

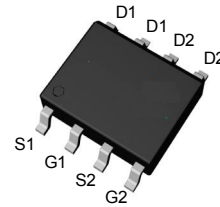
## Features

- 30V/8A,  
 $R_{DS(ON)} = 23m\Omega(\text{max.}) @ V_{GS} = 10V$   
 $R_{DS(ON)} = 27m\Omega(\text{max.}) @ V_{GS} = 4.5V$   
 $R_{DS(ON)} = 45m\Omega(\text{max.}) @ V_{GS} = 2.5V$
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)
- 100% UIS Tested

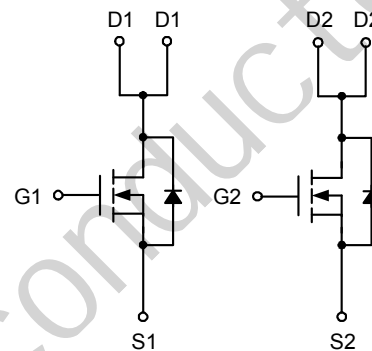
## Applications

- 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<sub>A</sub> = 25°C Unless Otherwise Noted)

Symbol	Parameter	Rating	Unit
V <sub>DSS</sub>	Drain-Source Voltage	30	V
V <sub>GSS</sub>	Gate-Source Voltage	±12	
I <sub>D</sub> <sup>a</sup>	Continuous Drain Current (V <sub>GS</sub> =10V)	T <sub>A</sub> =25°C	8
		T <sub>A</sub> =70°C	6.5
I <sub>DM</sub> <sup>a</sup>	300μs Pulsed Drain Current (V <sub>GS</sub> =10V)	40	A
I <sub>S</sub> <sup>a</sup>	Diode Continuous Forward Current	1	
I <sub>AS</sub> <sup>b</sup>	Avalanche Current (Single Pulse)	9	
E <sub>AS</sub> <sup>b</sup>	Avalanche Energy, Single Pulse (L=0.5mH)	20	mJ
T <sub>J</sub>	Maximum Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	
P <sub>D</sub> <sup>a</sup>	Maximum Power Dissipation	T <sub>A</sub> =25°C	1.7
		T <sub>A</sub> =70°C	1.08
R <sub>θJA</sub> <sup>a</sup>	Thermal Resistance-Junction to Ambient	t ≤ 10s	48
		Steady State	74
R <sub>θJL</sub>	Thermal Resistance-Junction to Lead	Steady State	32

Note a : Surface Mounted on 1in<sup>2</sup> pad area, t ≤ 10sec. Maximum Power dissipation is calculated from R<sub>θJA</sub> (worst) = 62.5 °C/W under t ≤ 10s.

Note b : UIS tested and pulse width limited by maximum junction temperature 150°C (initial temperature T<sub>J</sub>=25°C).

**Electrical Characteristics** ( $T_A = 25^\circ\text{C}$  Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	4800			Unit
			Min.	Typ.	Max.	
<b>Static Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	30	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=24V, V_{GS}=0V$	-	-	1	$\mu A$
		$T_J=85^\circ C$	-	-	30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	0.6	0.9	1.5	V
$I_{GSS}$	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
$R_{DS(ON)}^a$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=8A$	-	23	28	m $\Omega$
		$V_{GS}=4.5V, I_{DS}=7A$	-	27	37	
		$V_{GS}=2.5V, I_{DS}=7A$	-	35	45	
Gfs	Forward Transconductance	$V_{DS}=5V, I_{DS}=8A$	-	32	-	S
<b>Diode Characteristics</b>						
$V_{SD}^a$	Diode Forward Voltage	$I_{SD}=1A, V_{GS}=0V$	-	0.7	1.1	V
$t_{rr}^b$	Reverse Recovery Time	$I_{SD}=8A, dI_{SD}/dt=100A/\mu s$	-	15.5	-	ns
$Q_{rr}^b$	Reverse Recovery Charge		-	6.5	-	nC

