

H100N10FB

100V Single N-Channel MOSFET

VDSS	R _{DS(ON)} (Typ)	ID
100V	3mΩ	100A

Features:

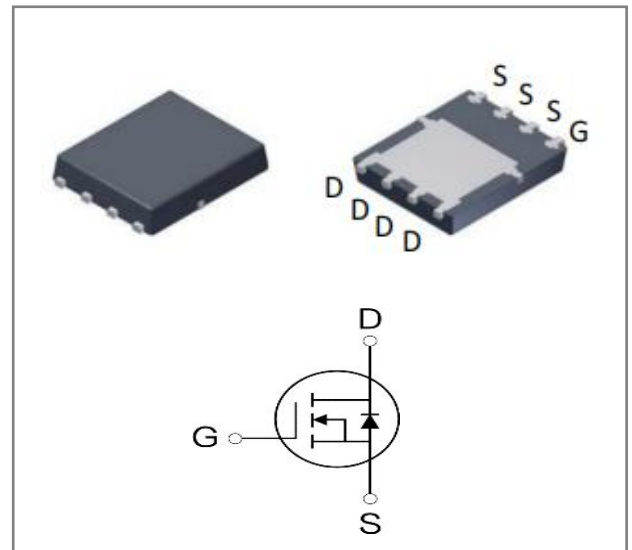
- Fast switching speed
- 100% avalanche tested
- Improved dv/dt capability
- Enhanced Avalanche Ruggedness
- Lead Free

Applications:

- Synchronous Rectification in SMPS
- Hard Switching and High Speed Circuit
- Power Tools
- UPS
- Motor Control

Ordering Information

Part Number	Package	Marking	Packing	Qty.
H100N10FB	DFN5*6	H100N10FB	Tape&reel	5000 PCS



Absolute Maximum Ratings (Tc= 25°C unless otherwise specified)

Symbol	Parameter	Rating	Units
VDS	Drain-to-Source Voltage	100	V
VGS	Gate- to- Source Voltage	±20	V
ID	Continuous Drain Current TC=25°C	100	A
	Continuous Drain Current TC=100°C	63	
	Pulsed Drain Current	400	
IDM	Pulsed Drain Current	400	
PD	Power Dissipation	125	W
EAS	Single Pulse Avalanche Energy L = 0.5mH, RG = 25 Ω, TC=25°C	272	mJ
TJ, TSTG	Operating Junction and Storage Temperature Range	-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typ	Max	Unit
RθJC	Thermal Resistance Junction-Case	1.3	1.6	°C/W
RθJA	Thermal Resistance Junction-Ambient	40	48	°C/W

Electrical Characteristics (TJ= 25℃ unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
V(BR)DSS	Drain- Source Breakdown Voltage	100	--	--	V	VGS=0V,ID=250μA
IDSS	Zero Gate Voltage Drain Current (25℃)	--	--	1	μA	VDS=100V,VGS=0V
	Zero Gate Voltage Drain Current (100℃)	--	--	100	μA	VDS=100V,VGS=0V
IGSS	Gate to Source Forward Leakage	--	--	100	nA	VGS=20V ,VDS=0V
	Gate to Source Reverse Leakage	--	--	-100		VGS=-20V ,VDS=0V
VGS(TH)	Gate Threshold Voltage	1.0	1.8	2.5	V	VGS=VDS,ID=250μA
RDS(on)	Static Drain- to- Source On-Resistance	--	3	4	mΩ	VGS=10V,ID=40A
		--	4.3	5.6	mΩ	VGS=4.5V,ID=20A

Dynamic Electrical Characteristics

Ciss	Input Capacitance	--	4100	--	pF	VGS=0V VDS=50V f=100KHz
Coss	Output Capacitance	--	830	--		
Crss	Reverse Transfer Capacitance	--	30	--		
Rg	Gate Resistance	--	1.2	--	Ω	f=1MHz
Qg	Total Gate Charge	--	65	--	nC	VDS=50V ID=40A VGS=10V
Qgs	Gate- to- Source Charge	--	13	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	13	--		

Switching Characteristics

td(ON)	Turn- on Delay Time	--	12	--	nS	VDS=50V ID=40A RG=3Ω VGS=10V
trise	Rise Time	--	41	--		
td(OFF)	Turn- OFF Delay Time	--	44	--		
tfall	Fall Time	--	50	--		

