CHONGQING CLOUDCHILD TECHNOLOGY CO., LTD

TOLL-8L Plastic-Encapsulate MOSFETS

CC270N10HS N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$TYP	I_D
100 V	1.9mΩ@10V	270A

TOLL-8L

DESCRIPTION

The CC270N10HS uses advanced SGT technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications .

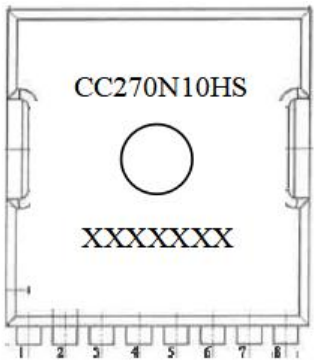
FEATURES

- SGT Technology
- Low RDS(on)
- Low Gate Charge
- Low Gate Resistance
- 100% Avalanche tested
- 150°C operating temperature
- Green Product(RoHS compliant)

APPLICATIONS

- Motors Driving in Power Tool, E-vehicle, Robotics
- Current Switching in DC/DC & AC/DC(SR)Sub-systems
- Power Management in Telecom, Industrial Automation, CE

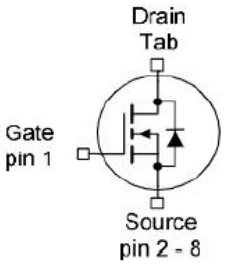
MARKING



CC270N10HS =Part No.

XXXXXXX = Code.

EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS(T_c=25℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1]	I_D	270	A
Pulsed Drain Current[2]	I_{DM}	1080	A
Single Pulse Avalanche Energy[3]	E_{AS}	1176	mJ
Total Power Dissipation[1]	P_D	278	W
Thermal Resistance from Junction to Case[1]	$R_{\theta JC}$	0.45	℃/W
Thermal resistance, junction - ambient(min. footprint)	$R_{\theta JA}$	46	℃/W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~ +150	℃
Soldering Temperature , for 10S(1.6mm from case)	-	260	℃

Notes:

1. Current is limited by package; with a Rthjc = 0.45 ℃/W the chip is able to carry 285A at 25°C.
2. P_W≤10μs, Duty cycle≤1%.
3. EAS condition: V_{DD}=50V,V_{GS}=10V,,ID=28A, L=3mH, R_g=25Ω Starting T_J =25℃.

MOSFET ELECTRICAL CHARACTERISTICS

TC=25℃ unless otherwise specified

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Off 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	T_J =25℃	-	-	1	μA
			T_J =125℃	-	-	100	
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V		-	-	±100	nA
On characteristics[4]							
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA		2	3	4	V
Static drain-source on-sate resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =40A		-	1.9	2.3	mΩ
Forward transconductance	g_{FS}	V_{DS} =5V, I_D =20A		-	70	-	S
Dynamic characteristics[34]							
Input capacitance	C_{iss}	V_{DS} =50V,V_{GS} =0V, f =1MHz		-	7300	-	pF
Output capacitance	C_{oss}			-	4554	-	
Reverse transfer capacitance	C_{rss}			-	259	-	
Gate resistance	R_g	f =1MHz		-	5.7	-	Ω
Switching characteristics [34]							
Total gate charge	Q_g	V_{GS}=10V, V_{DS}=50V, I_D=20A		-	166	-	nC
Gate-source charge	Q_{gs}			-	68	-	
Gate-drain charge	Q_{gd}			-	53	-	
Turn-on delay time	$t_{d(on)}$	V_{DS}=50V,I_D=20A , V_{GS}=10V,R_G=3Ω		-	39	-	ns
Turn-on rise time	t_r			-	132	-	
Turn-off delay time	$t_{d(off)}$			-	220	-	
Turn-off fall time	t_f			-	83	-	
Drain-Source Diode Characteristics							
Drain-source diode forward voltage[4]	V_{SD}	V_{GS} =0V, I_S=40A		-	0.82	1.0	V
Continuous drain-source diode forward Current[1]	Is	-		-	-	270	A
Pulsed drain-source diode forward current[2]	I_{SM}	-		-	-	1080	A
Reverse recovery time	Trr	V_F=50V， I_F=20A， dI/dt=100A/us		-	33	-	ns
Reverse recovery charge	Qrr			-	779	-	nC

Note :

1. Current is limited by package; with a Rthjc = 0.45℃/W the chip is able to carry 285A at 25°C.
2. P_W≤10μs, Duty cycle≤1%.
3. Guaranteed by design, not subject to production.
4. Pulse Test : Pulse Width≤400μs, duty cycle≤2%.

