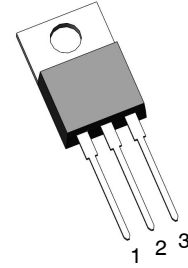


LN96N10WAC

85V N-Channel MOSFET



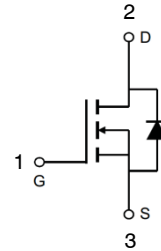
TO220

1. FEATURES

- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. APPLICATIONS

- Power Tools
- DC-DC Converter
- Motor Control



3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
LN96N10WAC	96N10WAC	50/Tube

4. MAXIMUM RATINGS

Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDS	85	V
Gate-to-Source Voltage		VGS	± 20	V
Continuous Drain Current(Note 1)	TA =25°C	ID	16	A
	TA =100°C		10	
Pulsed Drain Current(Note 2)	TA =25°C	IDM	64	
Continuous Drain Current	TC =25°C	ID	57.5	A
	TC =100°C		36	
Pulsed Drain Current	TC =25°C	IDM	230	
Avalanche Current		IAS	26	A
Avalanche energy(L=0.1mH)		EAS	34	mJ
Power Dissipation(Note 1)	TA =25°C	PD	1.9	W
	TA =100°C		0.8	
Power Dissipation	TC =25°C		83	
	TC =100°C		33	
Operating Junction and Storage Temperature Range		TJ , TSTG	-55~+150	°C

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Junction-to-Ambient(Note 1)	RθJA	65	°C/W
Junction-to-Case	RθJC	1.5	

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

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Drain to Source Breakdown Voltage (VGS = 0 V, ID = 250 μ A)	BVDSS	85	-	-	V
Gate-Source Threshold Voltage (VDS = VGS, ID = 250 μ A)	VGS(th)	2	3	4	V
Gate-Body Leakage (VDS = 0 V, VGS = \pm 20 V)	IGSS	-	-	\pm 100	nA
Zero Gate Voltage Drain Current (VDS = 85 V, VGS = 0 V)	IDSS	-	-	1	μ A
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 50 A) (VGS = 6 V, ID = 20 A)	RDS(on)	- -	4.6 5.4	6 7	m Ω
Dynamic					
Input Capacitance	(VDS = 40 V, VGS = 0 V, f = 100KHz)	Ciss	-	3138	pF
Output Capacitance		Coss	-	648	
Reverse Transfer Capacitance		Crss	-	23	
Total Gate Charge	(VDS = 40 V, VGS = 10 V, ID = 50 A)	Qg	-	50.6	nC
Gate-Source Charge		Qgs	-	14	
Gate-Drain Charge		Qgd	-	12	
Turn-On Delay Time	(VDS = 40 V, ID = 50 A, VGS = 10 V, RG = 25 Ω)	td(on)	-	48	ns
Rise Time		tr	-	34	
Turn-Off Delay Time		td(off)	-	158	
Fall Time		tf	-	70	
Gate Resistance (VDS = 0 V, VGS = 0 V, f = 1.0MHz)	Rg	-	35	-	Ω
Diode characteristics					
Continuous Current TC =25° C	IS	-	-	57.5	A
Plused Current TC =25° C	ISM	-	-	230	A
Diode Forward Voltage (IS = 20 A, VGS = 0 V)	VSD	-	-	1.2	V
Reverse Recovery Time (VDD=40V, IF=20A, dIF/dt=100A/us)	trr	-	70.2	-	ns
Reverse Recovery Charge (VDD=40V, IF=20A, dIF/dt=100A/us)	Qrr	-	109	-	nC
Reverse Recovery Current (VDD=40V, IF=20A, dIF/dt=100A/us)	IRRM	-	3.2	-	A

