

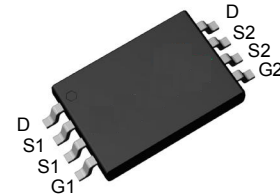
Features

- 20V/12A,
 $R_{DS(ON)} = 12.5m\Omega (typ.) @ V_{GS} = 4.5V$
 $R_{DS(ON)} = 16m\Omega (typ.) @ V_{GS} = 2.5V$
- 100% UIS Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)
- ESD protection

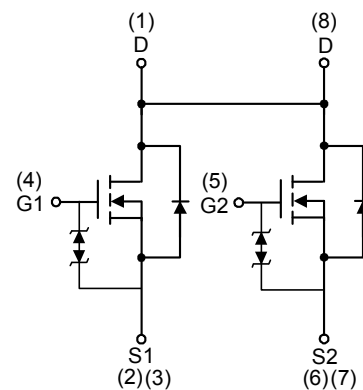
Applications

- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

Pin Description



Top View of TSSOP8



N-Channel MOSFET

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		± 12	
I_D	Continue Drain Current	$T_A = 25^\circ\text{C}$	12	A
		$T_A = 70^\circ\text{C}$	4.8	
I_{DM}	Pulsed Drain Current	$T_A = 25^\circ\text{C}$	36	
I_S	Diode continuous forward current		12	A
T_J	Maximum Junction Temperature		150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range		-55 to 150	
P_D	Maximum Power Dissipation	$T_A = 25^\circ\text{C}$	1.25	W
		$T_A = 70^\circ\text{C}$	0.8	
$R_{\theta JA}^*$	Thermal Resistance-Junction to Ambient		100	$^\circ\text{C/W}$

Note * : Surface Mounted on 1in^2 pad area, $t \leq 10\text{sec}$.

Electrical Characteristics (T_A = 25°C Unless Otherwise Noted)