Typical Characteristics

Fig 1: Output Characteristics

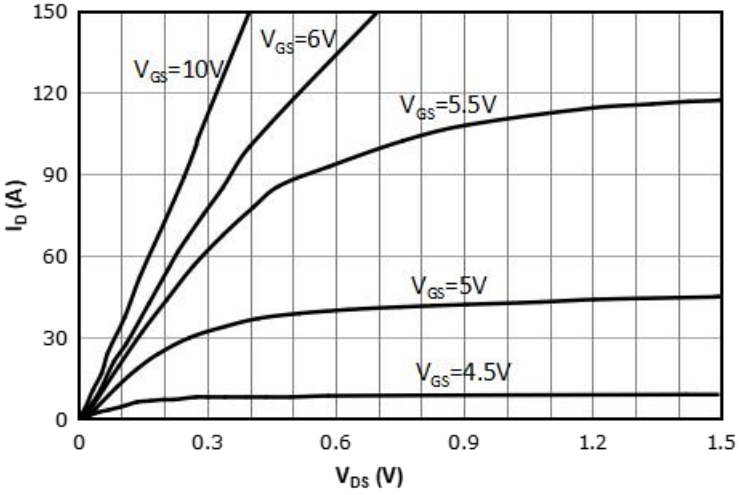


Fig 2: Transfer Characteristics

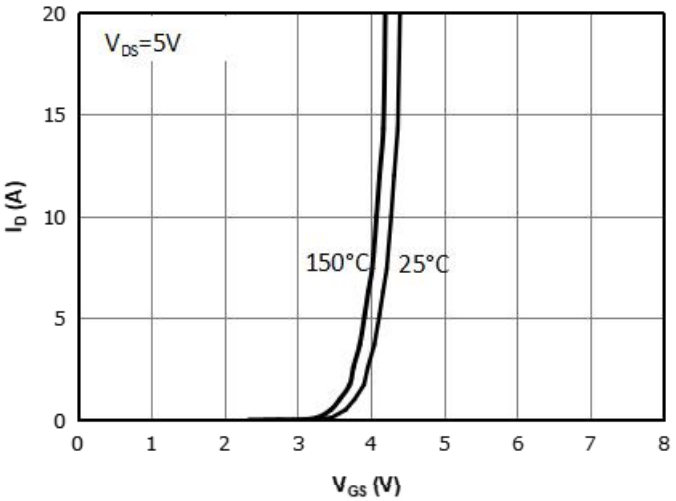


Fig 3: Rds(on) vs Drain Current and Gate Voltage

