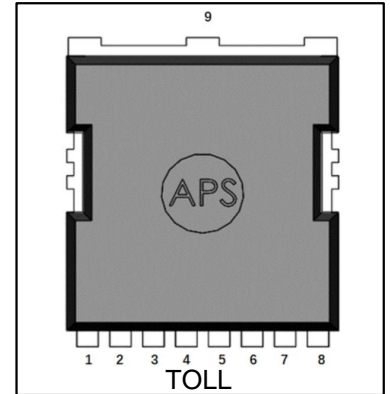


# S-LN200N15TL

## 150V N-Channel MOSFET

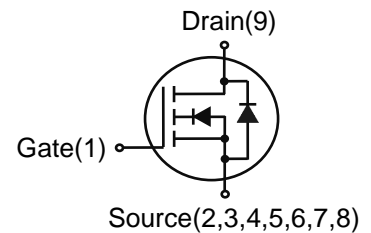
### 1. FEATURES

- Low thermal impedance.
- Fast switching capability.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S-prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



### 2. APPLICATIONS

- Power Tools
- UPS
- Motor Control



### 3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
S-LN200N15TL	200N15TL	2000pcs/Tape&Reel

### 4. MAXIMUM RATINGS

Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDS	150	V
Gate-to-Source Voltage		VGS	± 20	V
Continuous Drain Current(Note 1)	TA =25°C	ID	24	A
	TA =100°C		15	
Pulsed Drain Current(Note 2)		TA =25°C	IDM	96
Continuous Drain Current	TC =25°C	ID	150	A
	TC =100°C		90	
Pulsed Drain Current		TC =25°C	IDM	600
Avalanche Current		IAS	34	A
Avalanche energy(L=1mH)		EAS	578	mJ
Power Dissipation(Note 1)	TA =25°C	PD	2.7	W
	TA =100°C		1.1	
Power Dissipation	TC =25°C	PD	156	W
	TC =100°C		62.5	
Operating Junction and Storage Temperature Range		TJ , TSTG	-55~+150	°C

### 5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Junction-to-Ambient(Note 1)	RθJA	45	°C/W
Junction-to-Case	RθJC	0.8	

Note:1.Surface mounted on "1.5in x 1.5in" FR4 board using 1\*1 in pad, 2 oz Cu.

2.Pulse width limited by maximum junction temperature.

**6. ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25°C)**

Characteristic	Symbol	Min.	Typ.	Max.	Unit
<b>Static</b>					
Drain to Source Breakdown Voltage (V <sub>GS</sub> = 0 V, I <sub>D</sub> = 250 μA)	BVDSS	150	-	-	V
Gate-Source Threshold Voltage (V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA)	V <sub>GS(th)</sub>	2	-	4	V
Gate-Body Leakage (V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V)	I <sub>GSS</sub>	-	-	±100	nA
Zero Gate Voltage Drain Current (V <sub>DS</sub> = 150 V, V <sub>GS</sub> = 0 V)	I <sub>DSS</sub>	-	-	1	μA
Drain-Source On-Resistance(Note 3) (V <sub>GS</sub> = 10 V, I <sub>D</sub> = 50 A)	R <sub>DS(on)</sub>	-	4.2	5.1	mΩ
<b>Dynamic</b>					
Input Capacitance	C <sub>iss</sub> (V <sub>DS</sub> = 75 V, V <sub>GS</sub> = 0 V, f = 100kHz)	C <sub>iss</sub>	-	4951	-
Output Capacitance		C <sub>oss</sub>	-	1901	-
Reverse Transfer Capacitance		C <sub>rss</sub>	-	46	-
Total Gate Charge	Q <sub>g</sub> (V <sub>DS</sub> = 75 V, V <sub>GS</sub> = 10 V, I <sub>D</sub> = 50 A)	Q <sub>g</sub>	-	74.7	-
Gate-Source Charge		Q <sub>gs</sub>	-	27	-
Gate-Drain Charge		Q <sub>gd</sub>	-	21	-
Turn-On Delay Time	(V <sub>DS</sub> = 75 V, I <sub>D</sub> = 50 A, V <sub>GS</sub> = 10 V, R <sub>G</sub> = 6 Ω)	t <sub>d(on)</sub>	-	36	-
Rise Time		t <sub>r</sub>	-	40	-
Turn-Off Delay Time		t <sub>d(off)</sub>	-	86	-
Fall Time		t <sub>f</sub>	-	40	-
Gate Resistance (V <sub>DS</sub> = 0 V, V <sub>GS</sub> = 0 V, f = 1.0MHz)	R <sub>g</sub>	-	4.5	-	Ω
<b>Diode characteristics</b>					
Continuous Current TC =25° C	I <sub>S</sub>	-	-	150	A
Plused Current TC =25° C	I <sub>SM</sub>	-	-	600	A
Diode Forward Voltage (I <sub>S</sub> = 20 A, V <sub>GS</sub> = 0 V)	V <sub>SD</sub>	-	0.8	1.3	V
Reverse Recovery Time (V <sub>R</sub> =75V, I <sub>F</sub> =12A, dI <sub>F</sub> /dt=100A/us)	t <sub>rr</sub>	-	126	-	ns
Reverse Recovery Charge (V <sub>R</sub> =75V, I <sub>F</sub> =12A, dI <sub>F</sub> /dt=100A/us)	Q <sub>rr</sub>	-	312	-	nC
Reverse Recovery Current (V <sub>R</sub> =75V, I <sub>F</sub> =12A, dI <sub>F</sub> /dt=100A/us)	I <sub>RRM</sub>	-	5	-	A