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

7. ELECTRICAL CHARACTERISTICS CURVES

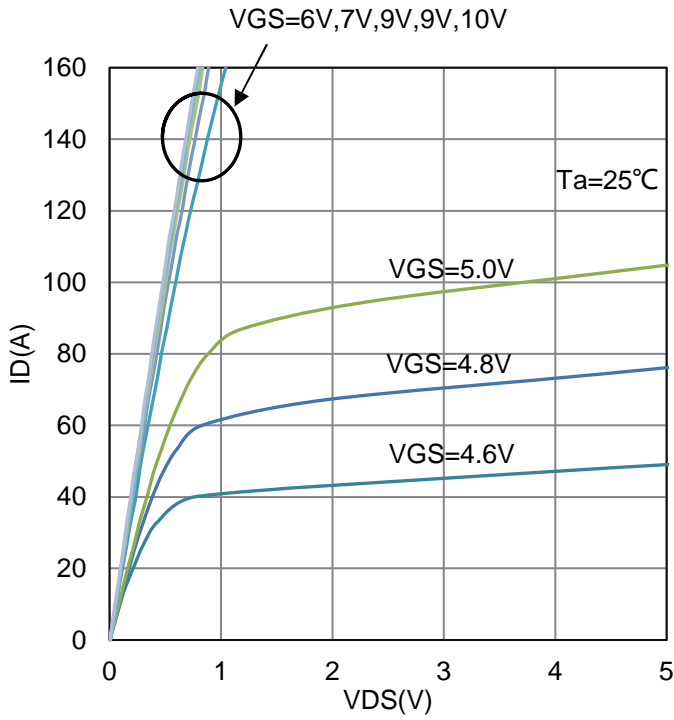


Figure 1. I_D vs. V_{DS}

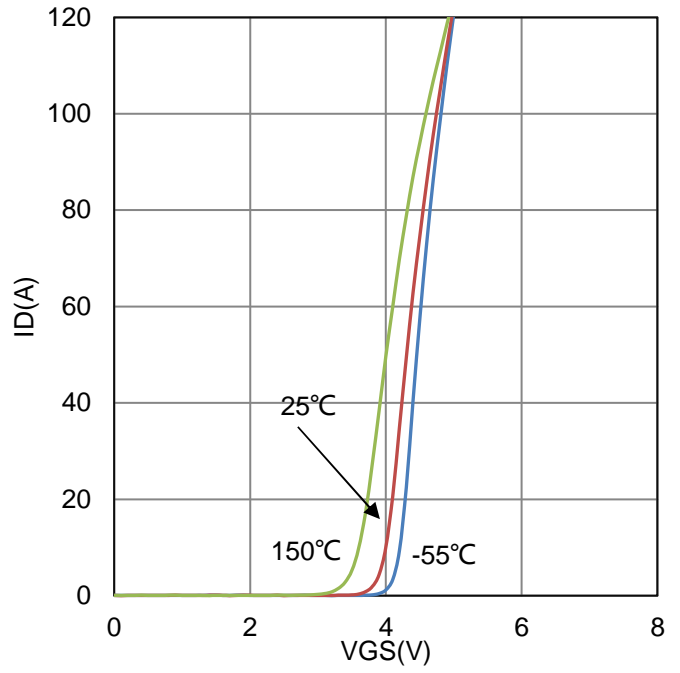


Figure 2. I_D vs. V_{GS}

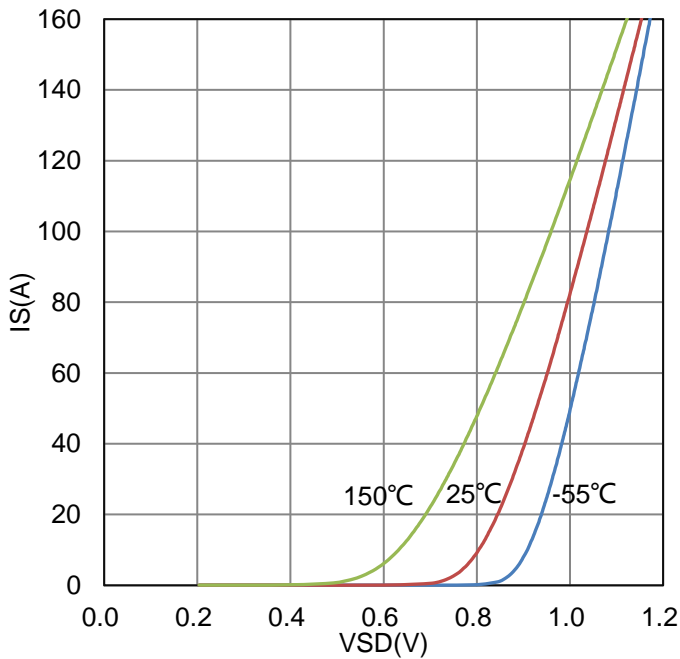


Figure 3. I_S vs. V_{SD}

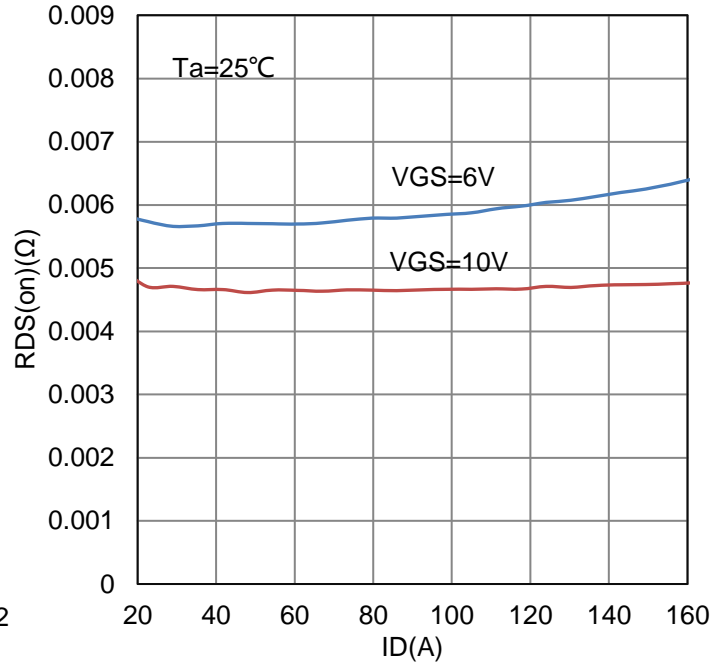