Source- Drain Diode Characteristics

VSD	Diode Forward Voltage	--	0.82	1	V	IF=40A,VGS=0V
trr	Reverse Recovery Time	--	65	--	nS	VR=50V,IF=40A di/dt=100A/μs
Qrr	Reverse Recovery Charge	--	77	--	nC	

Notes:

- * 1. Repetitive rating, pulse width limited by maximum junction temperature.
- * 2. Pulse Test: Pulse width ≤ 380μs, Duty Cycle ≤ 2%

Typical Characteristics

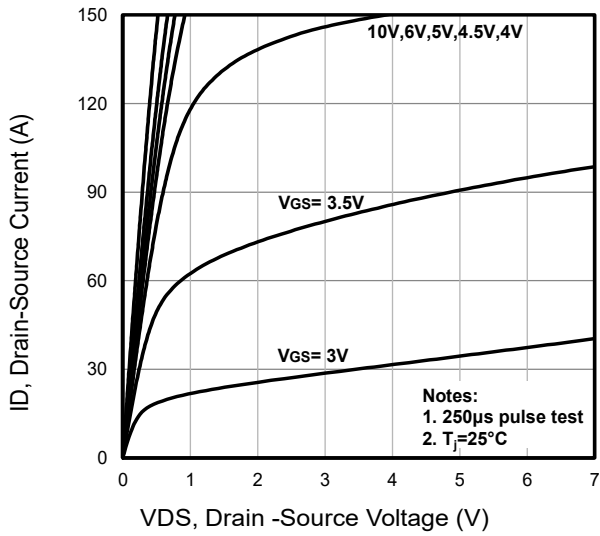


Fig1. Typical Output Characteristics

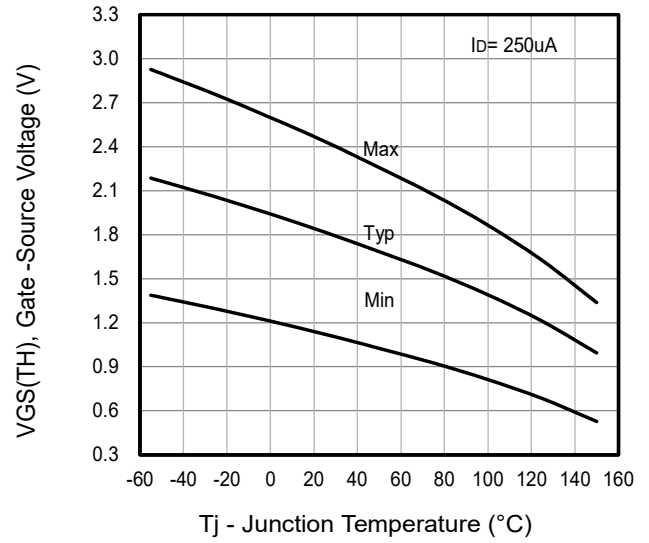


Fig2. Typical $V_{GS(TH)}$ Gate-Source Voltage Vs. T_j

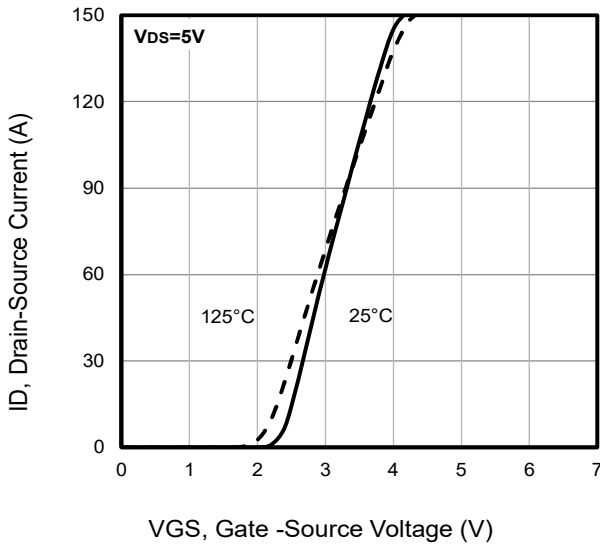


Fig3. Typical Transfer Characteristics

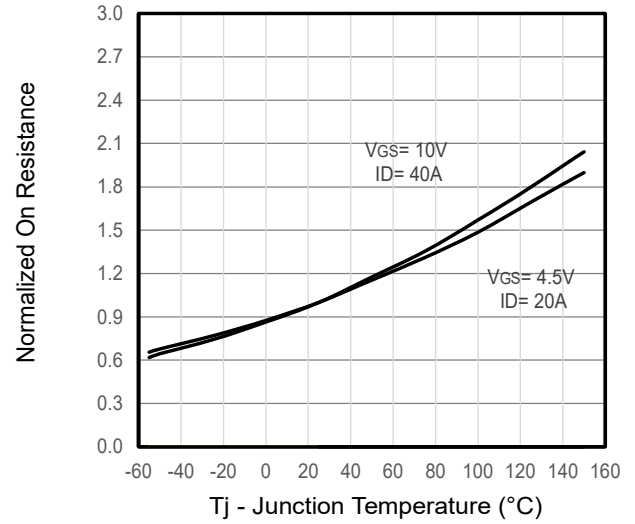


Fig4. Typical Normalized On-Resistance Vs. T_j