3. Pulse test: PW ≤ 300us duty cycle ≤ 2%.

## 7. ELECTRICAL CHARACTERISTICS CURVES

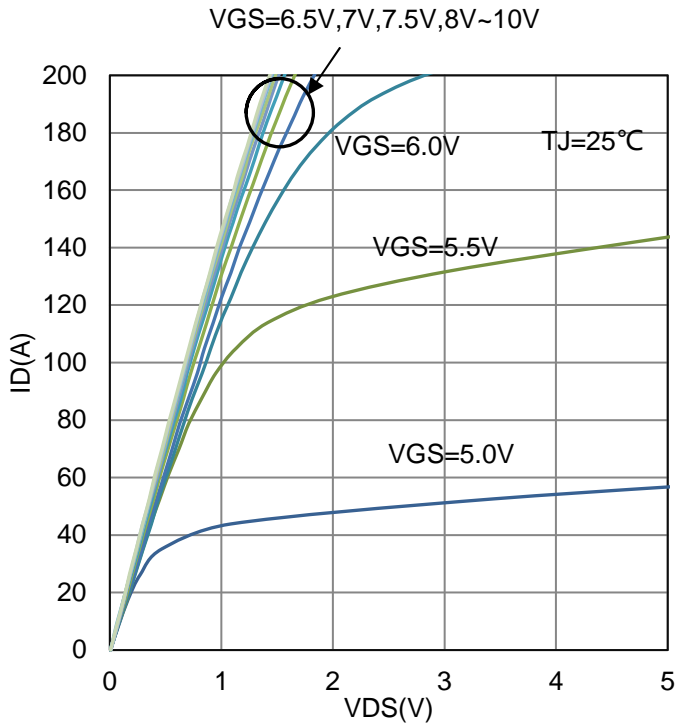


Figure 1.ID vs. VDS