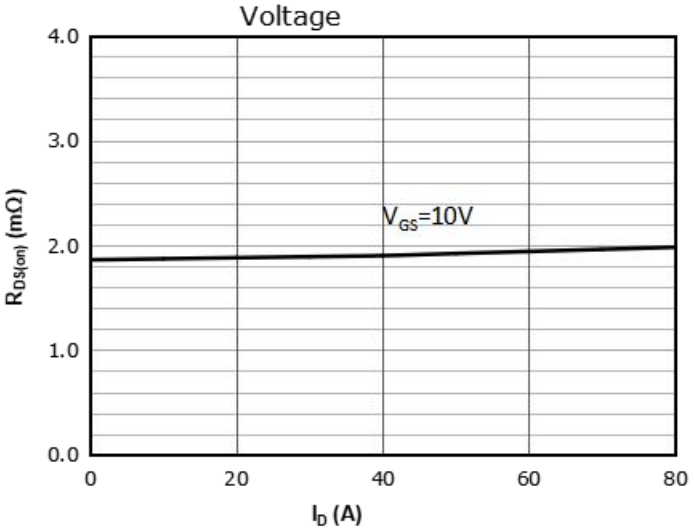


Fig 4: Rds(on) vs Gate Voltage

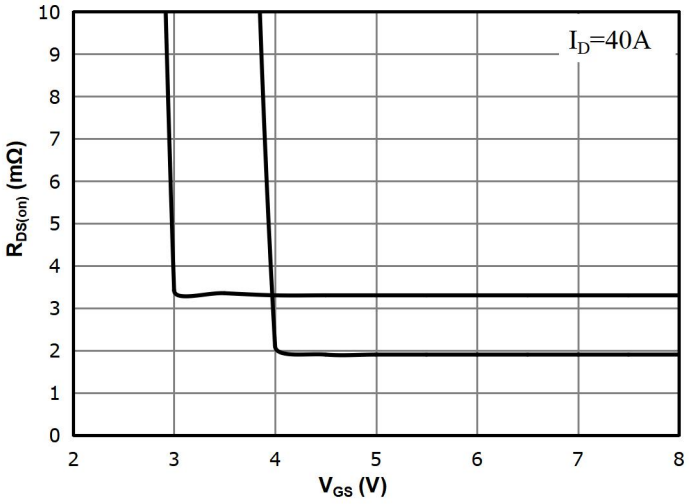


Fig 5: Rds(on) vs. Temperature

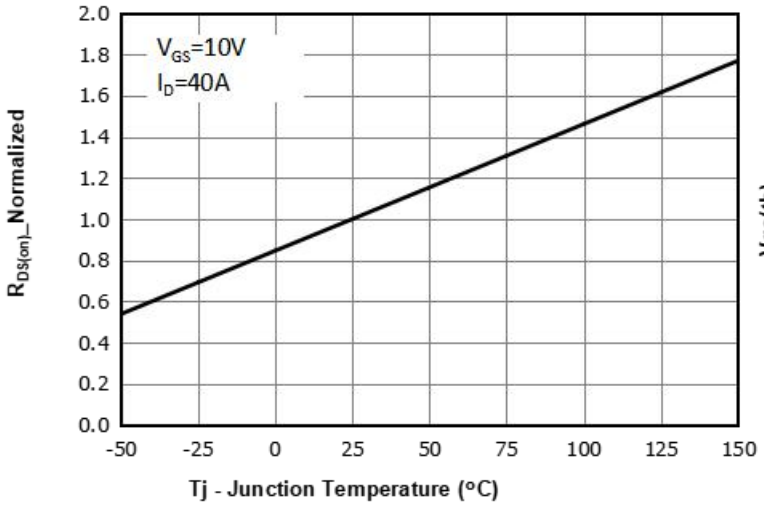


Fig 6: Vgs(th) vs. Temperature

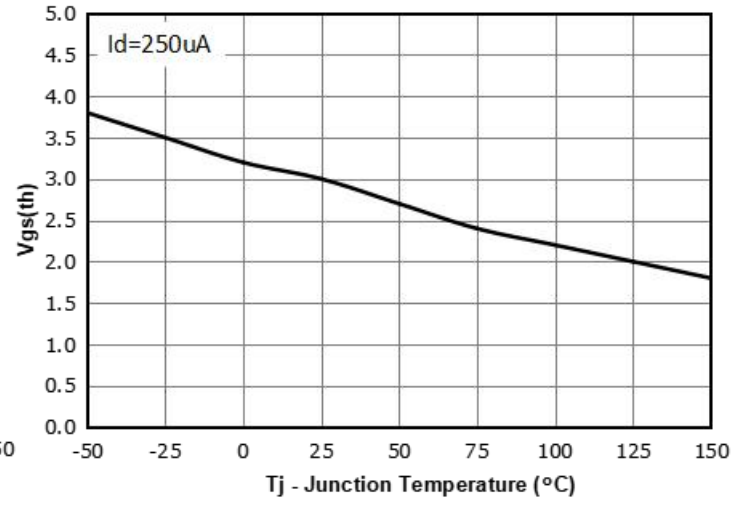


