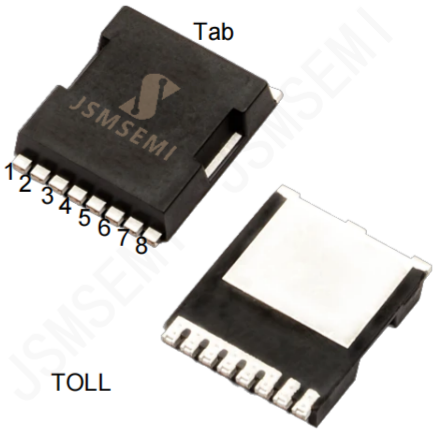
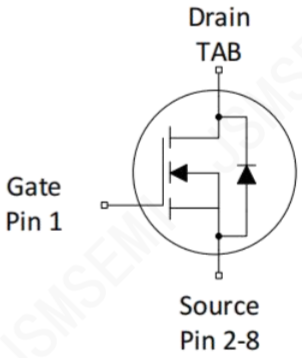
Product Summary

- V_{DS} 100V
- I_D 370A
- $R_{DS(ON)}$(at V_{GS}=10V) <1.5mΩ
- $R_{DS(ON)}$(at V_{GS}=4.5V) <----mΩ
- 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 drives

Absolute Maximum Ratings (T_A= 25 ℃, unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25℃	I_D	370	A
Pulsed Drain Current Note 2	T_C=25℃	I_{DM}	1480	A
Max Power Dissipation	T_C=25℃	P_D	431	W
Avalanche Energy, Single Pulse Note 3		E_{AS}	2540	mJ
Operating and Storage Temperature Range		T_J,T_{SGT}	-55 to 150	℃

Thermal Resistance

Parameter	Symbol	Min	Typ	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	-	0.29	-	°C/W
Thermal Resistance, Junction-to-Ambitent Note 4	$R_{\theta JA}$	-	40	-	°C/W

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship,Quantity	Green
SSP010N01BGHTO	TOLL-8	JSM015N10LG	-55 to 150°C	1	T&R,2000	Rohs

Electrical Characteristics(T_A= 25 ℃, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Statistic Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D= 250uA	100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V	-	-	1	uA
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= 250uA	2.2	3.0	3.8	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 10V, I_D=100A	-	1.2	1.5	mΩ
Gate Resistance	R_g	f=1MHz	-	1	-	Ω
Forward Transconductance	g_{fs}	V_{DS}= 5V, I_D= 100A	-	260	-	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{GS}=0V	-	15800	-	pF
Output Capacitance	C_{oss}	V_{DS}=50V	-	1930	-	pF
Reverse Transfer Capacitance	C_{rss}	f=1MHz	-	75	-	pF
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=50V	-	81	-	ns
Rise Time	t_r	I_D=100A	-	178	-	ns
Turn-off Delay Time	$t_{d(off)}$	V_{GS}=10V	-	167	-	ns
Fall Time	t_f	R_G=6Ω	-	68	-	ns
Gate Charge Characteristics						
Total Gate Charge	Q_g	V_{DS}=50V	-	260	-	nC
Gate to Source Charge	Q_{gs}	V_{GS}=10V	-	75	-	nC
Gate to Drain Charge	Q_{gd}	I_D=100A	-	76	-	nC
Reverse Diode Characteristics Note 5						
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_F= 100A	-	0.85	1.1	V
Reverse recovery time	t_{rr}	I_F=50A, V_{DS}=50V	-	92	-	ns
Reverse recovery charge	Q_{rr}	di/dt=100A/μs	-	200	-	nC

Notes:

1. Package limited
2. Pulse width limited by maximum junction temperature
3. V_{DS} =75V, V_{GS} =10 V, L = 0.3 mH
4. $R_{\theta JA}$ is determined with the device mounted on a 1 in2 pad 2 oz copper pad on a 1.5x1.5 in. board of FR-4 material
5. Guaranteed by design, not subject to production testing