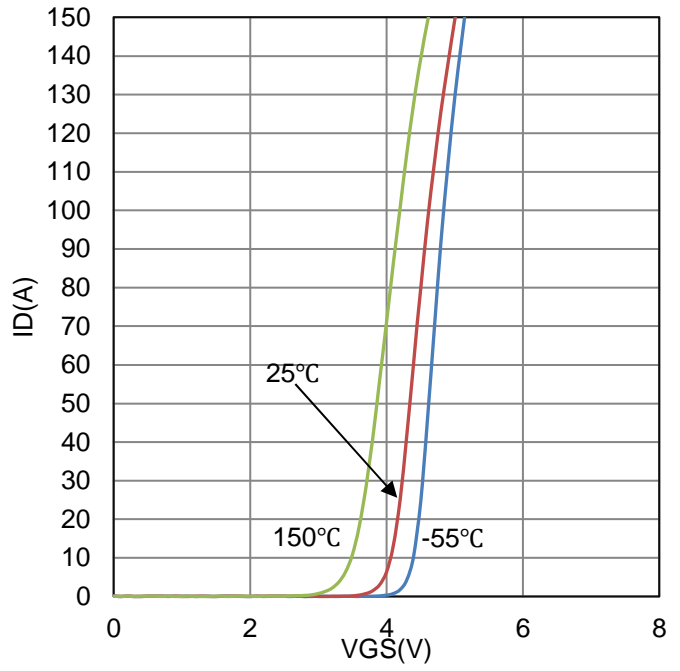


Figure 2.ID vs. VGS

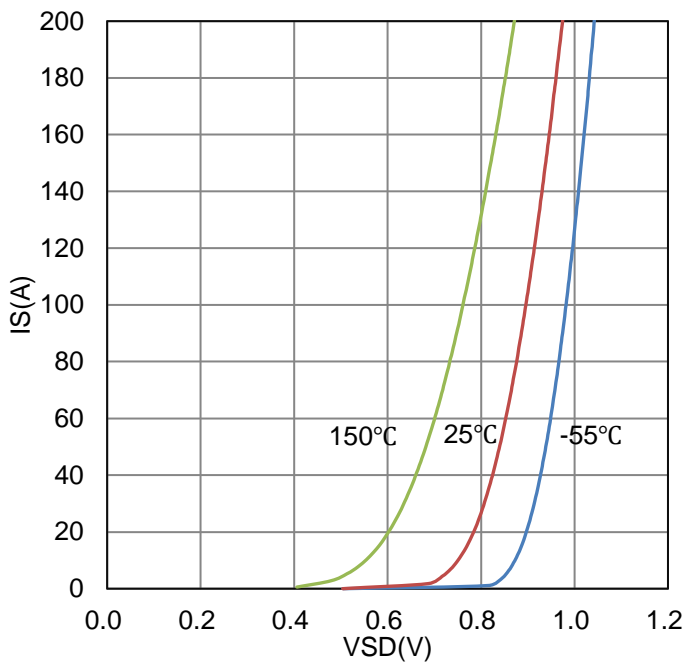


Figure 3.IS vs. VSD

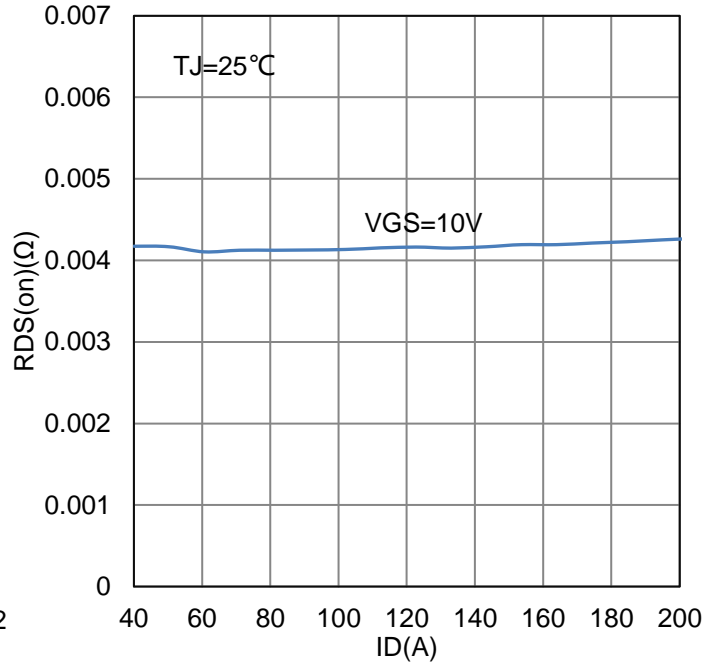