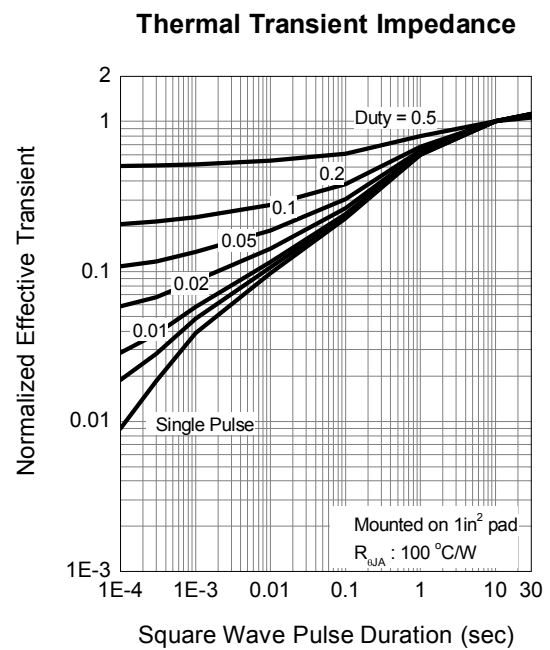
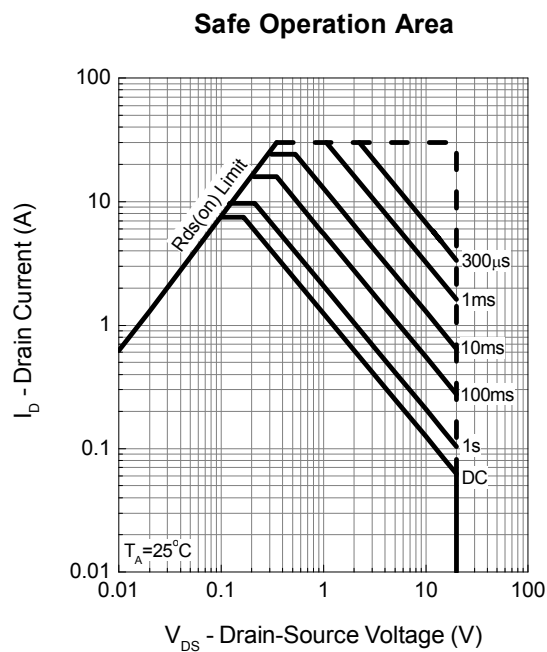
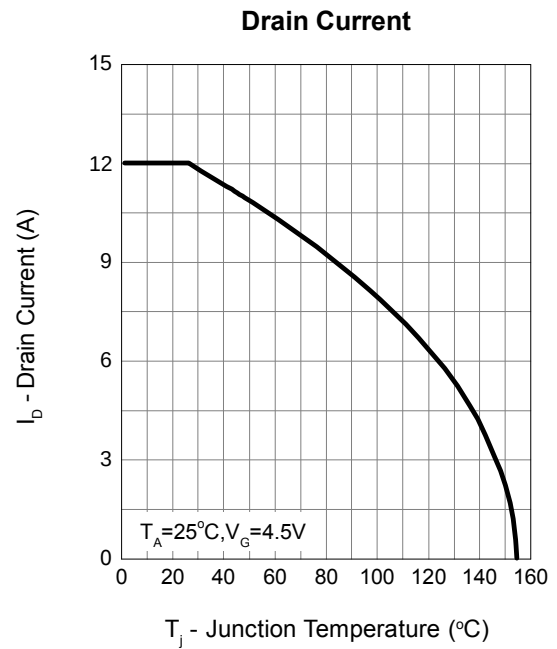
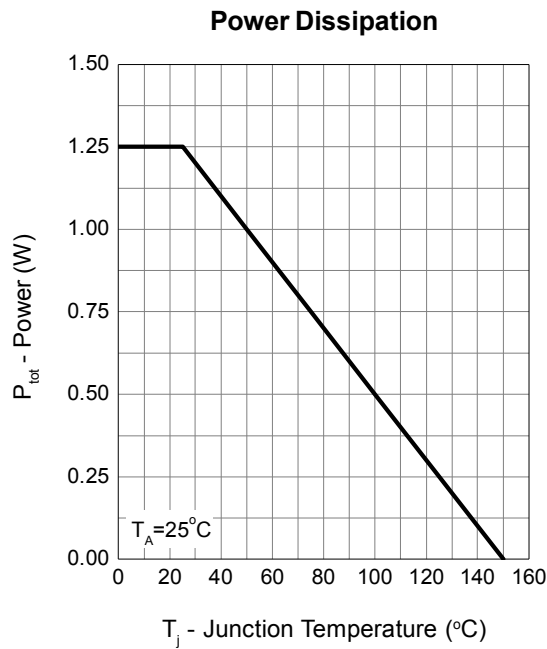
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =16V, V _{GS} =0V T _J =85°C	-	-	1 30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.5	0.7	1.1	V
I _{GSS}	Gate Leakage Current	V _{GS} =±10V, V _{DS} =0V	-	-	±10	uA
R _{DS(ON)} ^a	Drain-Source On-state Resistance	V _{GS} =4.5V, I _{DS} =4A V _{GS} =2.5V, I _{DS} =3A	-	12.5 16	14.5 19	mΩ
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} =1A, V _{GS} =0V	-	0.7	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =7.5A, dI _{SD} /dt=100A/μs	-	10	-	nS
Q _{rr}	Reverse Recovery Charge		-	3.5	-	nC
Dynamic Characteristics ^b						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	8	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =10V, Frequency=1.0MHz	-	713	-	pF
C _{oss}	Output Capacitance		-	118	-	
C _{rss}	Reverse Transfer Capacitance		-	96	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =10V, R _L =10Ω, I _{DS} =1A, V _{GEN} =4.5V, R _G =6Ω	-	9	16	ns
t _r	Turn-on Rise Time		-	13	23	
t _{d(OFF)}	Turn-off Delay Time		-	55	99	
t _f	Turn-off Fall Time		-	36	65	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{DS} =10V, V _{GS} =4.5V, I _{DS} =7.5A	-	9.8	12.8	nC
Q _{gs}	Gate-Source Charge		-	0.5	-	
Q _{gd}	Gate-Drain Charge		-	3.6	-	

Note a Pulse test ; pulse width≤300μs, duty cycle≤2%.