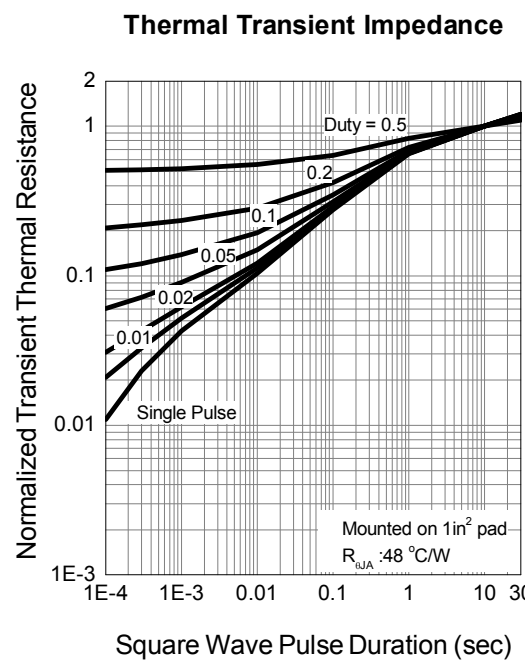
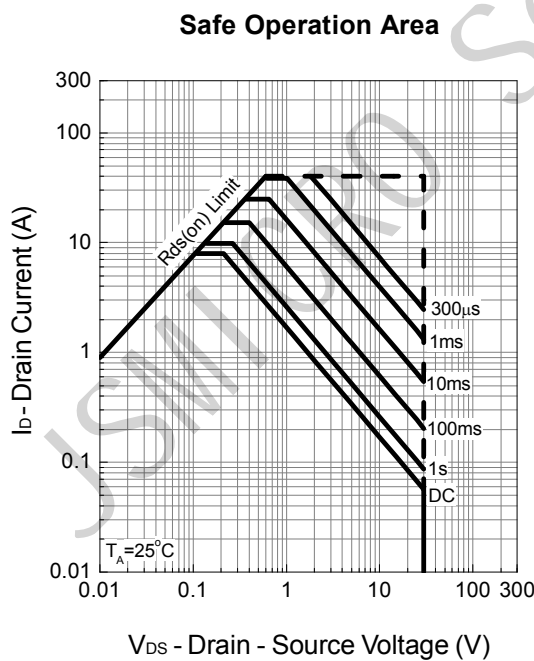
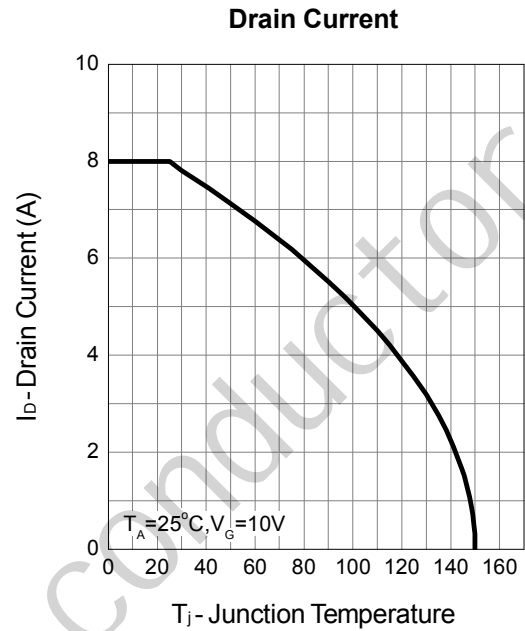
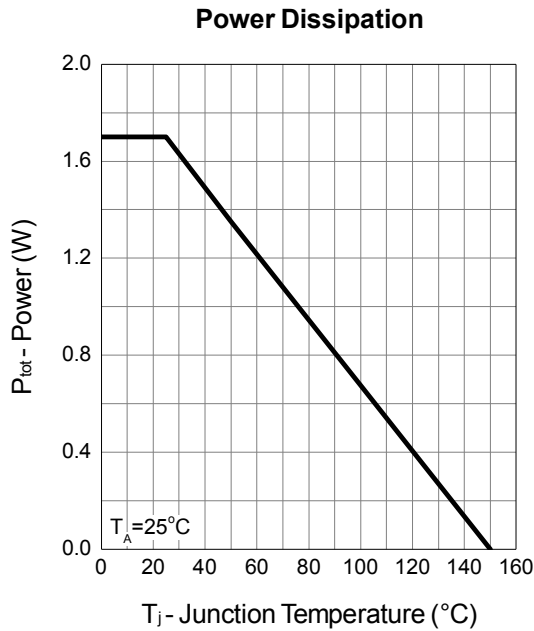
**Electrical Characteristics (Cont.)** ( $T_A = 25^\circ\text{C}$  Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	4800			Unit
			Min.	Typ.	Max.	
<b>Dynamic Characteristics<sup>b</sup></b>						
$R_G$	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	1.3	1.7	2.3	$\Omega$
$C_{iss}$	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=15V,$ Frequency=1.0MHz	-	580	-	pF
$C_{oss}$	Output Capacitance		-	95	-	
$C_{rss}$	Reverse Transfer Capacitance		-	57	-	
$t_{d(ON)}$	Turn-on Delay Time		-	5.9	10	
$t_r$	Turn-on Rise Time	$V_{DD}=15V, R_L=15\Omega,$ $I_{DS}=1A, V_{GEN}=10V,$ $R_G=6\Omega$	-	10	17	
$t_{d(OFF)}$	Turn-off Delay Time	-	17	35		
$t_f$	Turn-off Fall Time	-	4	9		
<b>Gate Charge Characteristics<sup>b</sup></b>						
$Q_g$	Total Gate Charge	$V_{DS}=15V, V_{GS}=10V,$ $I_{DS}=8A$	-	10.2	14	nC
	Total Gate Charge		-	5.3	-	
$Q_{gth}$	Threshold Gate Charge	$V_{DS}=15V, V_{GS}=4.5V,$ $I_{DS}=8A$	-	0.78	-	
$Q_{gs}$	Gate-Source Charge		-	1.7	-	
$Q_{gd}$	Gate-Drain Charge		-	2.2	-	