Typical Performance Characteristics

Figure 1: Typ Output Characteristics

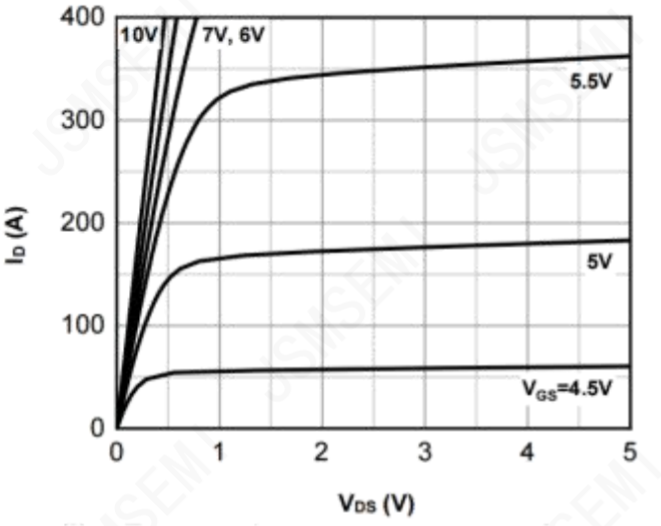


Figure 2: Typ Transfer Characteristics

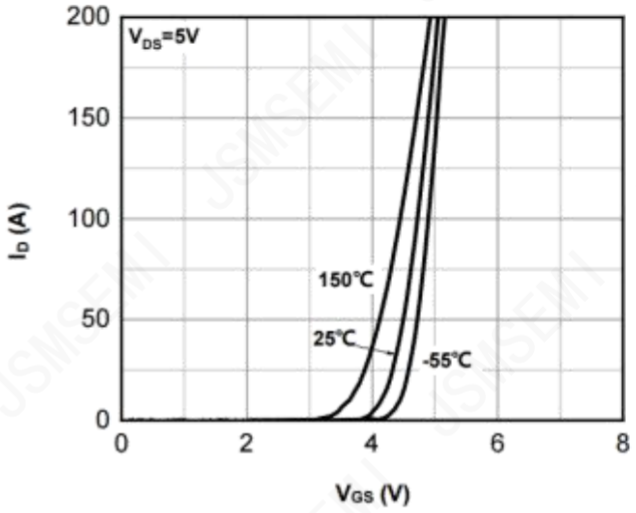


Figure 3: Normalized On-Resistance vs Drain Current

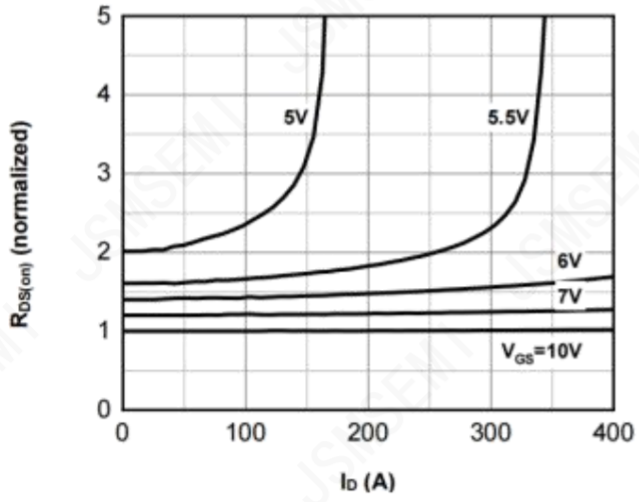


Figure 4: Typ On-Resistance vs Gate-source Voltage