Figure 4.RDS(on) vs. ID

**7. ELECTRICAL CHARACTERISTICS CURVES(Con.)**

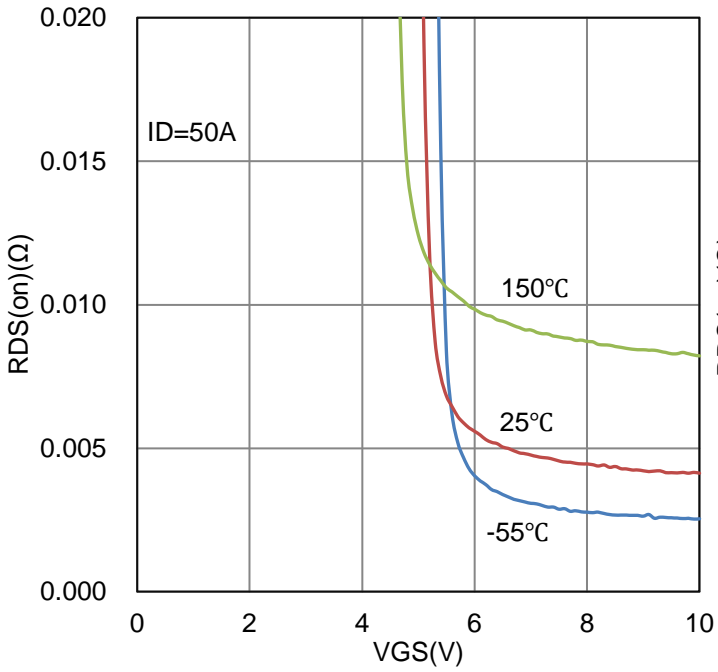


Figure 5. RDS(on) vs. VGS