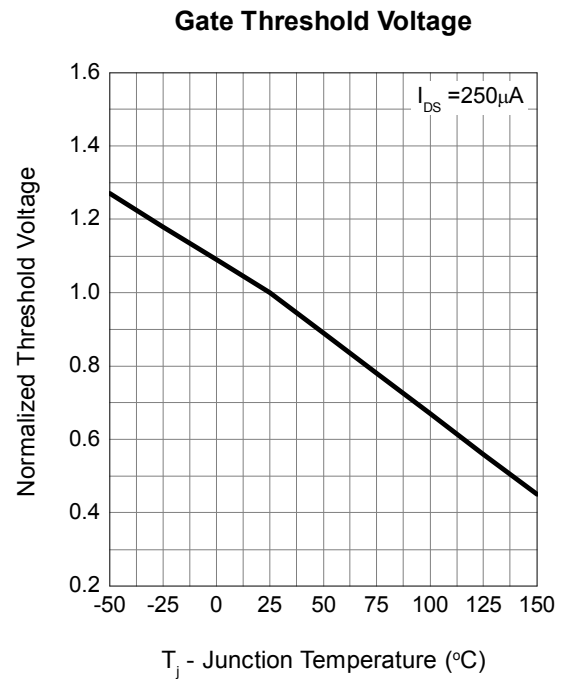
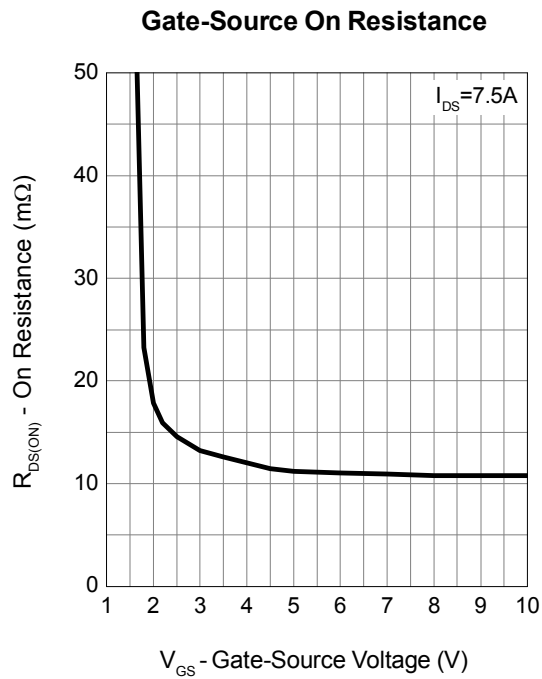
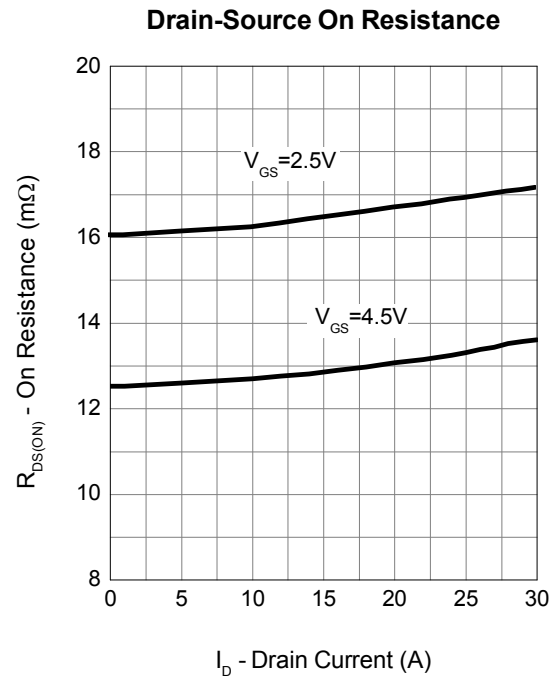
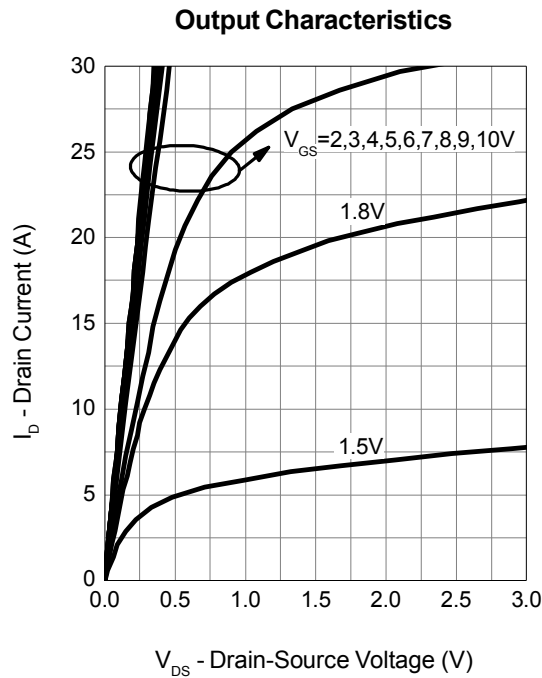
Note b Guaranteed by design, not subject to production testing.

