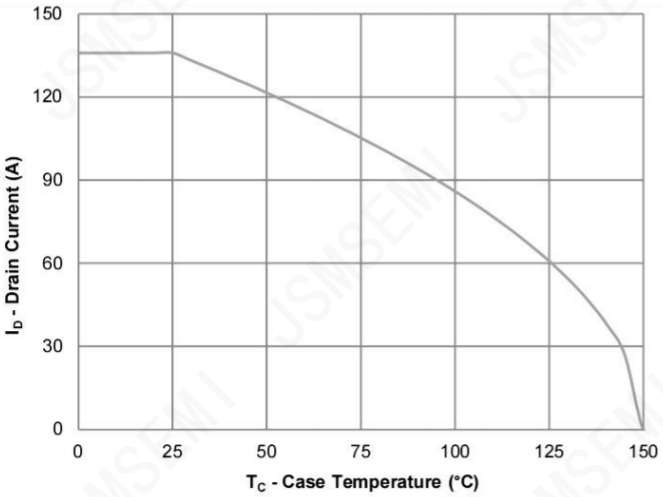


Figure 11: Current Derating

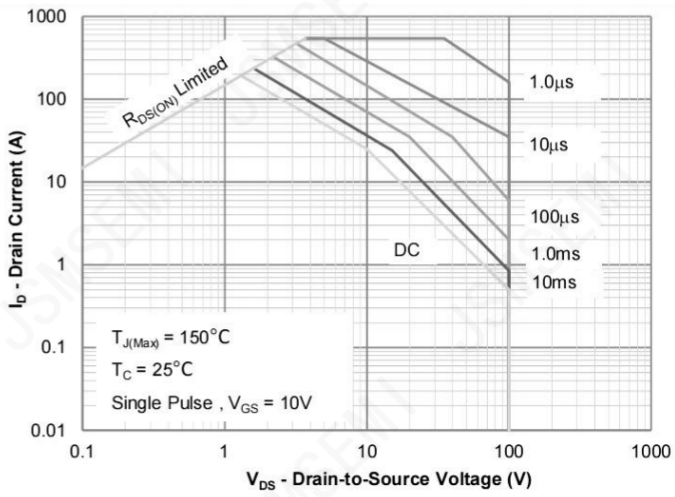


Figure 12: Safe Operating Area

Typical Characteristics

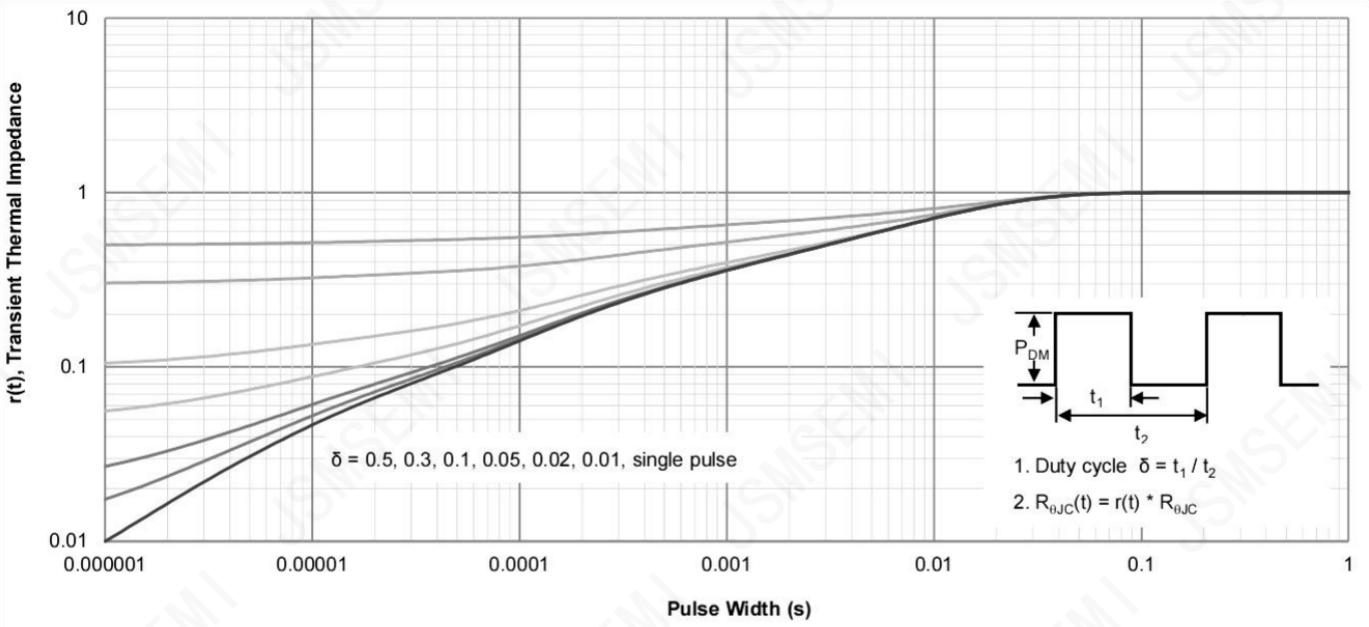
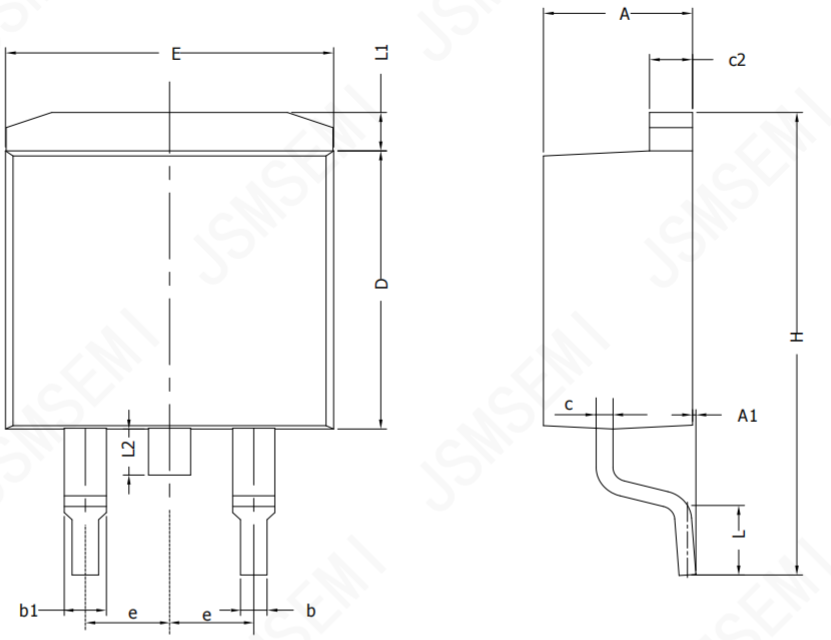


Figure 13: Normalized Maximum Transient Thermal Impedance

Package Information

TO-263-2



SYMBOL	MIN	NOM	MAX
A	4.30	4.57	4.72
A1	0	0.10	0.25
b	0.71	0.81	0.91
c	0.30	---	0.60
c2	1.17	1.27	1.37
D	8.50	---	9.35
E	9.80	---	10.45
e		2.54BSC	
H	14.70	---	15.75
L	2.00	2.30	2.74
L1	1.12	1.27	1.42
L2	---	---	1.75

Revision History

Rev.	Change	Date
V1.0	Initial version	9/17/2020

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.

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