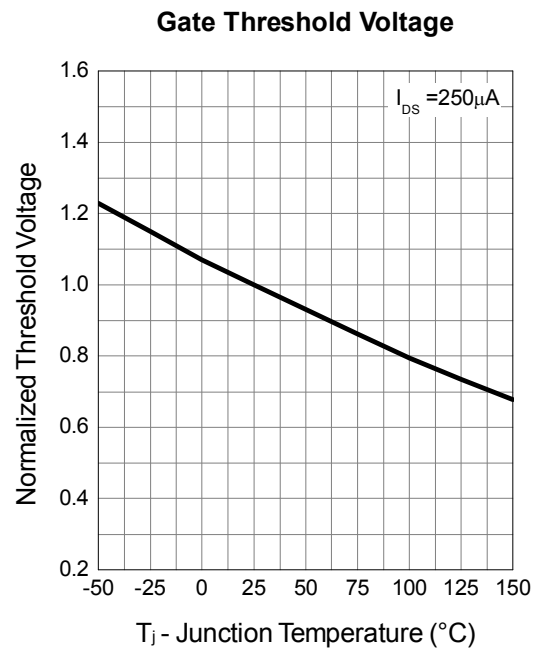
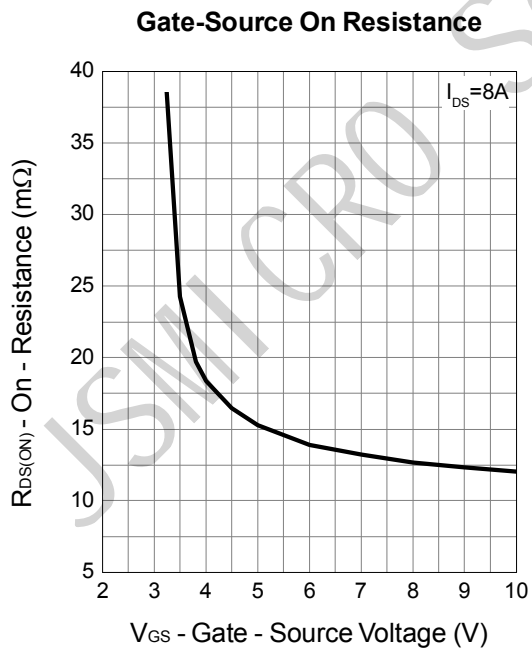
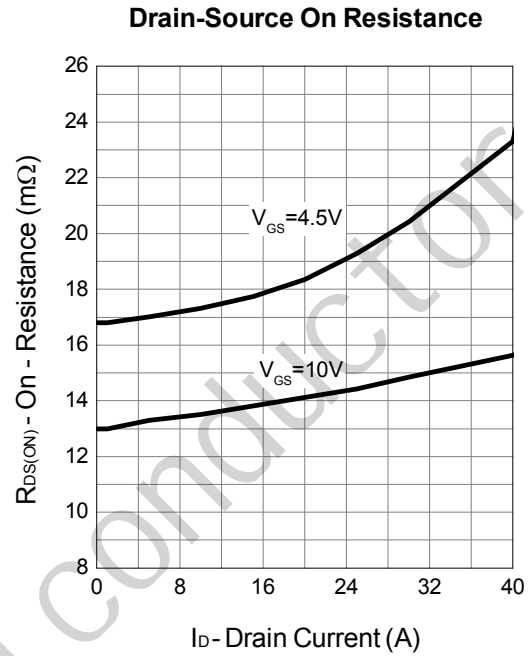
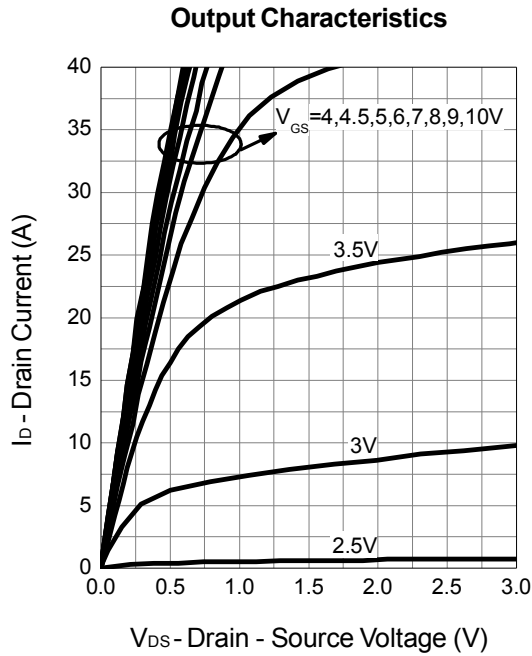
Note a : Pulse test ; pulse width  $\leq 300 \mu s$ , duty cycle  $\leq 2\%$ .