Fig 7: BVdss vs. Temperature

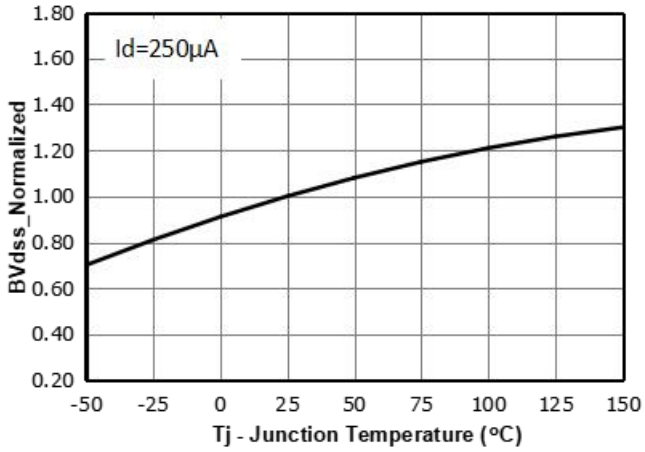


Fig 8: Capacitance Characteristics

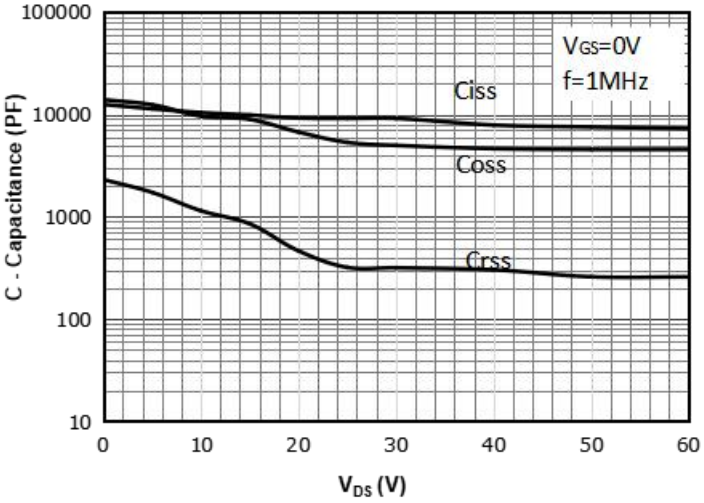


Fig 9: Gate ChargeCharacteristics

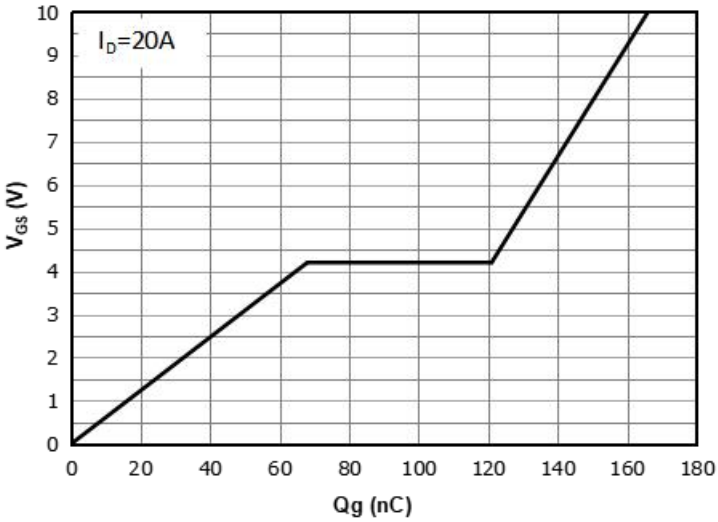