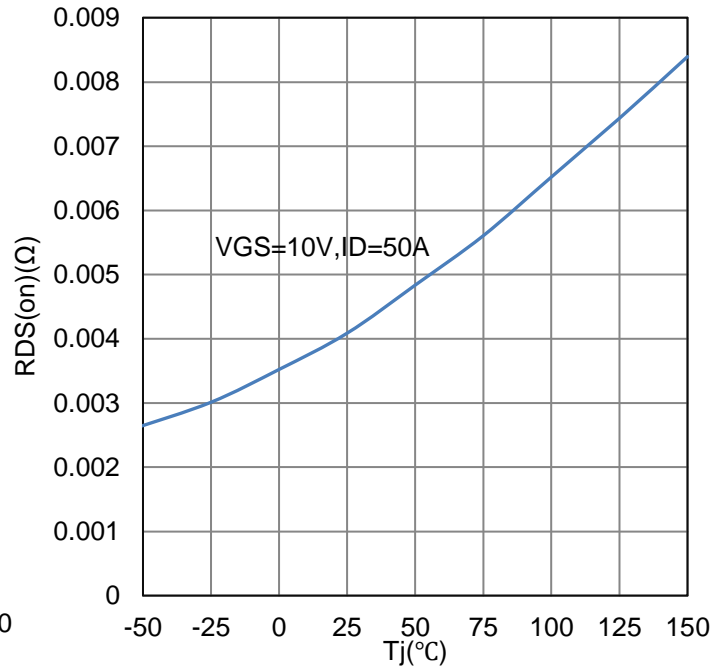


Figure 6. RDS(on) vs. Tj

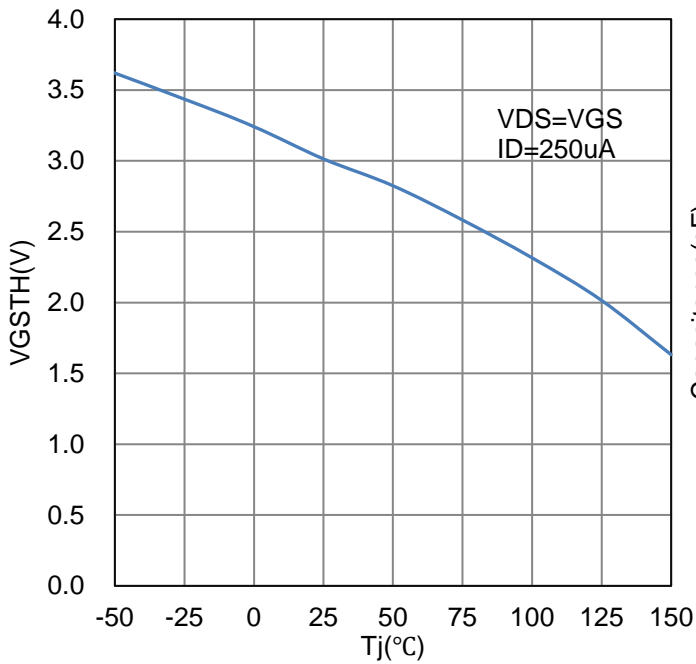


Figure 7. VGsth vs. Tj

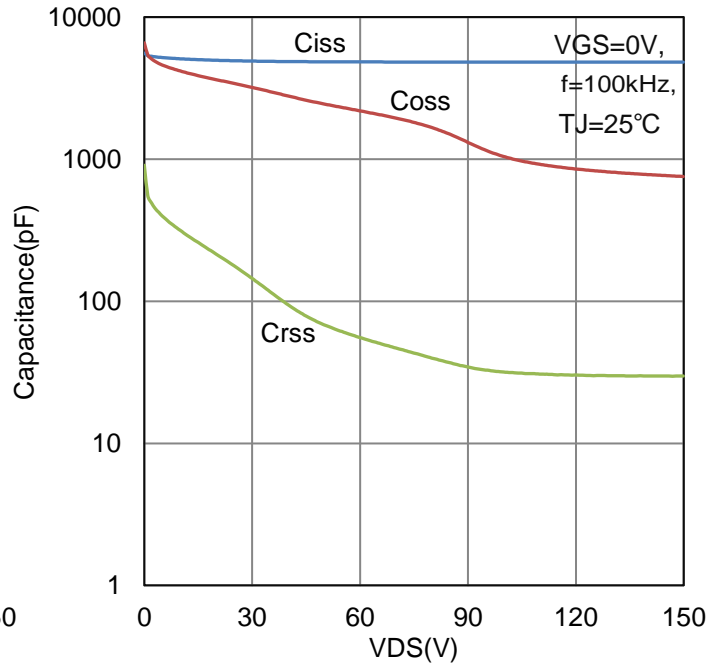