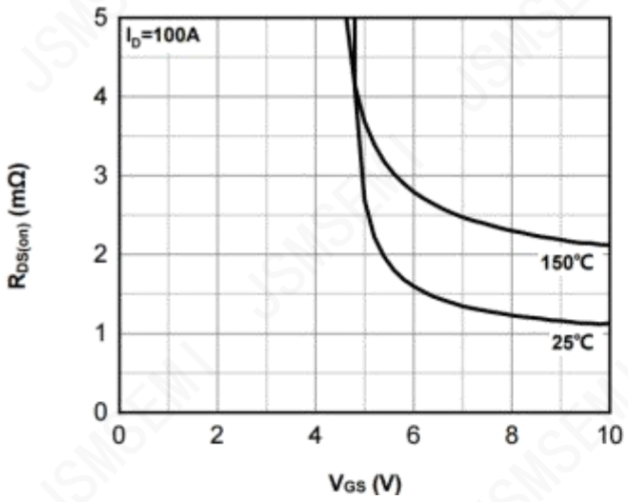


Figure5:Normalized On-Resistance vs. Junction Temperature

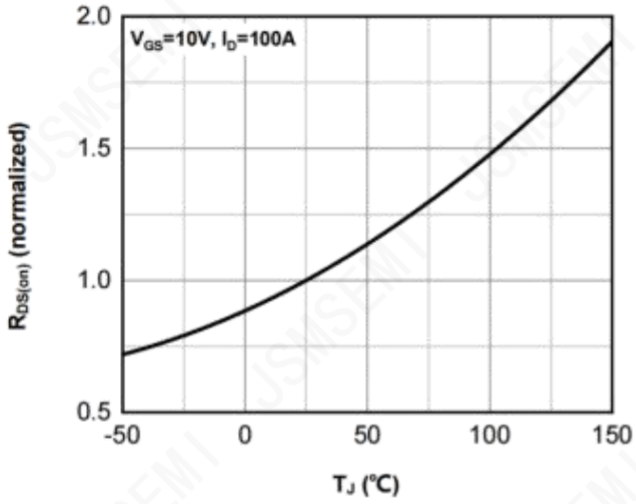


Figure 6: Typ.Gate Charge

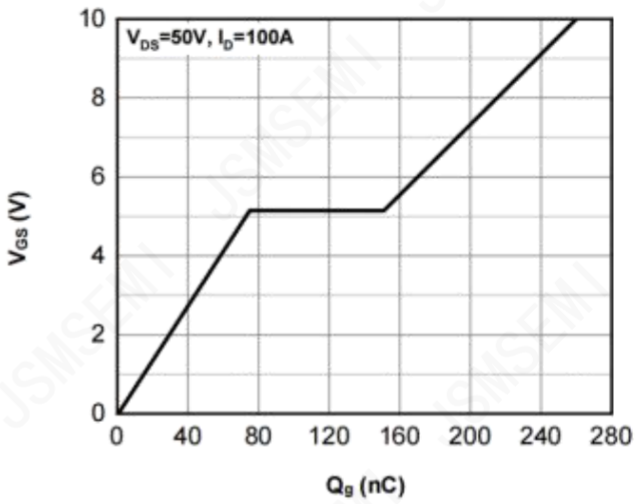


Figure 7:Typ. Forward Characteristics of Body Diode

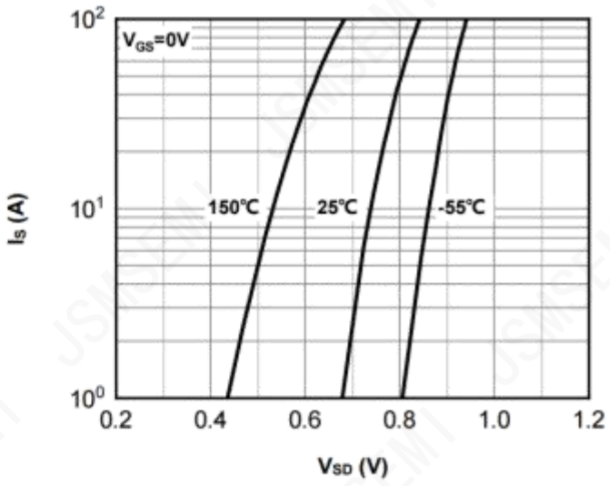


Figure 8: Safe Operating Area