Figure 4. $R_{DS(on)}$ vs. I_D

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

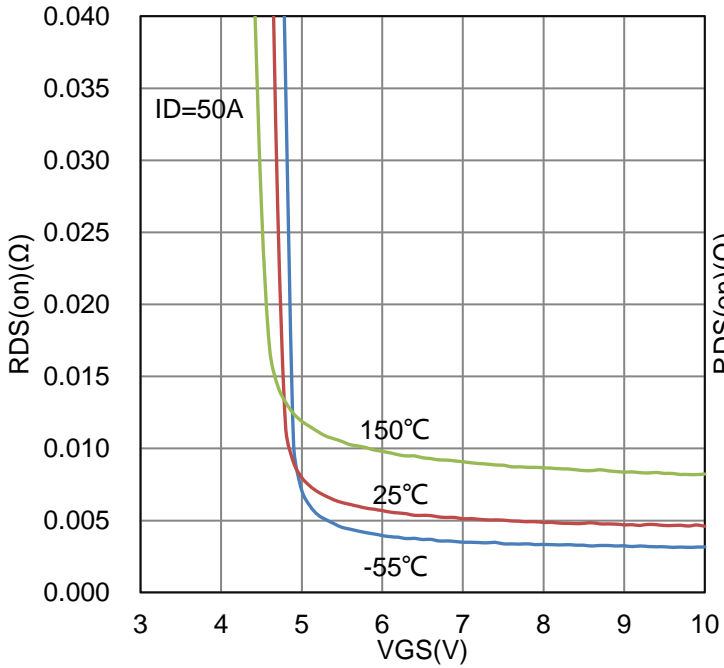


Figure 5. RDS(on) vs. VGS

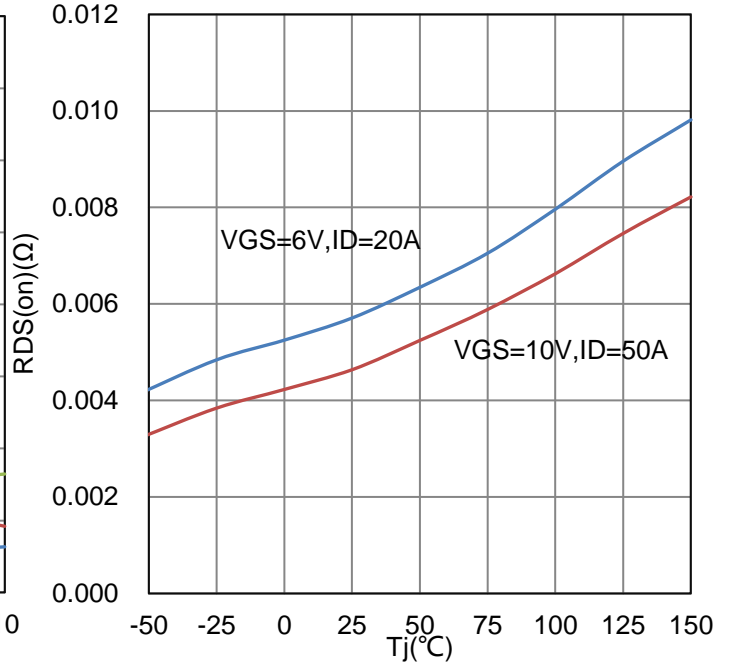


Figure 6. RDS(on) vs. Tj

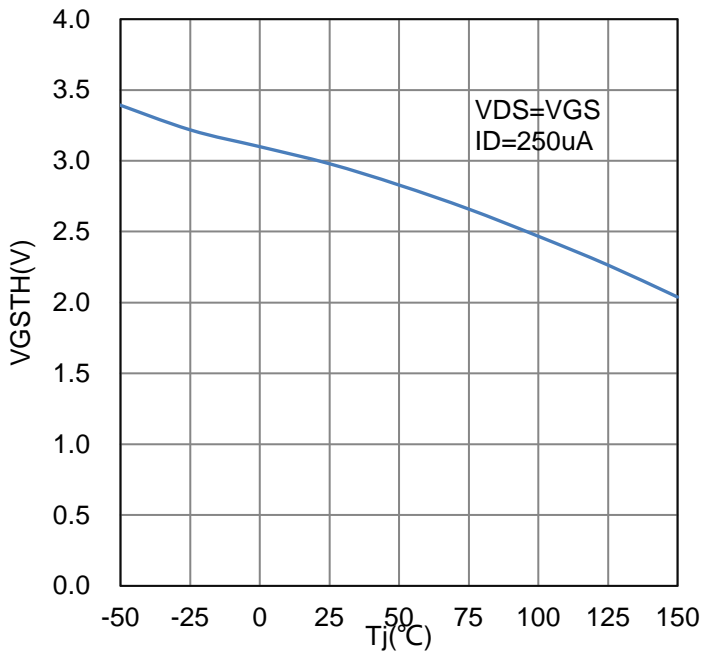


Figure 7. VGsth vs. Tj

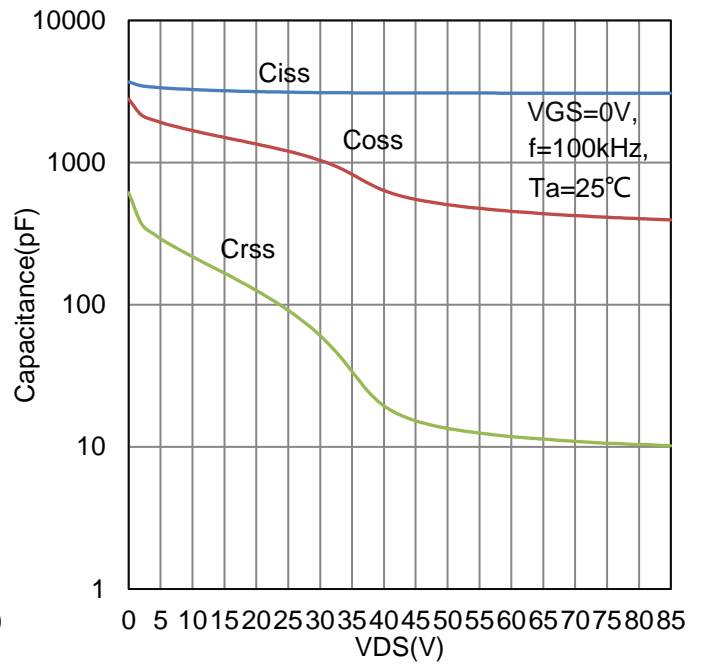