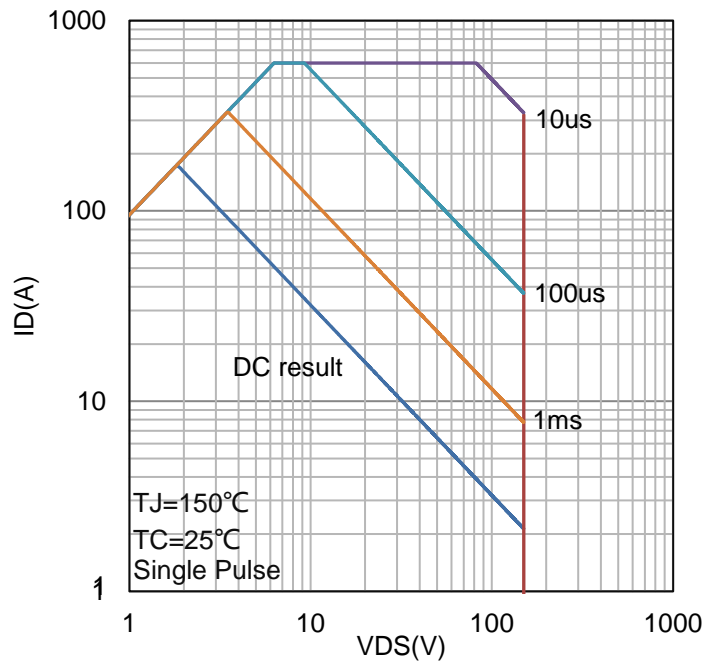
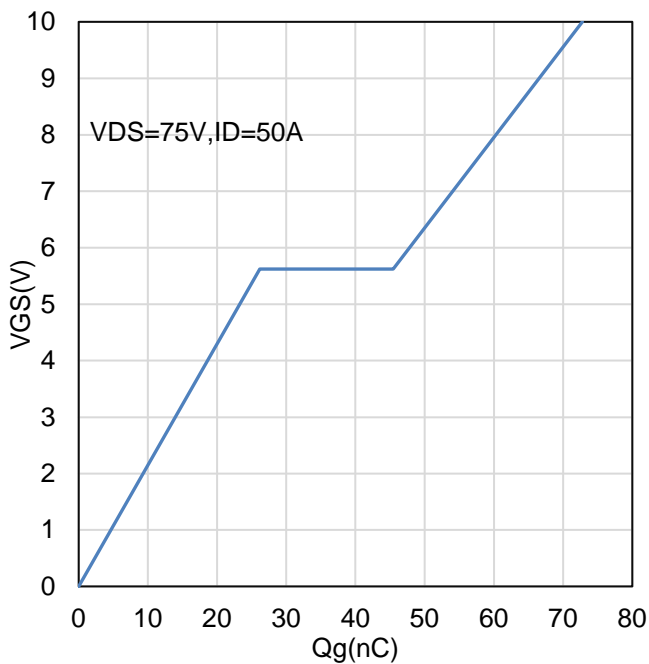
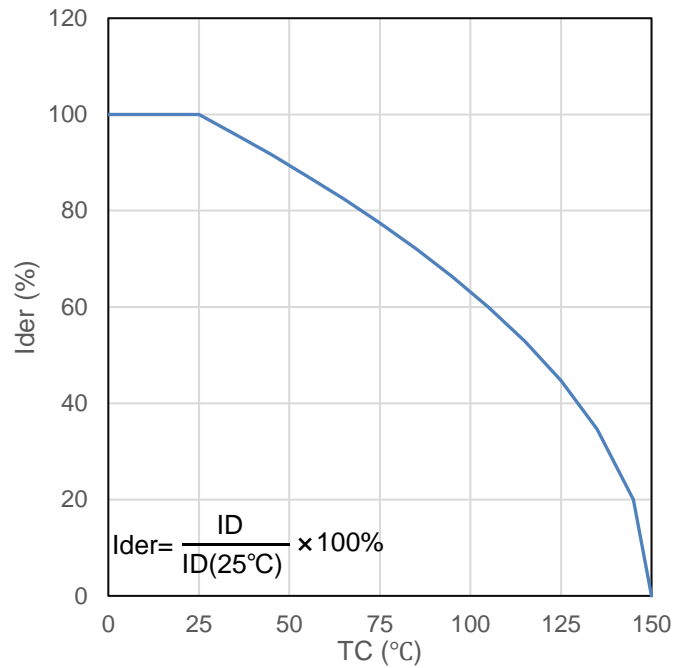
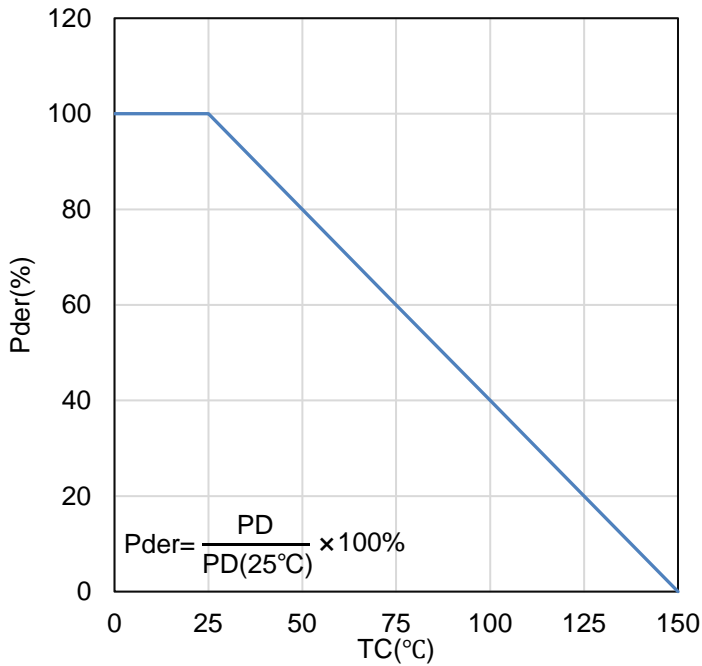