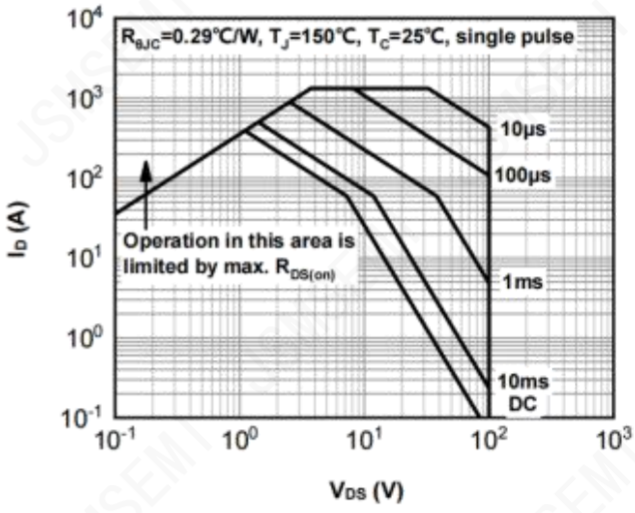


Figure 9: Typ Capacitances

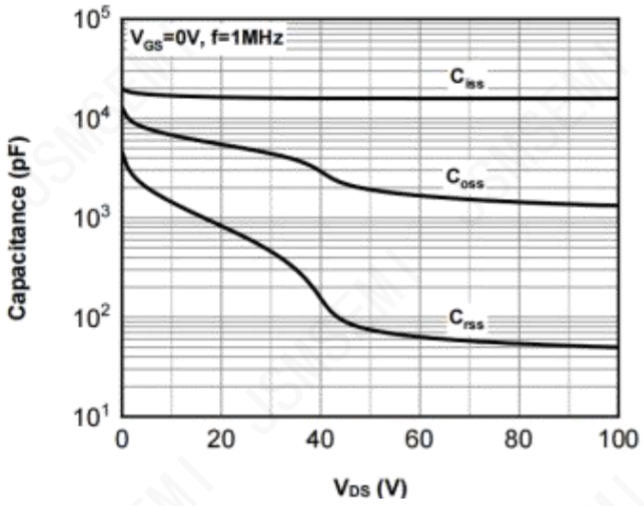


Figure 10: Single Pulse Maximum Power Dissipation

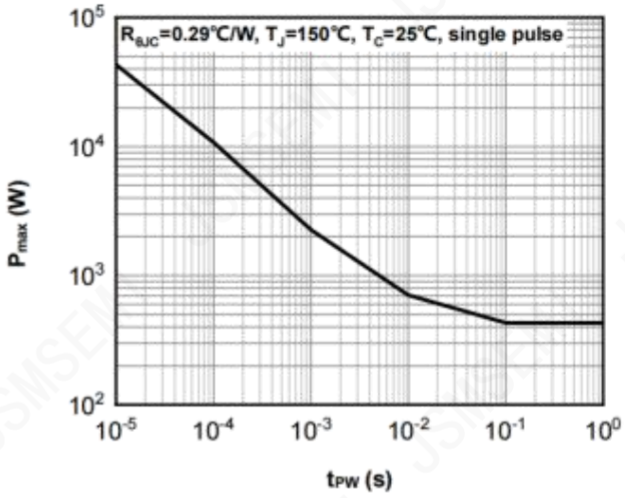


Figure 11: Max. Power Dissipation vs. Case Tempertur

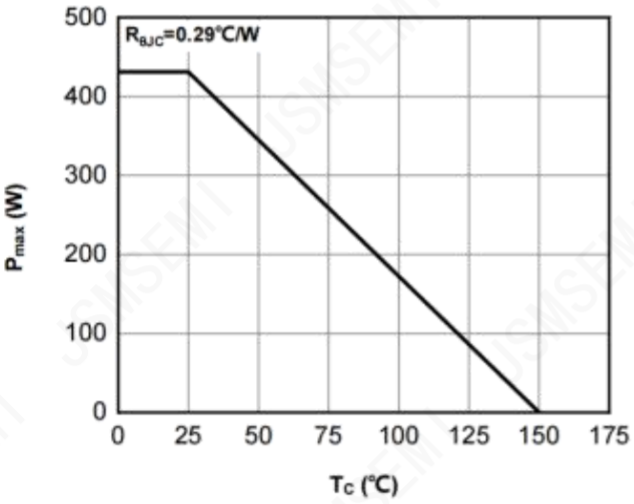
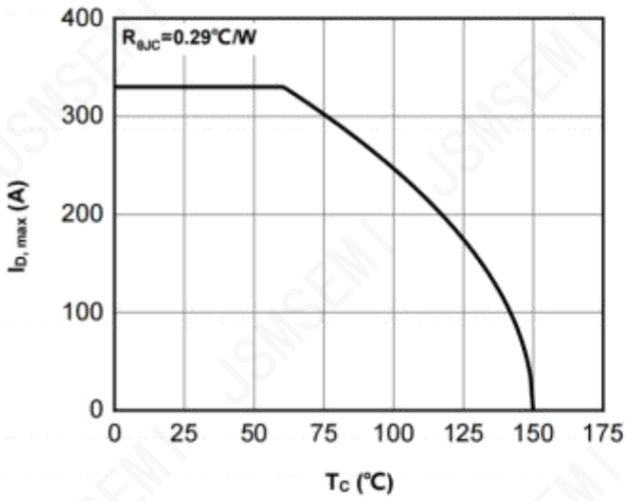