Fig 10: Body-diode Forward Characteristics

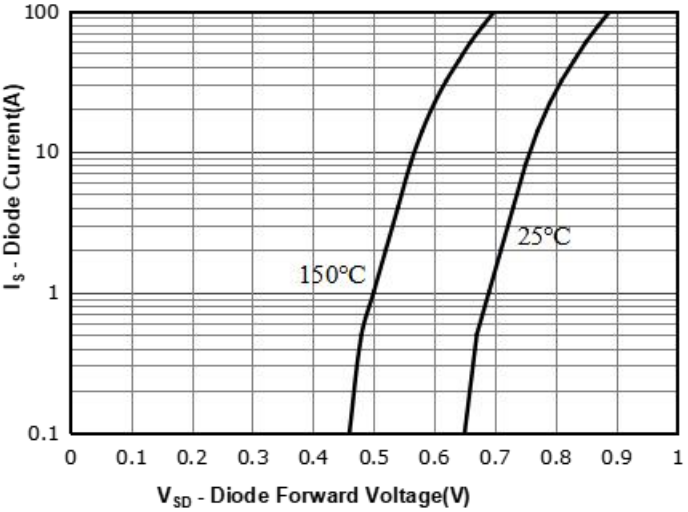


Fig 11: Power Dissipation

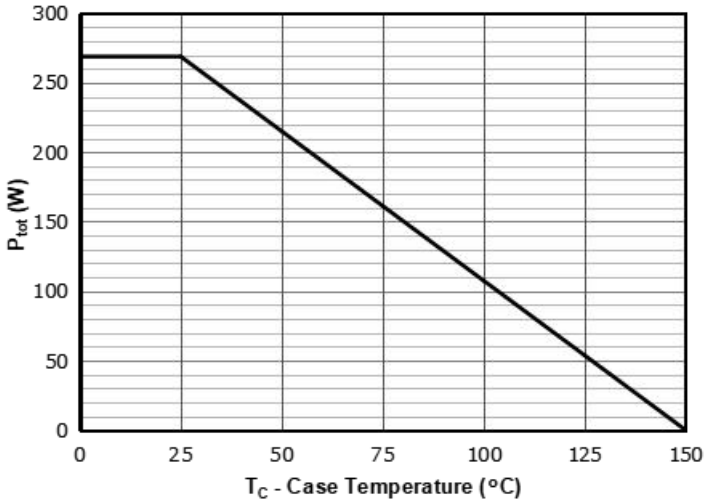


Fig 12: Drain Current Derating

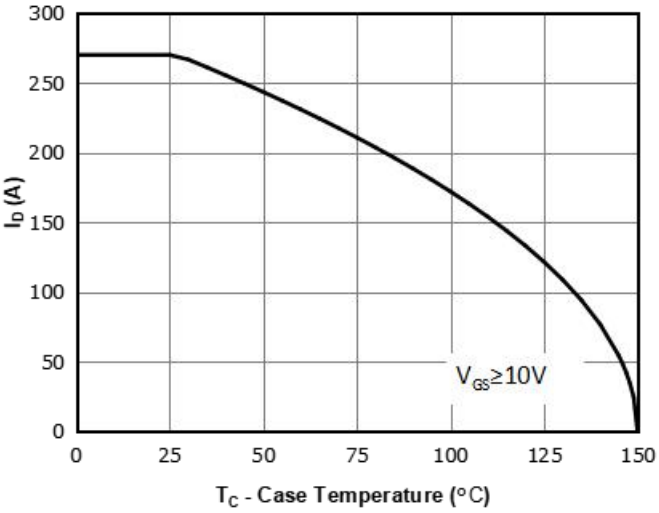