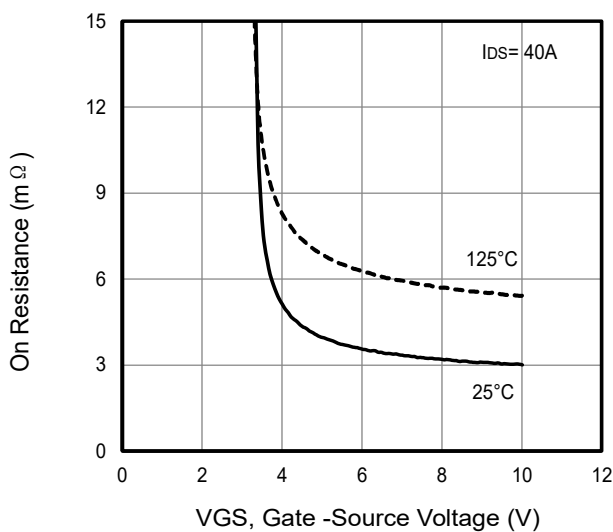


Fig5. Typical On Resistance Vs Gate-Source Voltage

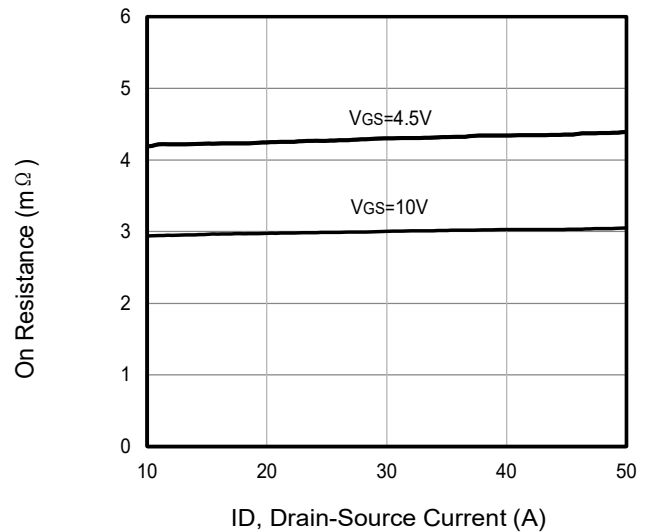
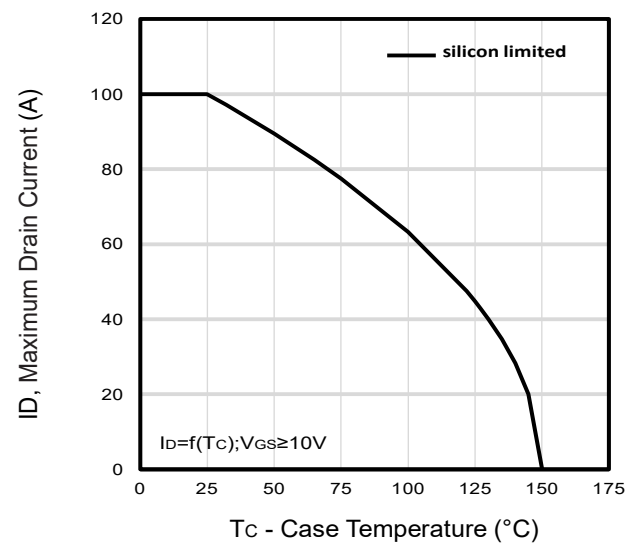
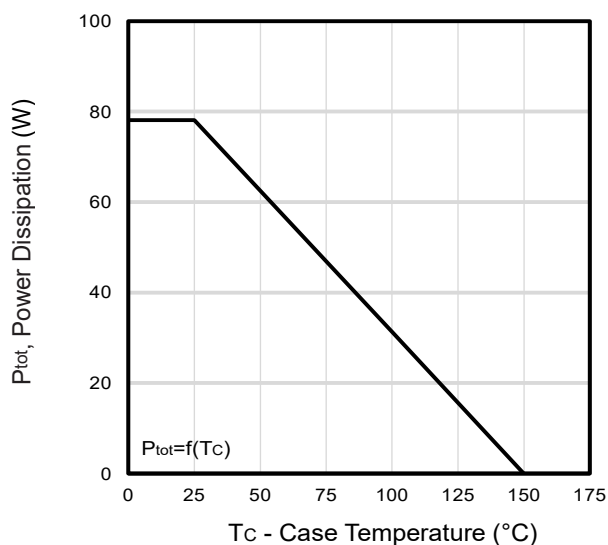
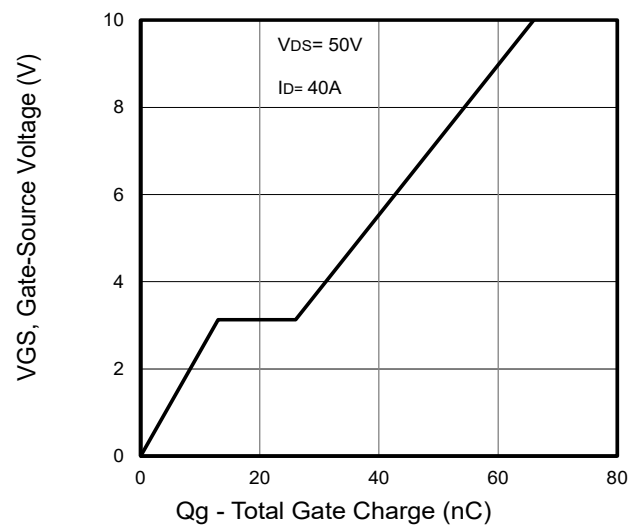
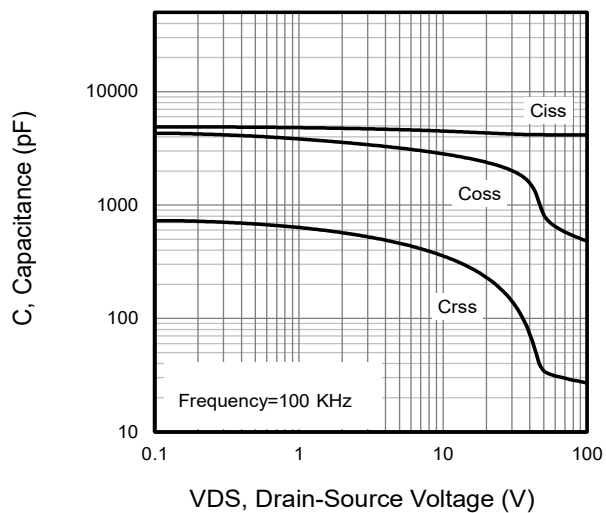
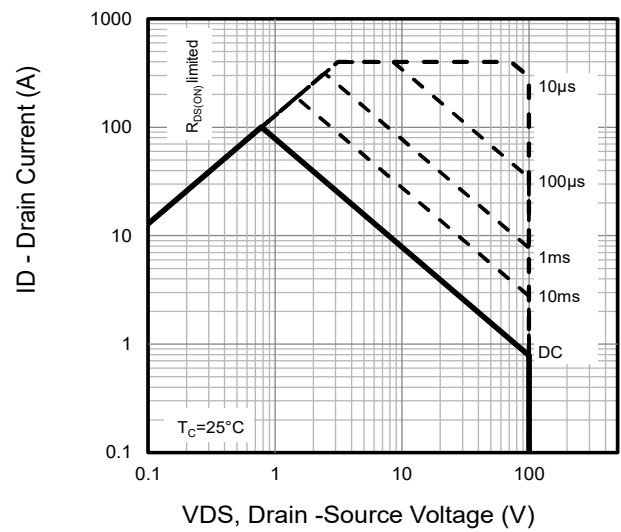
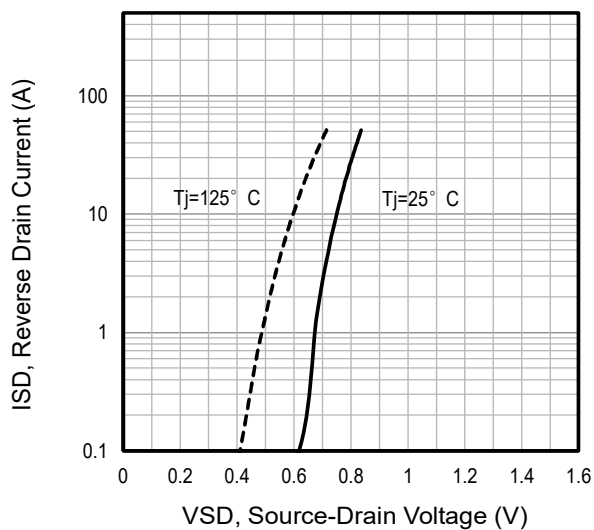