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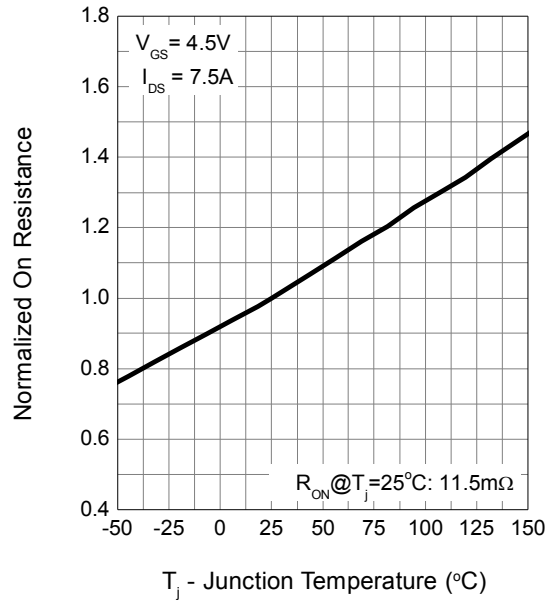
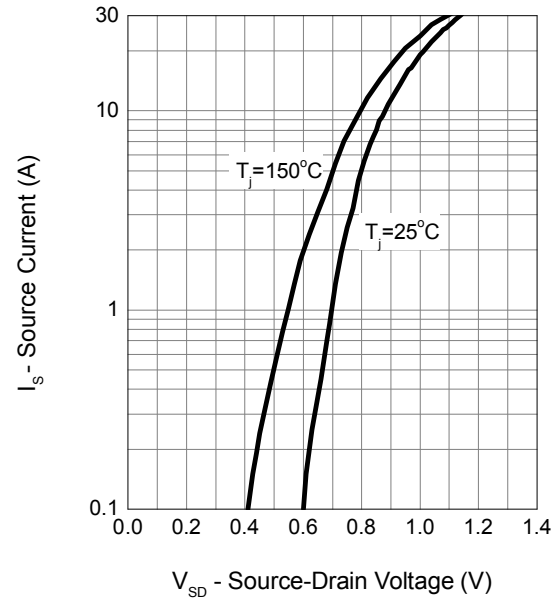
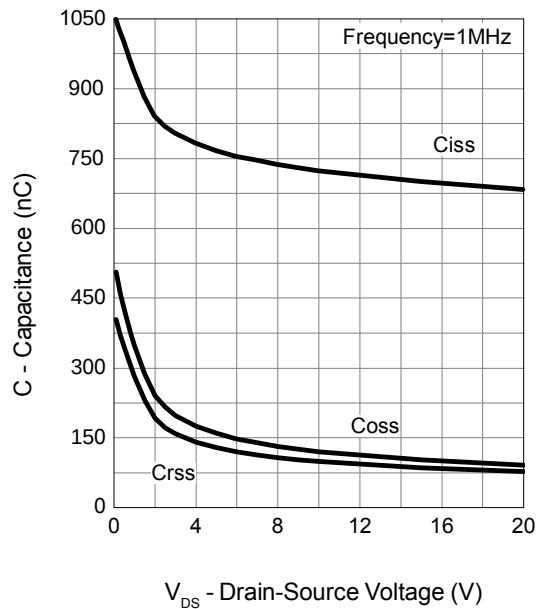
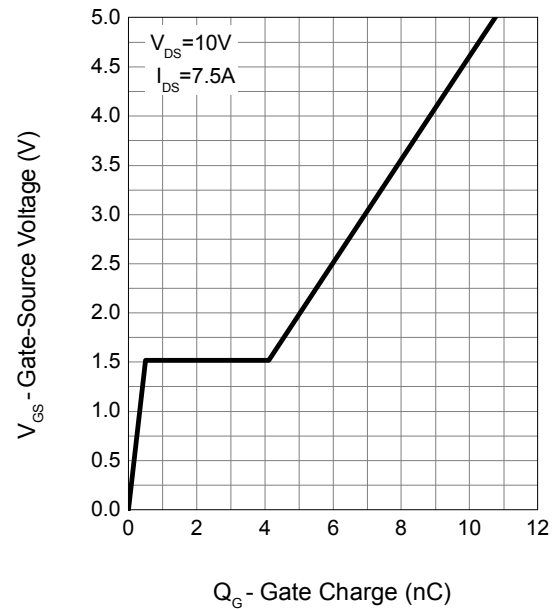
Typical Operating Characteristics