Figure 8. Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

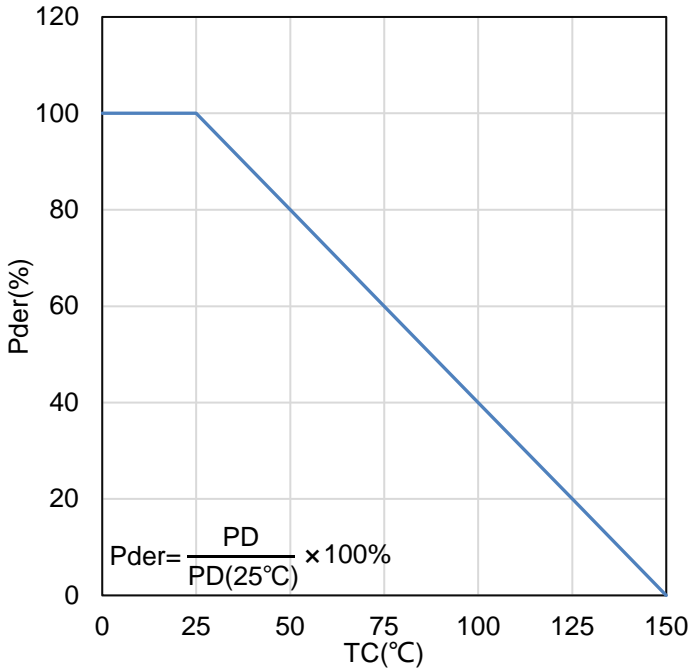


Figure 9.Normalized Derating Curve

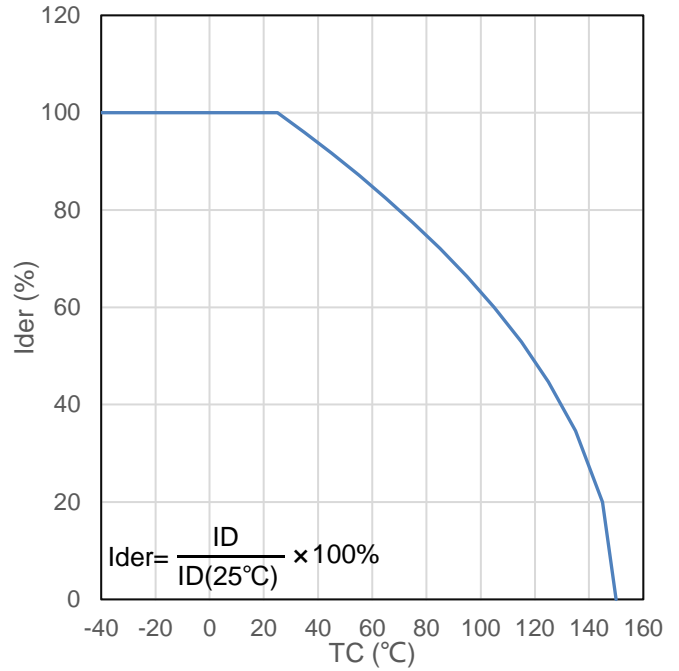


Figure 10.Normalized drain Current

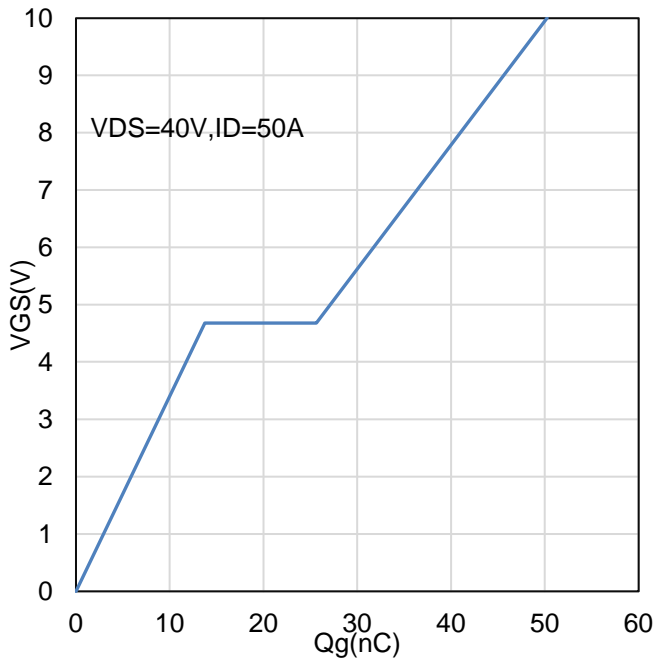


Figure 11.VGS vs. Qg

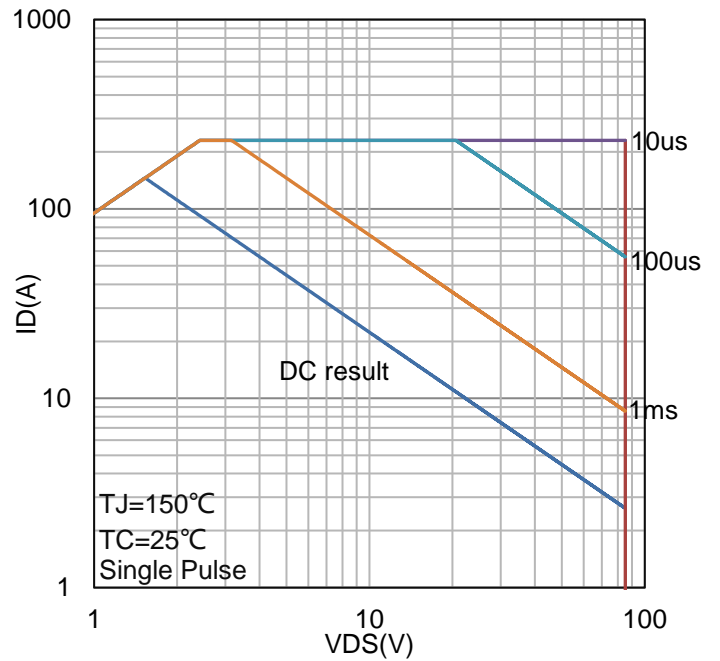


