

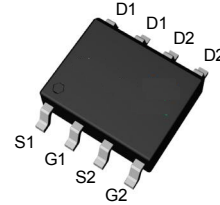
## Features

- 30V/8A,  
 $R_{DS(ON)} = 17m\Omega(\text{max.}) @ V_{GS} = 10V$   
 $R_{DS(ON)} = 24m\Omega(\text{max.}) @ V_{GS} = 4.5V$
- Reliable and Rugged
- Lead Free and Green Devices Available  
(RoHS Compliant)
- 100% UIS Tested

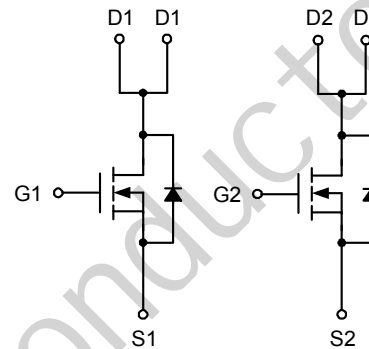
## Applications

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

## Pin Description



Top View of SOP-8



N-Channel MOSFET

## Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Rating	Unit
$V_{DSS}$	Drain-Source Voltage	30	V
$V_{GSS}$	Gate-Source Voltage	$\pm 20$	
$I_D^a$	Continuous Drain Current ( $V_{GS}=10V$ )	$T_A=25^\circ\text{C}$	8
		$T_A=70^\circ\text{C}$	6.5
$I_{DM}^a$	300 $\mu\text{s}$ Pulsed Drain Current ( $V_{GS}=10V$ )	40	A
$I_S^a$	Diode Continuous Forward Current	1	
$I_{AS}^b$	Avalanche Current (Single Pulse)	9	mJ
$E_{AS}^b$	Avalanche Energy, Single Pulse ( $L=0.5\text{mH}$ )	20	
$T_J$	Maximum Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to 150	
$P_D^a$	Maximum Power Dissipation	$T_A=25^\circ\text{C}$	1.7
		$T_A=70^\circ\text{C}$	1.08
$R_{\theta JA}^a$	Thermal Resistance-Junction to Ambient	$t \leq 10\text{s}$	48
		Steady State	74
$R_{\theta JL}$	Thermal Resistance-Junction to Lead	Steady State	32

Note a : Surface Mounted on  $1\text{in}^2$  pad area,  $t \leq 10\text{sec}$ . Maximum Power dissipation is calculated from  $R_{\theta JA}$  (worst) =  $62.5^\circ\text{C/W}$  under  $t \leq 10\text{s}$ .

Note b : UIS tested and pulse width limited by maximum junction temperature  $150^\circ\text{C}$  (initial temperature  $T_J=25^\circ\text{C}$ ).

### Electrical Characteristics (T<sub>A</sub> = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	4822			Unit
			Min.	Typ.	Max.	
<b>Static Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>DS</sub> =250μA	30	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V	-	-	1	μA
		T <sub>J</sub> =85°C	-	-	30	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =250μA	1.0	1.5	1.9	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
R <sub>DS(ON)</sub> <sup>a</sup>	Drain-Source On-state Resistance	V <sub>GS</sub> =10V, I <sub>DS</sub> =8A	-	17.5	27	mΩ
		V <sub>GS</sub> =4.5V, I <sub>DS</sub> =7A	-	23	30	
		V <sub>GS</sub> =2.5V, I <sub>DS</sub> =7A	-	35	45	
Gfs	Forward Transconductance	V <sub>DS</sub> =5V, I <sub>DS</sub> =8A	-	32	-	S
<b>Diode Characteristics</b>						
V <sub>SD</sub> <sup>a</sup>	Diode Forward Voltage	I <sub>SD</sub> =1A, V <sub>GS</sub> =0V	-	0.7	1.1	V
t <sub>rr</sub> <sup>b</sup>	Reverse Recovery Time	I <sub>SD</sub> =8A, dI <sub>SD</sub> /dt=100A/μs	-	15.5	-	ns
Q <sub>rr</sub> <sup>b</sup>	Reverse Recovery Charge		-	6.5	-	nC