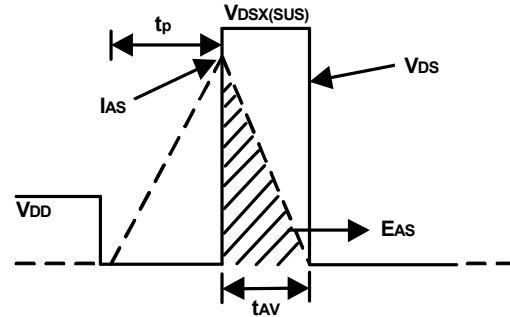
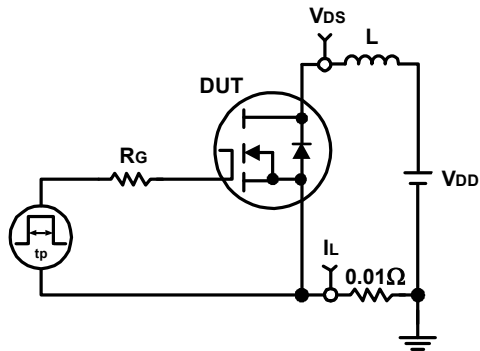
Typical Operating Characteristics (Cont.)



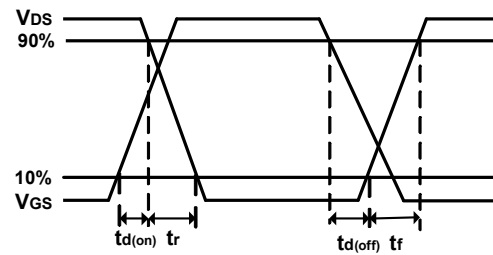
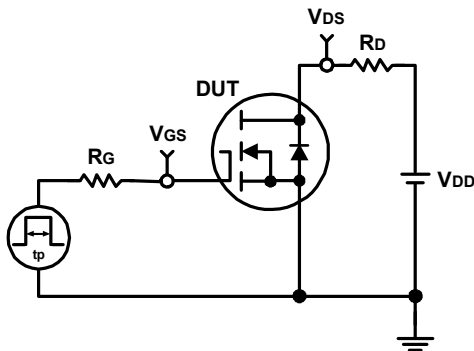
Typical Operating Characteristics (Cont.)