Figure 12.Safe Operating Area

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

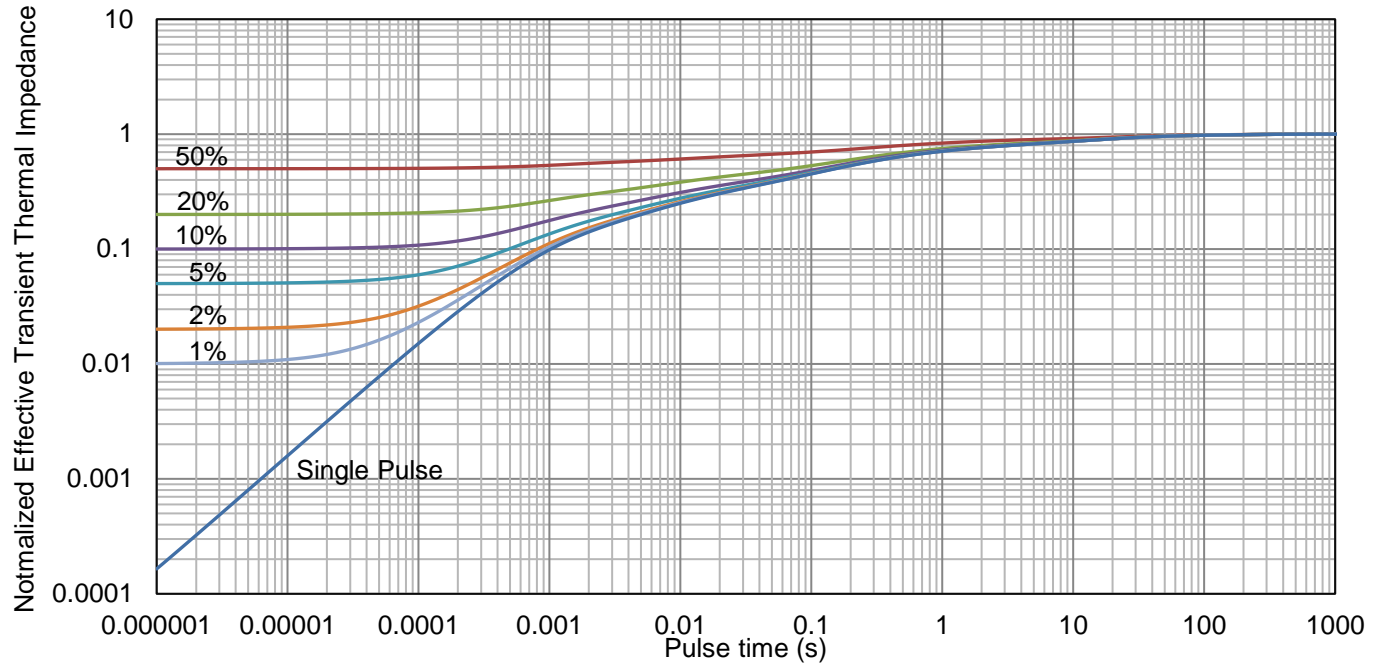
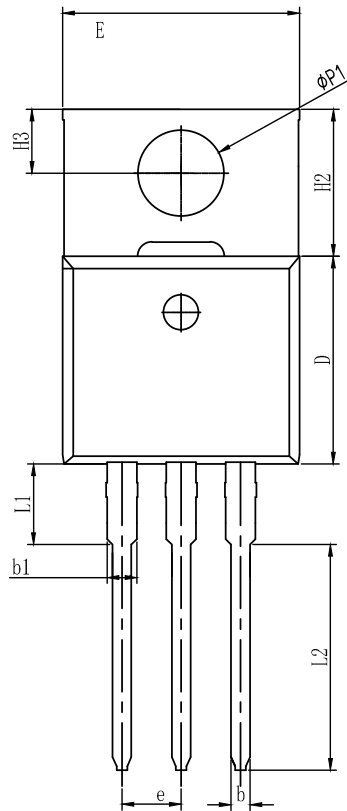
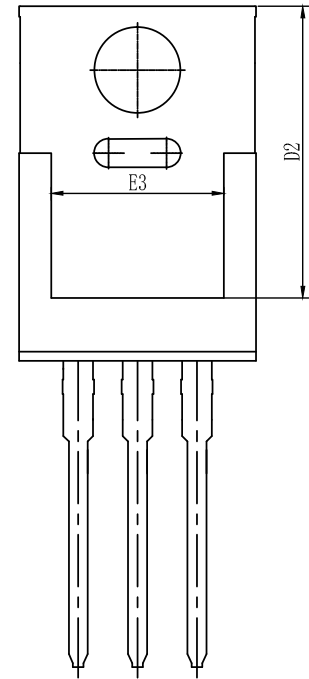
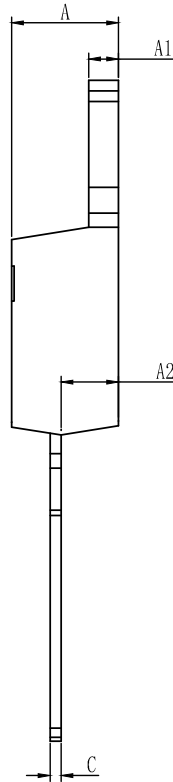


Figure 13. Thermal Response

8.OUTLINE AND DIMENSIONS



TOP VIEW



BOTTOM VIEW

GENERAL NOTES

1. Top package surface finish Ra Max1.2±0.2um
2. Bottom package surface finish Ra Max0.2um
3. Protrusion or Gate Burrs shall not exceed 0.05mm per side.
4. Off center Max0.05mm; Mismatch Max 0.05mm.

DIM	MILLIMETERS		
	MIN	NOM	MAX
A	4.42	4.57	4.72
A1	1.20	1.30	1.40
A2	2.35	2.45	2.55
b	0.73	0.83	0.93
b1	1.20	1.30	1.40
c	0.41	0.48	0.58
D	8.70	8.90	9.10
D2	12.20	12.50	12.80
E	9.85	10.15	10.45
E3	7.10	7.40	7.70
e	2.54BSC		
H2	6.10	6.30	6.50
H3	2.54	2.74	2.94
L1	3.16	3.46	3.76
L2	9.36	9.66	9.96
ØP1	3.48	3.68	3.88

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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