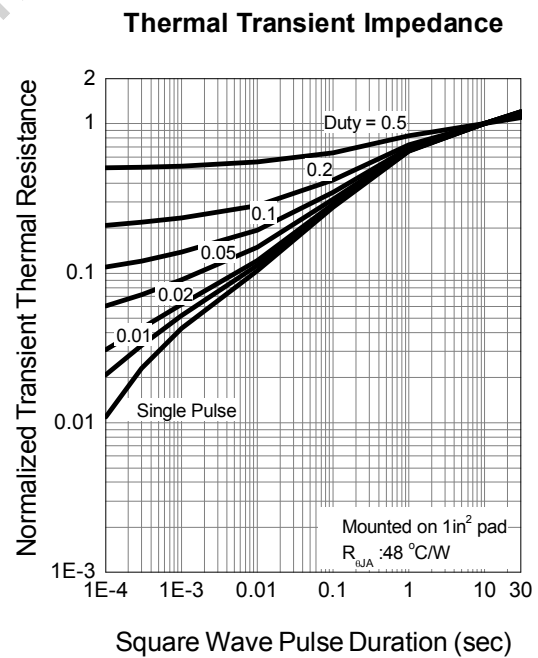
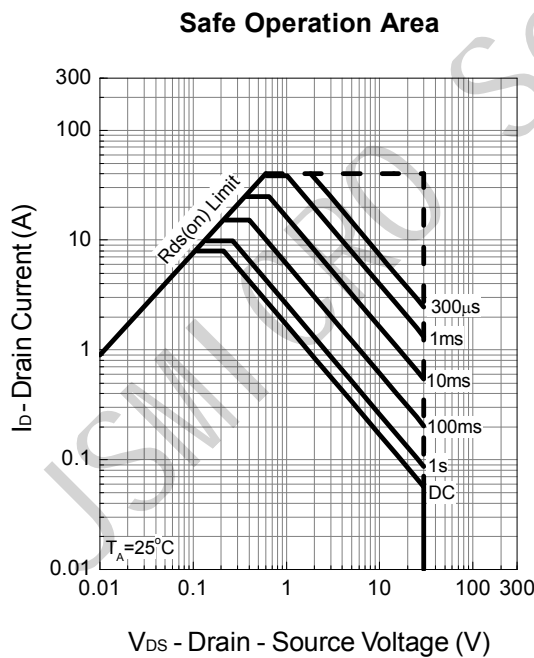
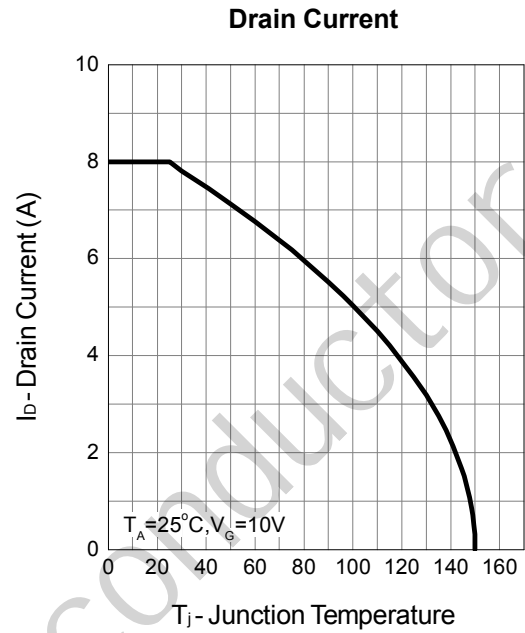
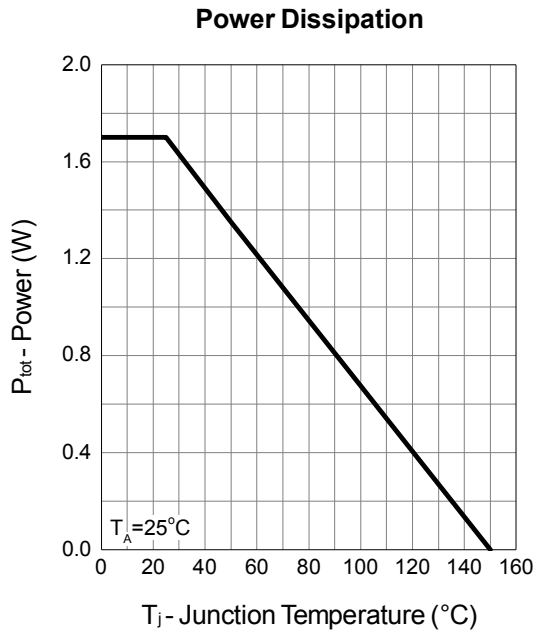
### Electrical Characteristics (Cont.) (T<sub>A</sub> = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	4822			Unit
			Min.	Typ.	Max.	
<b>Dynamic Characteristics<sup>b</sup></b>						
R <sub>G</sub>	Gate Resistance	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, F=1MHz	1.3	1.7	2.3	Ω
C <sub>iSS</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, Frequency=1.0MHz	-	780	-	pF
C <sub>oss</sub>	Output Capacitance		-	95	-	
C <sub>rSS</sub>	Reverse Transfer Capacitance		-	57	-	
t <sub>d(ON)</sub>	Turn-on Delay Time	V <sub>DD</sub> =15V, R <sub>L</sub> =15Ω, I <sub>DS</sub> =1A, V <sub>GEN</sub> =10V, R <sub>G</sub> =6Ω	-	5.9	10	ns
t <sub>r</sub>	Turn-on Rise Time		-	10	17	
t <sub>d(OFF)</sub>	Turn-off Delay Time		-	17	35	
t <sub>f</sub>	Turn-off Fall Time		-	4	9	
<b>Gate Charge Characteristics<sup>b</sup></b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V, V <sub>GS</sub> =10V, I <sub>DS</sub> =8A	-	10.2	14	nC
	Total Gate Charge		-	5.3	-	
Q <sub>gth</sub>	Threshold Gate Charge	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>DS</sub> =8A	-	0.78	-	
Q <sub>gs</sub>	Gate-Source Charge		-	1.7	-	
Q <sub>gd</sub>	Gate-Drain Charge		-	2.2	-	