Fig 13: Safe Operating Area

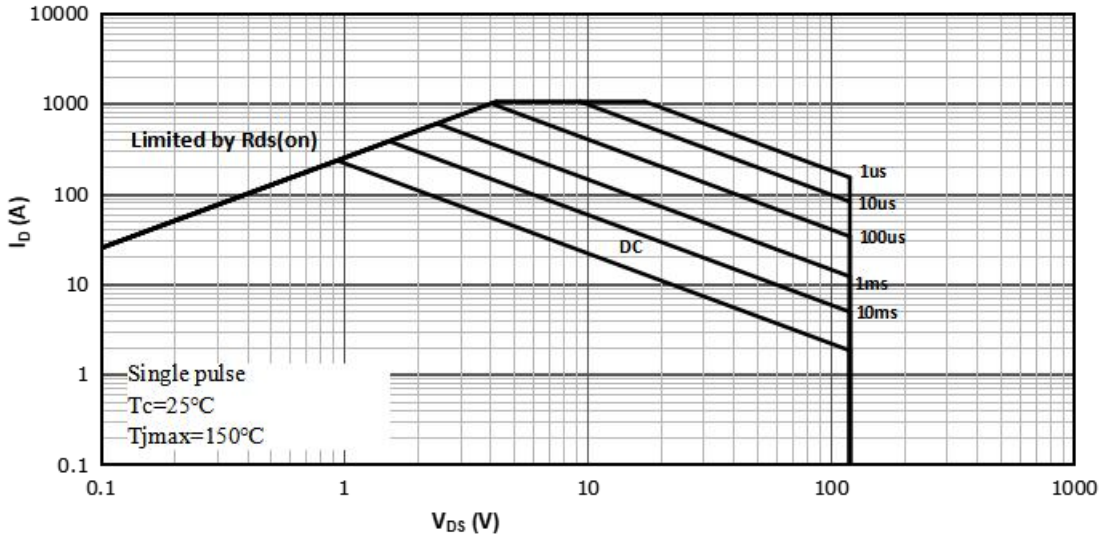


Fig 14: Max. Transient Thermal Impedance

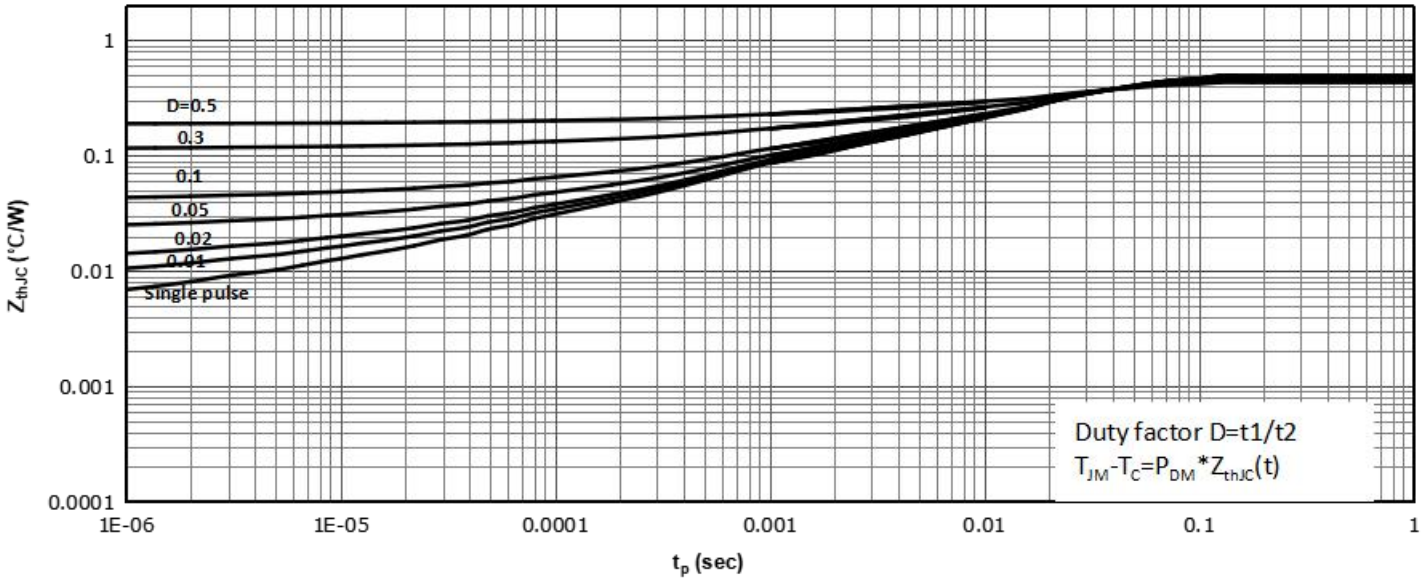
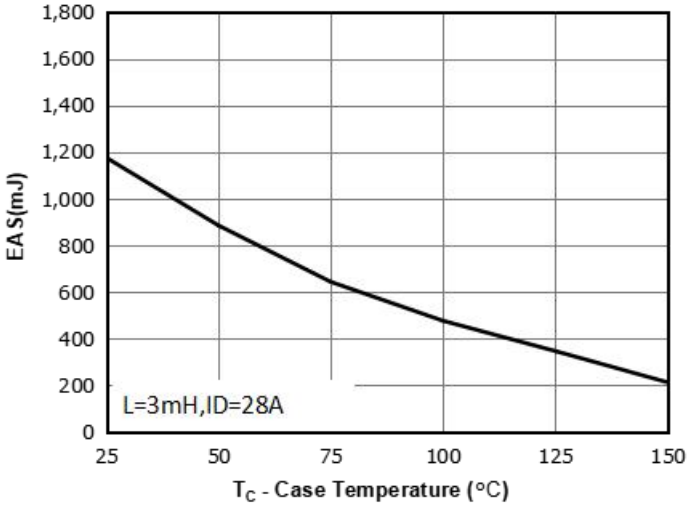
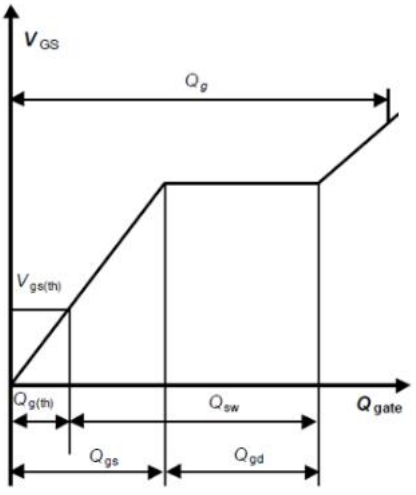