Figure 12: Max.Continuous Drain Current vs. Case Temperature



igure 13: Normalized $V_{(BR)DSS}$ vs. Junction Temperature

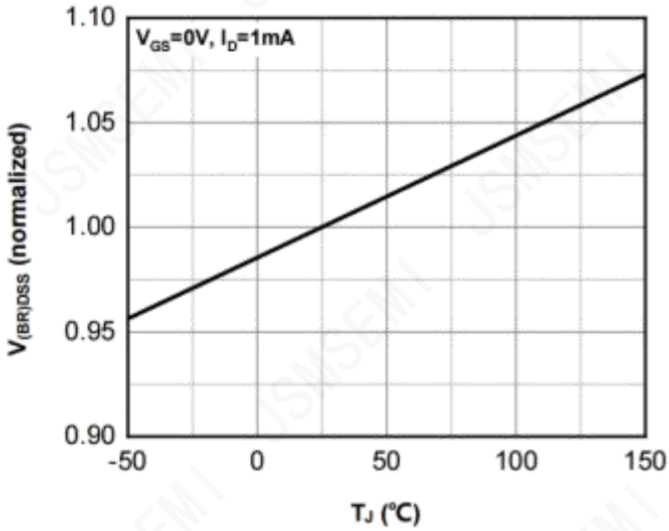


Figure 14: Normalized $V_{GS(th)}$ vs. Junction Temperature

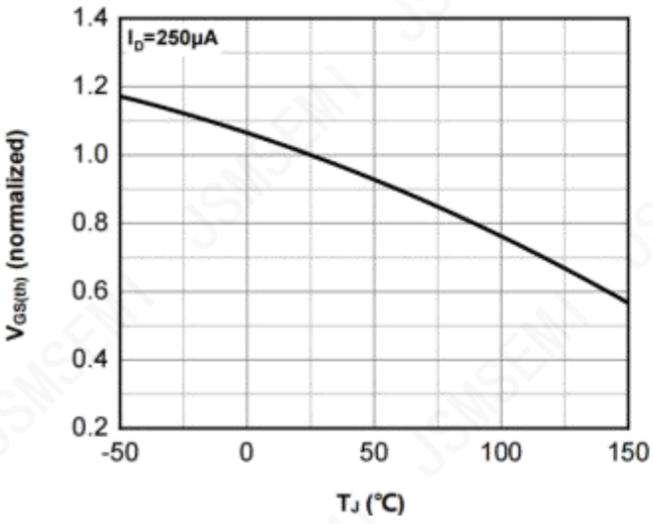
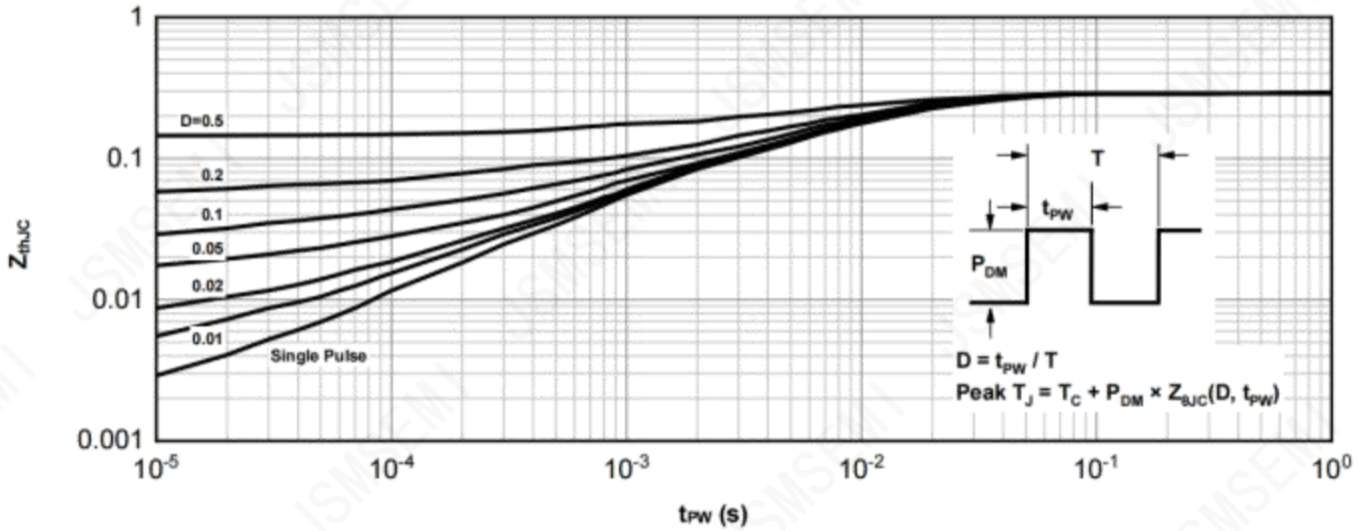
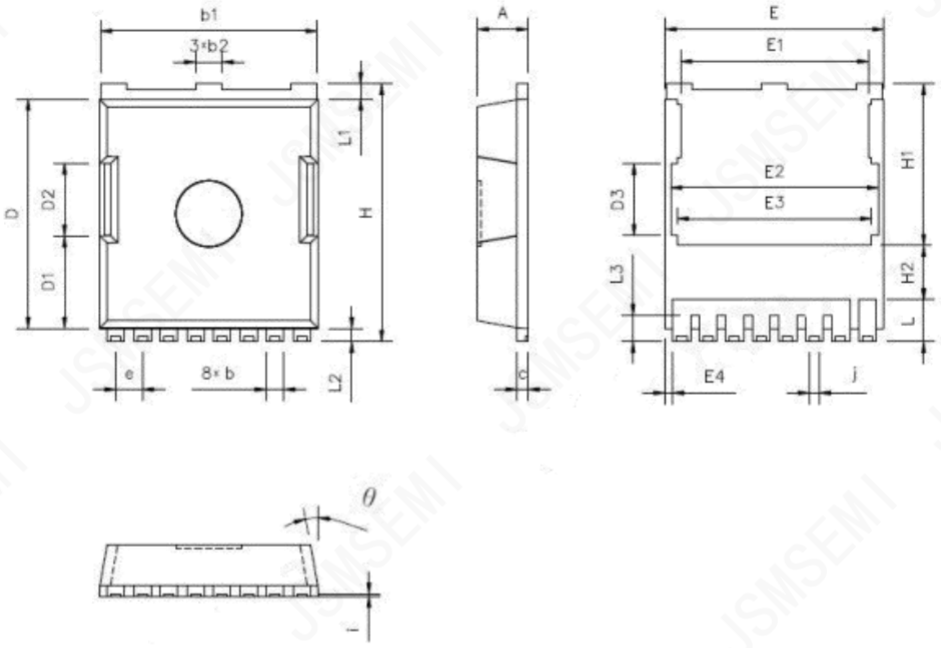


Figure 15: Normalized Transient Thermal Impedance Form Junction To Case



Mechanical Dimensions

TOLL Package Information



Dim	Millimeters		
	Min	Nom	Max
A	2.20	—	2.40
b	0.70	—	0.90
b1	9.70	—	9.90
b2		1.20 REF	
c	0.40	—	0.60
D	10.28	—	10.48
D1	4.08	—	4.28
D2	3.20	—	3.40
D3	3.16	—	3.36
E	9.80	—	10.00
E1	8.40	—	8.60
E2	9.30	—	9.50
E3		8.80 REF	
E4	0.25	—	0.45
e		1.20 BASIC	
H	11.58	—	11.78
H1	7.23	—	7.43
H2		2.45 REF	
i	0.10	—	—
j		0.45 REF	
L	1.60	—	2.10
L1	0.60	—	0.80
L2	0.50	—	0.70
L3	1.05	—	1.30
θ		10° REF	

Revision History

Rev.	Change	Date
V1.0	Initial version	5/23/2021

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