Figure 8. Capacitance

**7. ELECTRICAL CHARACTERISTICS CURVES(Con.)**



**7. ELECTRICAL CHARACTERISTICS CURVES(Con.)**

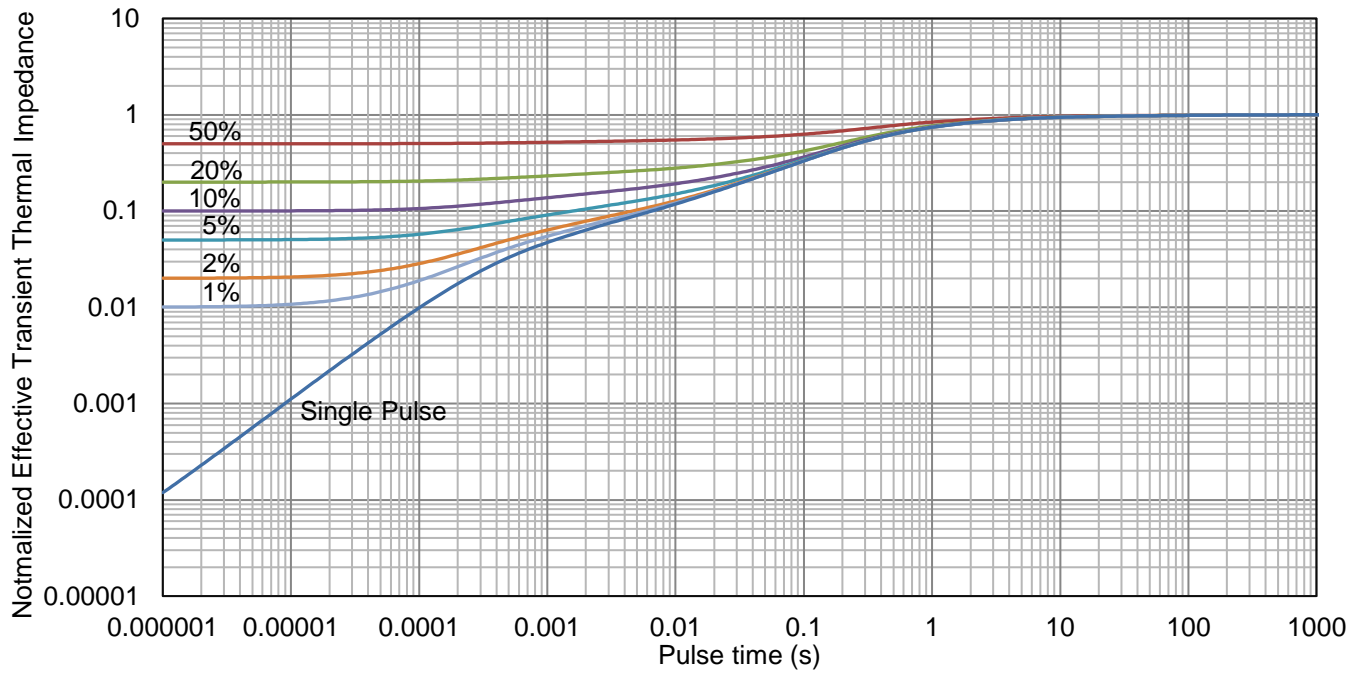
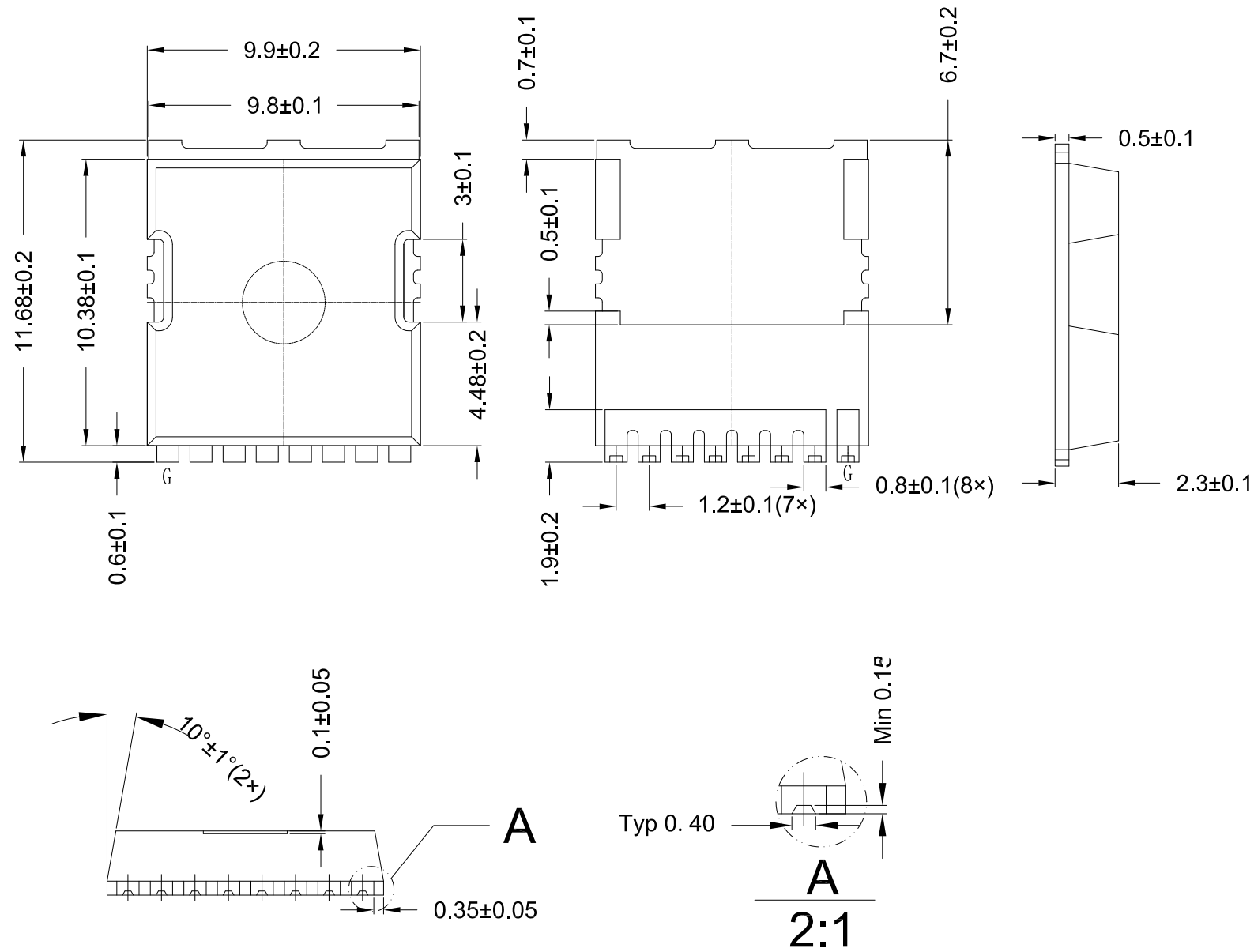


Figure 13. Thermal Response

### 8. OUTLINE AND DIMENSIONS



## **DISCLAIMER**

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
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