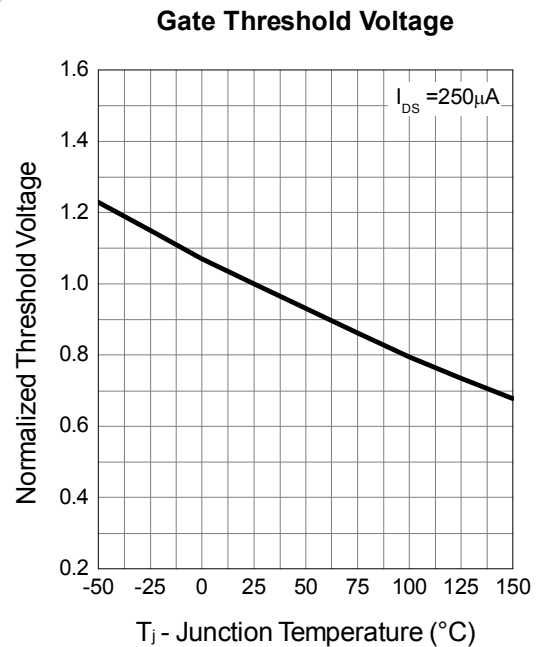
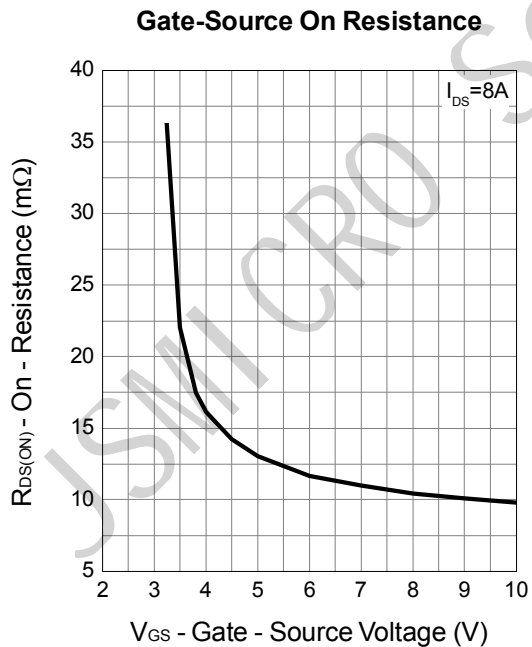
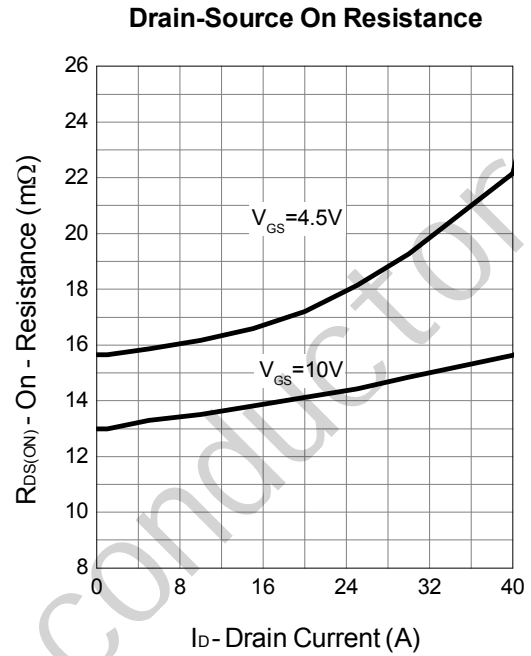
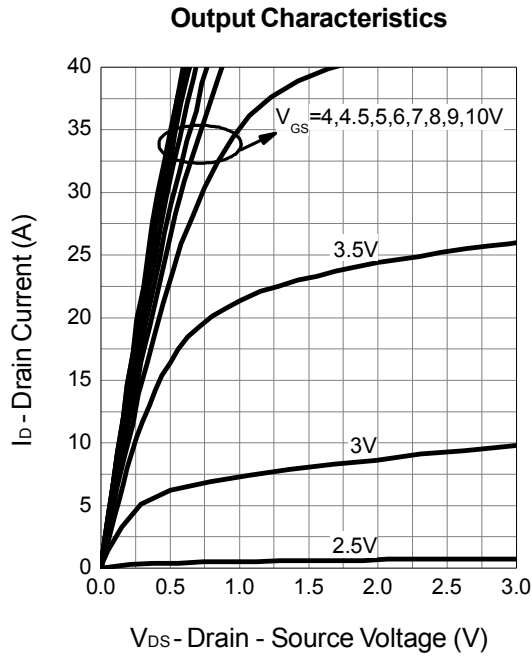
Note a : Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2%.