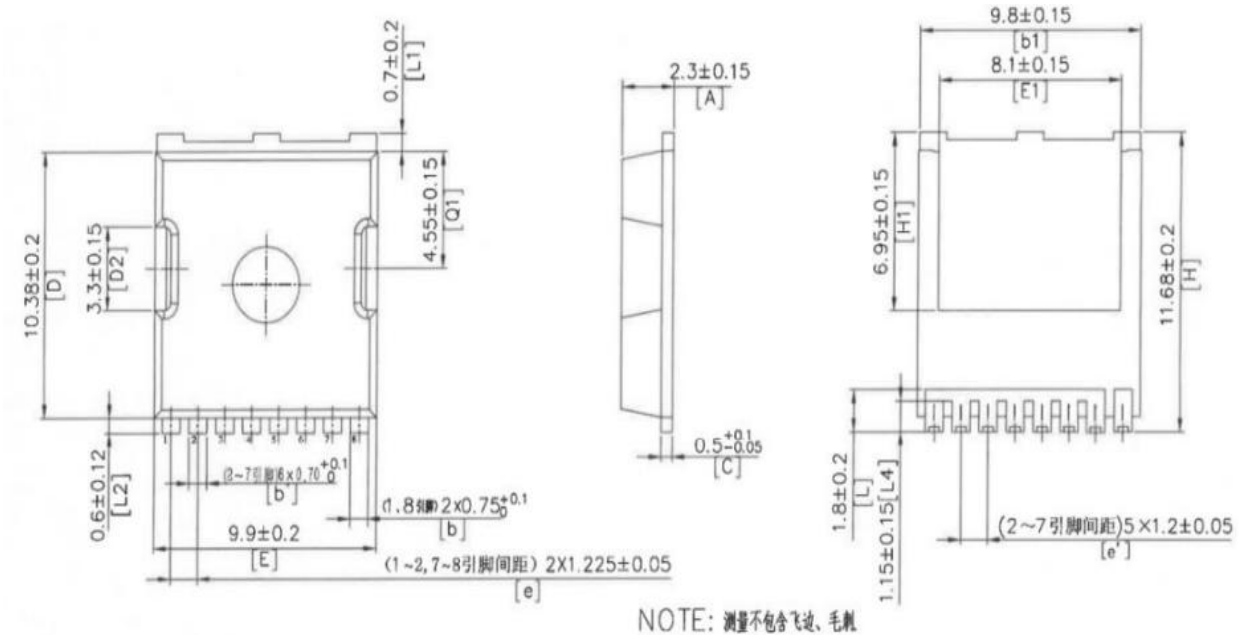


Fig 15: Avalanche Energy





TOLL-8L Package Outline Dimensions



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Date of change	Rev #	revise content
2025/08/1	A/0	/
2025/11/24	A/1	SOA时间