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

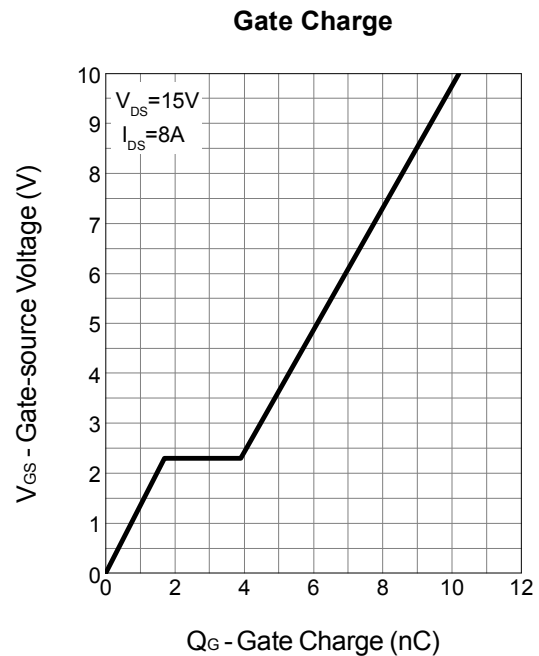
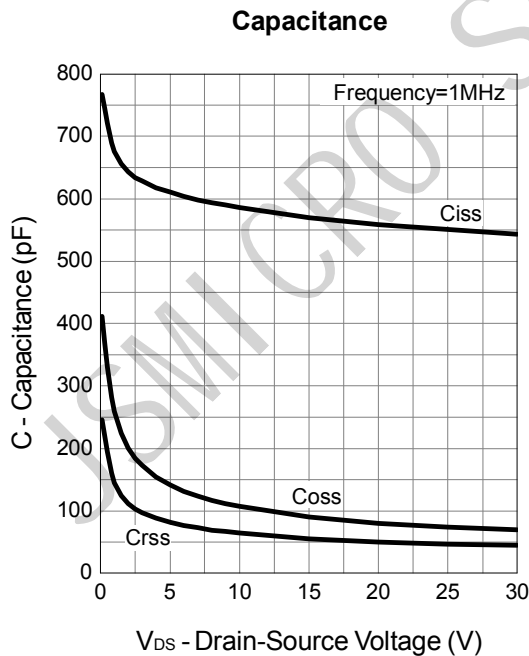
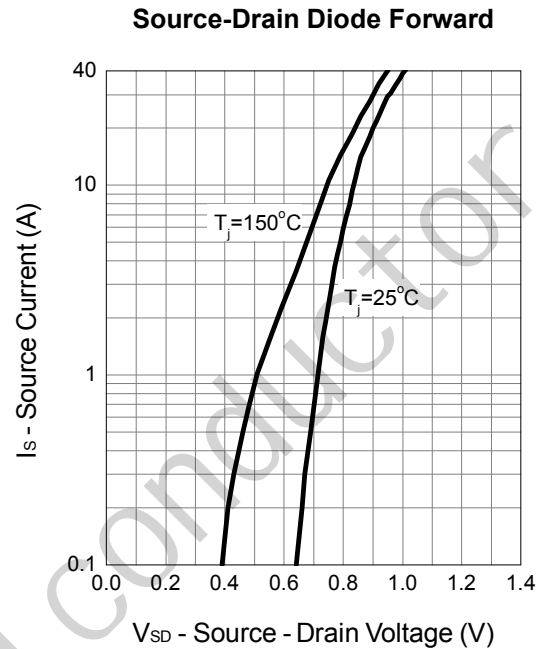
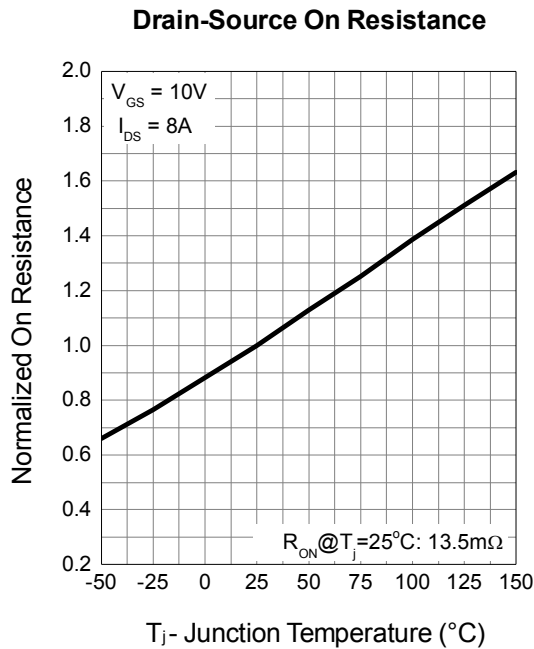
### Typical Operating Characteristics