Fig6. Typical On Resistance Vs Drain Current



Test Circuits and Waveforms

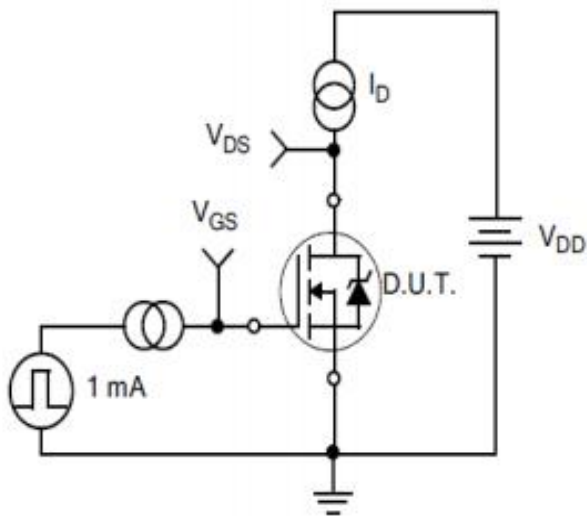


Figure A.
Gate Charge Test Circuit

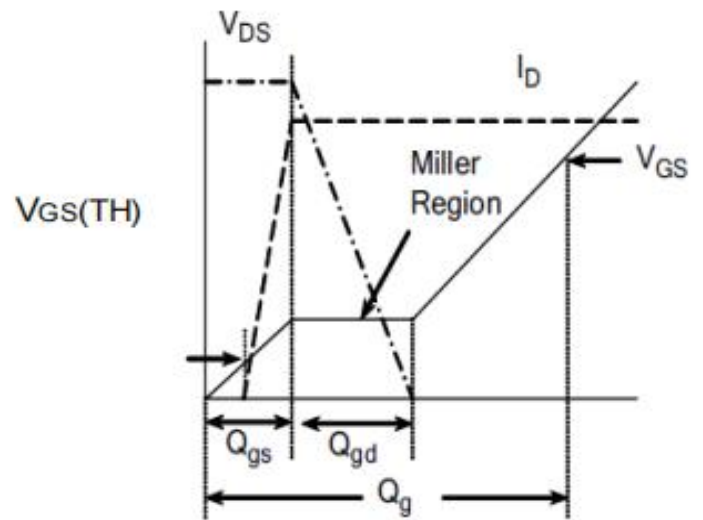


Figure B.
Gate Charge Waveform

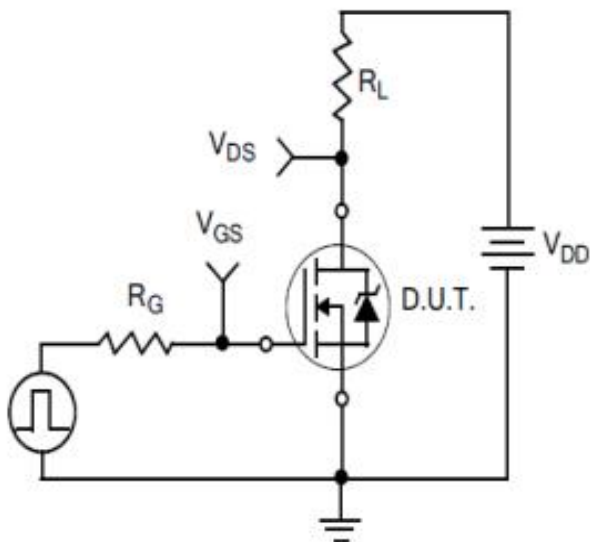


Figure C.
Resistive Switching Test Circuit