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

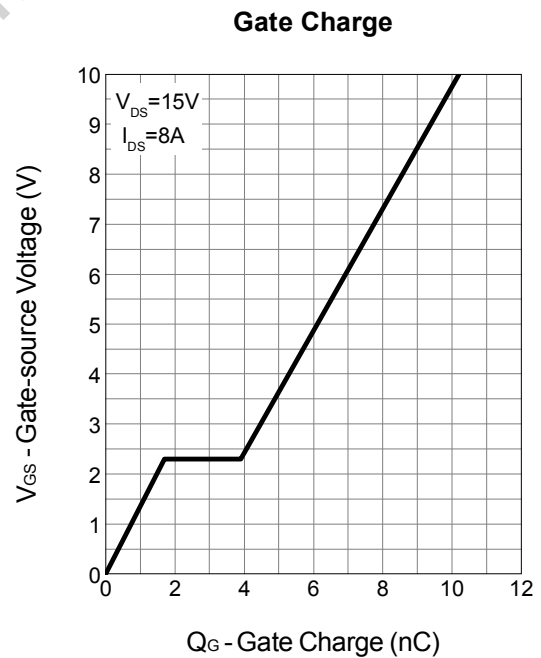
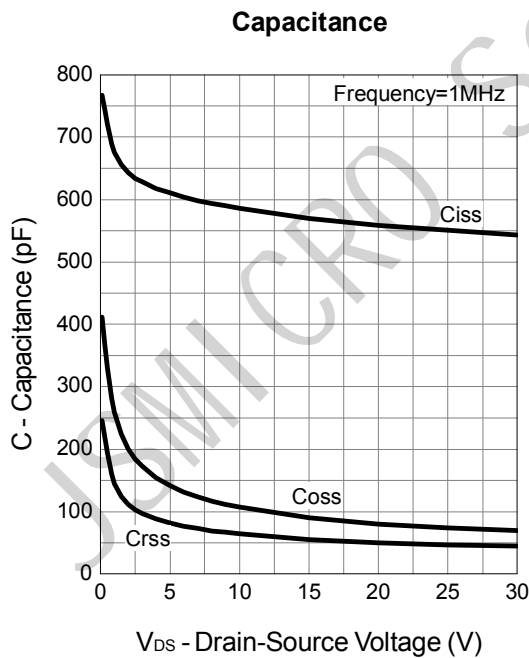
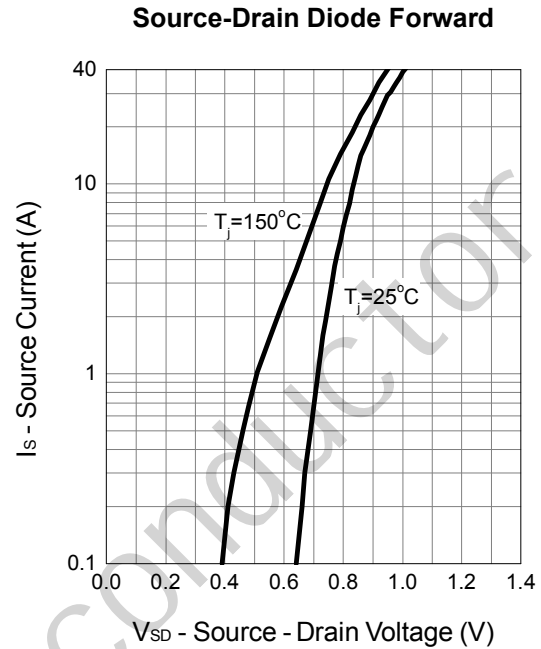
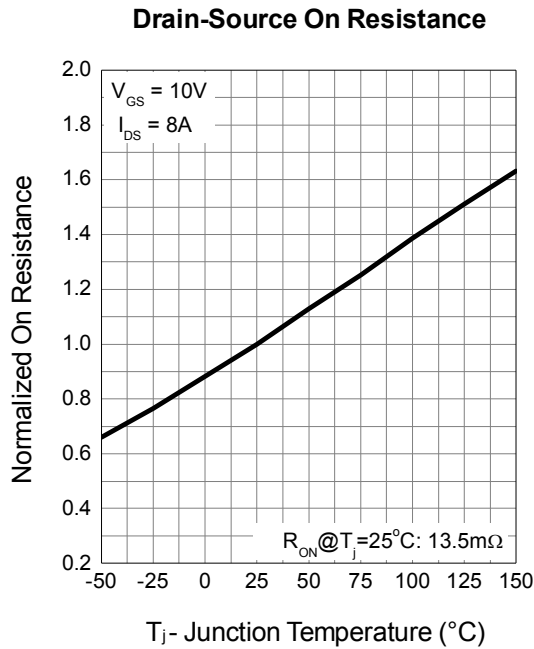
### Typical Operating Characteristics