Drain-Source On Resistance

Source-Drain Diode Forward

Capacitance

Gate Charge


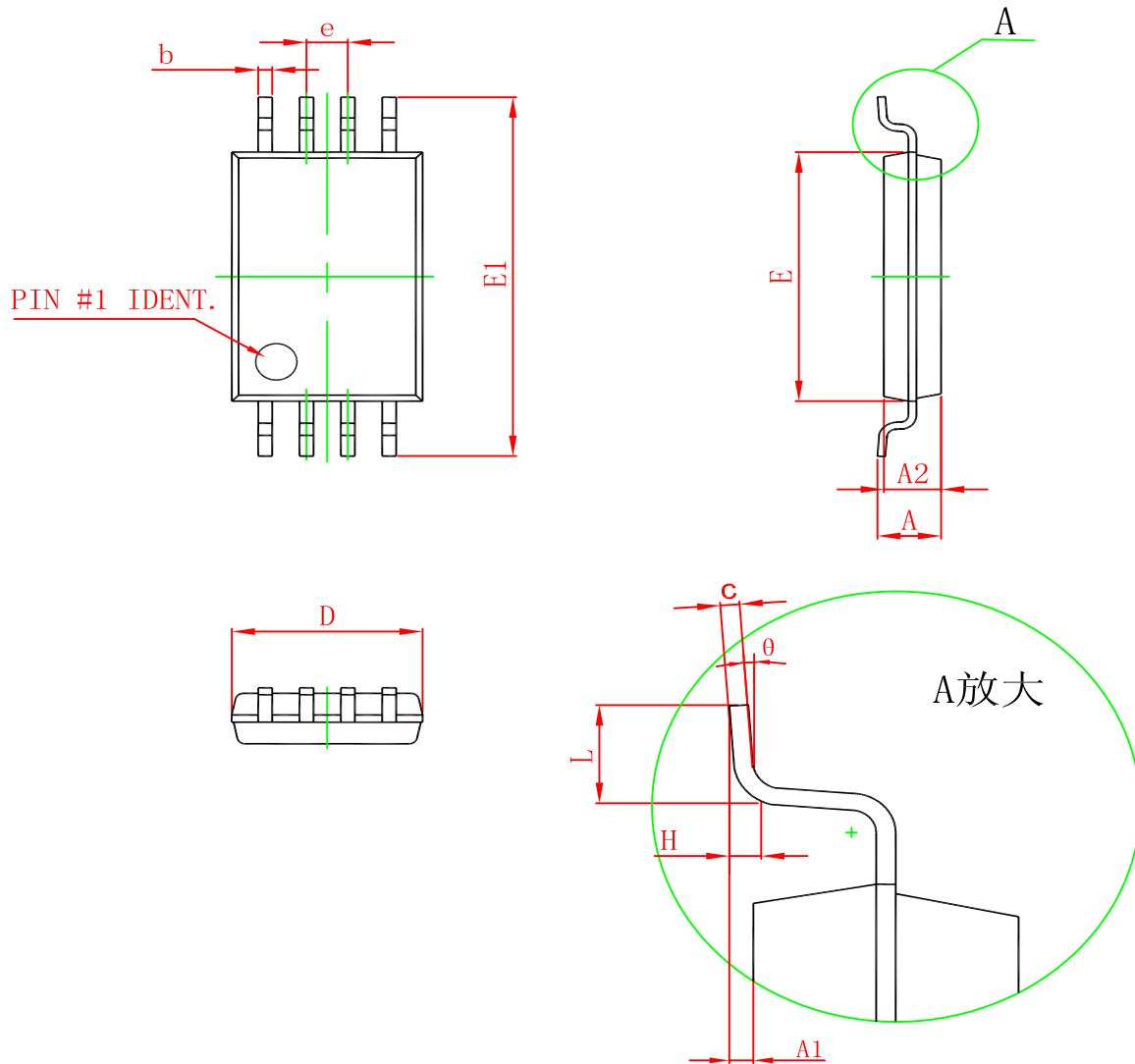
Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



TSSOP8 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A		1.100		0.043
A2	0.800	1.000	0.031	0.039
A1	0.020	0.150	0.001	0.006
e	0.65 (BSC)		0.026 (BSC)	
L	0.500	0.700	0.020	0.028
H	0.25 (TYP)		0.01 (TYP)	
θ	1°	7°	1°	7°