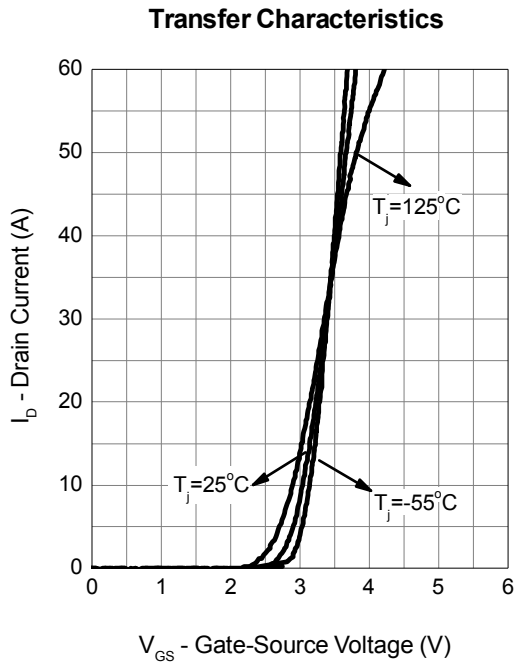
### Typical Operating Characteristics (Cont.)



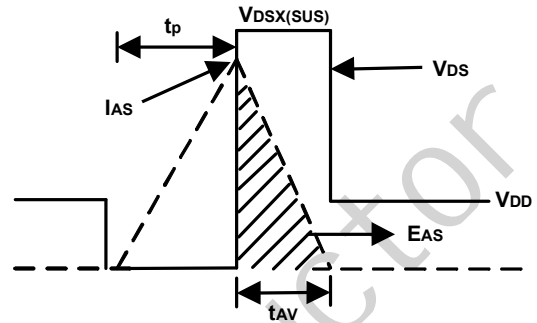
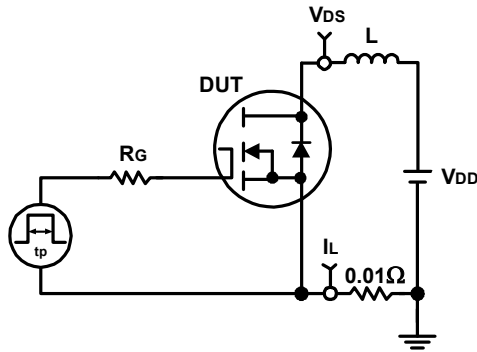
## Typical Operating Characteristics (Cont.)