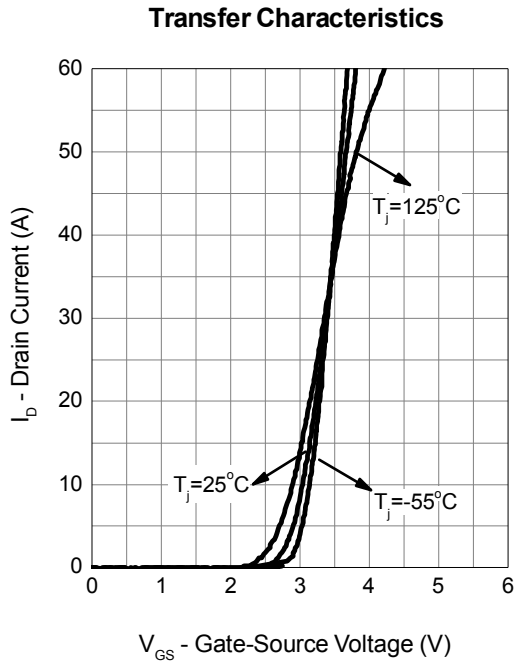
### Typical Operating Characteristics (Cont.)



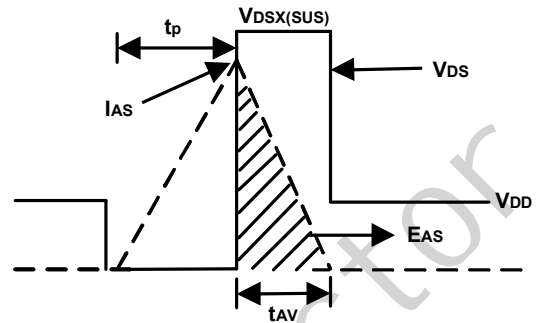
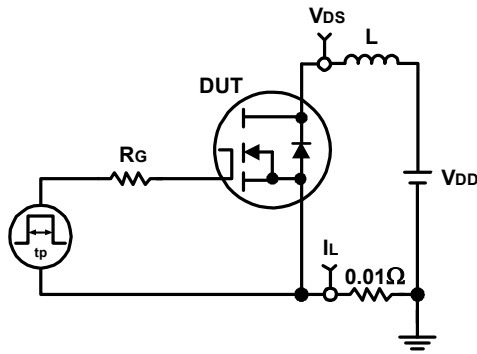
## Typical Operating Characteristics (Cont.)



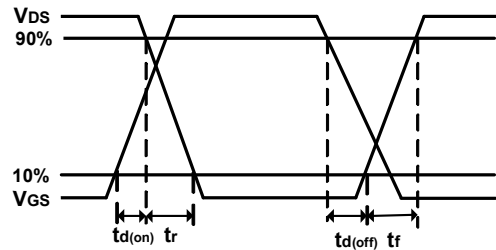
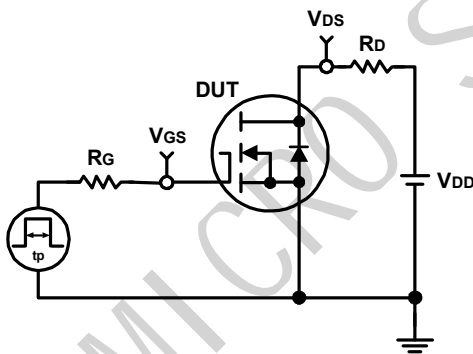
### Typical Operating Characteristics (Cont.)