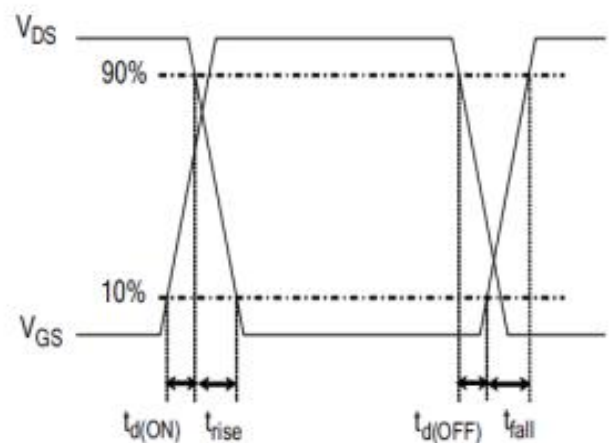
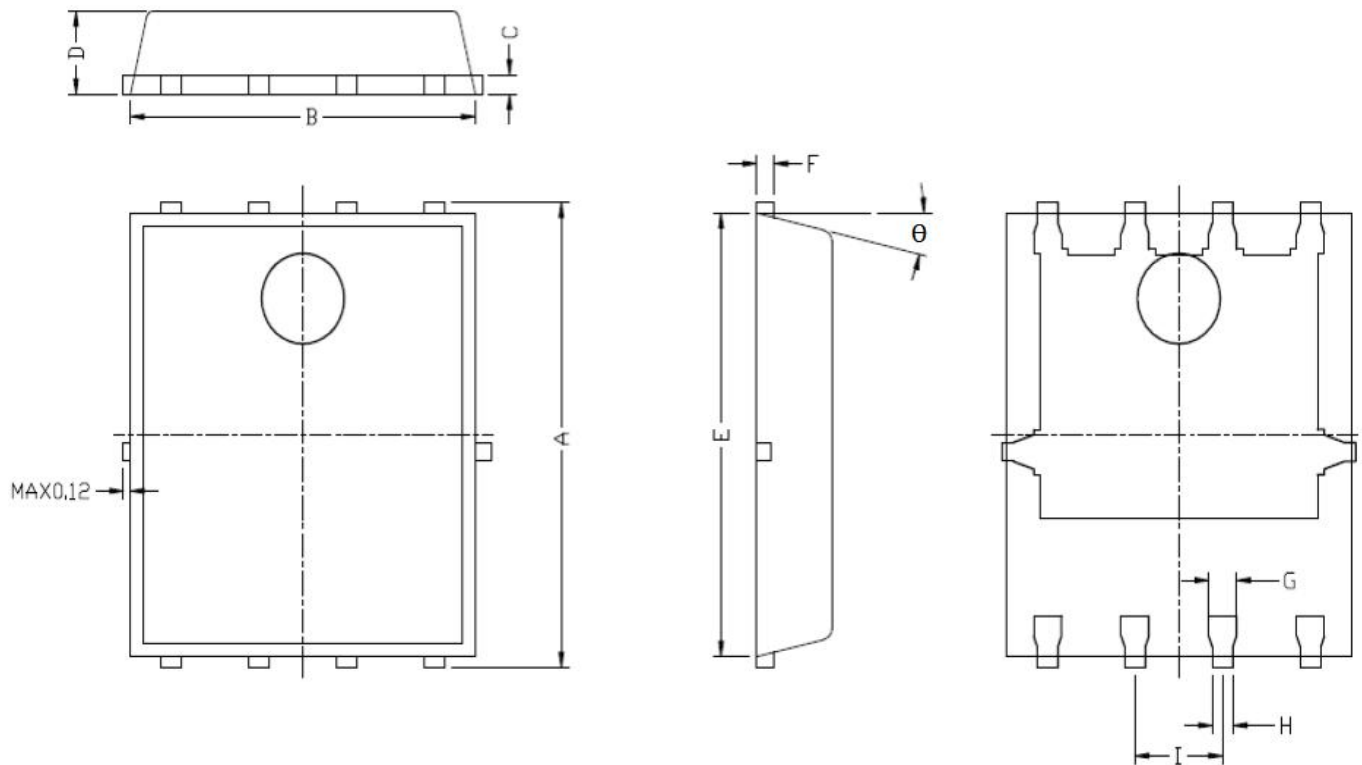


Figure D.
Resistive Switching Waveforms

Package outline drawing (DFN5*6 Unit: mm)



Symbol	Unit: mm	
	Min	Max
A	5.9	6.25
B	4.8	5.025
C	0.2	0.3
D	0.9	1.125
E	5.674	5.885
F	0.2	0.3
G	0.3	0.51
H	0.2	0.4
I	1.26	1.28