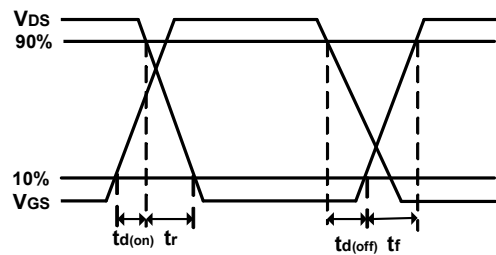
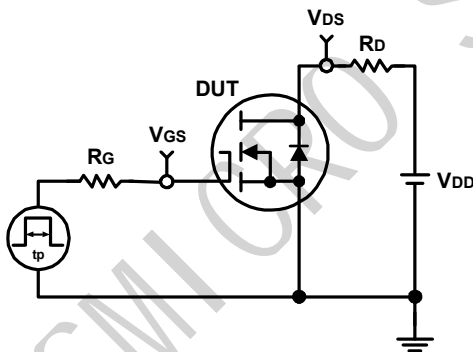
### Typical Operating Characteristics (Cont.)



### Avalanche Test Circuit and Waveforms

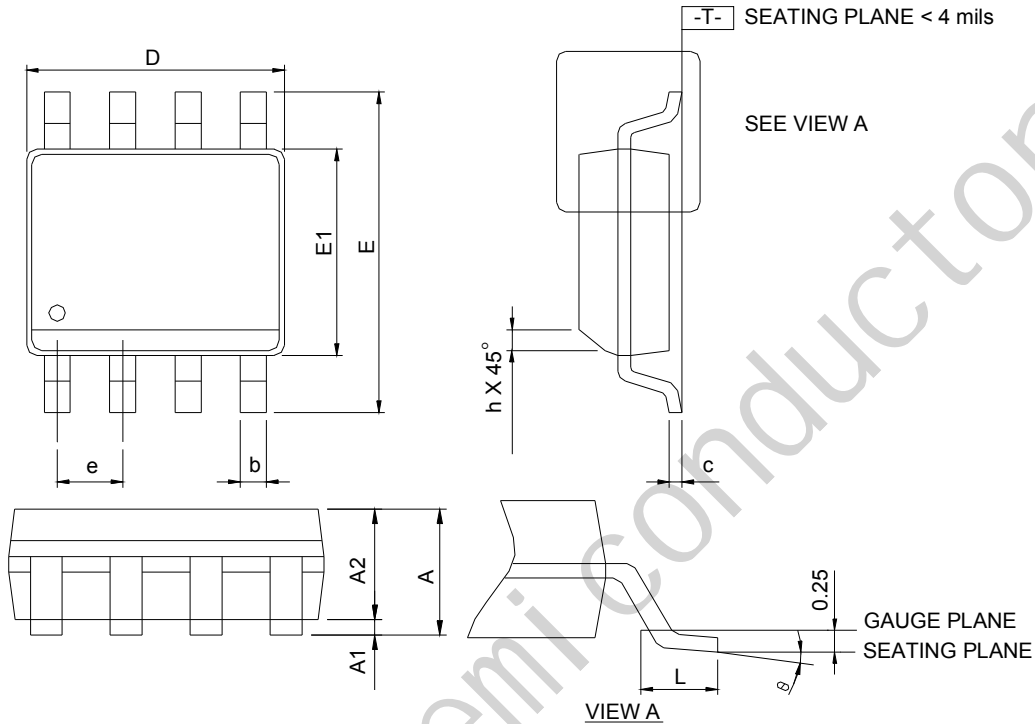


### Switching Time Test Circuit and Waveforms



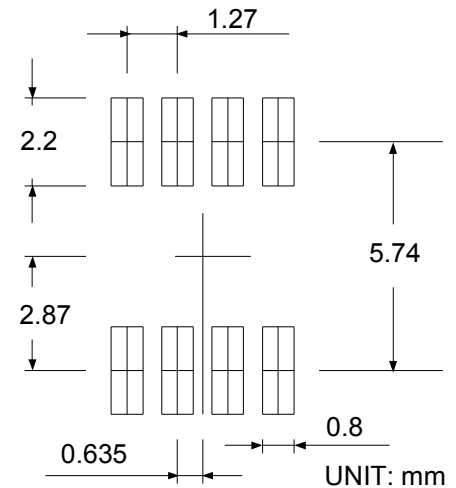
## Package Information

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.

- Dimension "D" does not include mold flash, protrusions or gate burrs. Mold flash, protrusion or gate burrs shall not exceed 6 mil per side.
- 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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