### Avalanche Test Circuit and Waveforms

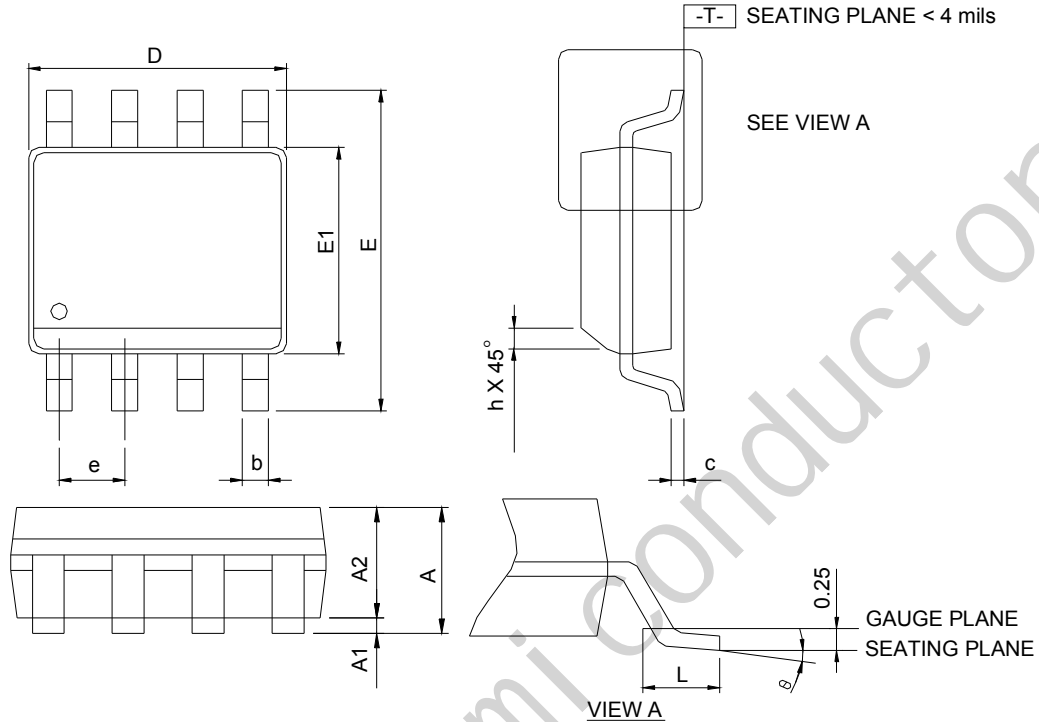


### Switching Time Test Circuit and Waveforms



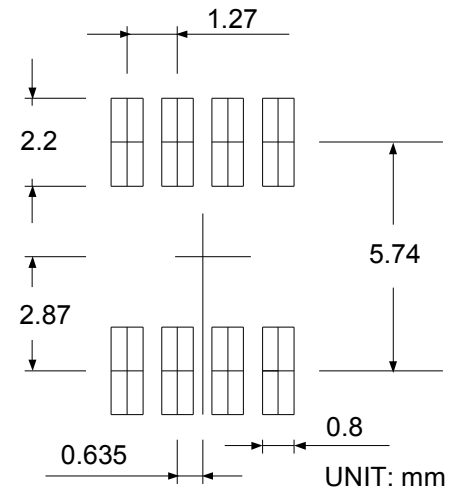
## Package Information

### SOP-8



DIMENSIONS	SOP-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	-	1.75	-	0.069
A1	0.10	0.25	0.004	0.010
A2	1.25	-	0.049	-
b	0.31	0.51	0.012	0.020
c	0.17	0.25	0.007	0.010
D	4.80	5.00	0.189	0.197
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
h	0.25	0.50	0.010	0.020
L	0.40	1.27	0.016	0.050
θ	0°	8°	0°	8°

### RECOMMENDED LAND PATTERN



- Note: 1. Follow JEDEC MS-012 AA.  
 2. Dimension "D" does not include mold flash, protrusions or gate burrs. Mold flash, protrusion or gate burrs shall not exceed 6 mil per side.  
 3. Dimension "E" does not include inter-lead flash or protrusions. Inter-lead flash and protrusions shall not exceed 10 mil per side.



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