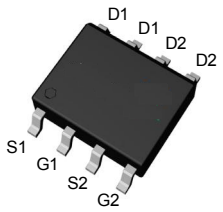
Features

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

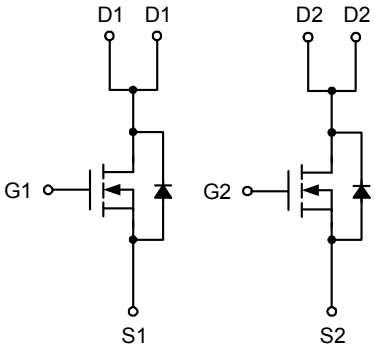
Applications

- 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°C Unless Otherwise Noted)

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

Note a：Surface Mounted on 1in^2 pad area, t ≤ 10sec. Maximum Power dissipation is calculated from $R_{\theta JA}$ (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_j=25°C).

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

Symbol	Parameter	Test Conditions	4822 Min.	4822 Typ.	4822 Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=24V, V_{GS}=0V	-	-	1	μA
		T_J=85°C	-	-	30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250μA	1.0	1.5	1.9	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
$R_{DS(ON)}$[a]	Drain-Source On-state Resistance	V_{GS}=10V, I_{DS}=8A	-	17.5	27	mΩ
		V_{GS}=4.5V, I_{DS}=7A	-	23	30	
		V_{GS}=2.5V, I_{DS}=7A	-	35	45	
Gfs	Forward Transconductance	V_{DS}=5V, I_{DS}=8A	-	32	-	S
Diode Characteristics						
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/μs	-	15.5	-	ns
Q_{rr}[b]	Reverse Recovery Charge		-	6.5	-	nC

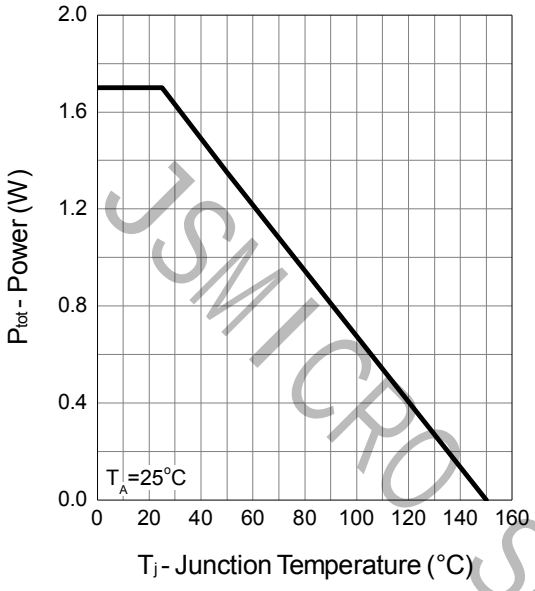
Electrical Characteristics (Cont.) (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	4822			Unit
			Min.	Typ.	Max.	
Dynamic Characteristics [b]						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz	1.3	1.7	2.3	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, Frequency=1.0MHz	-	780	-	pF
C_{oss}	Output Capacitance		-	95	-	
C_{rss}	Reverse Transfer Capacitance		-	57	-	
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=15V, R_L=15Ω, I_{DS}=1A, V_{GEN}=10V, R_G=6Ω	-	5.9	10	ns
t_r	Turn-on Rise Time		-	10	17	
$t_{d(OFF)}$	Turn-off Delay Time		-	17	35	
t_f	Turn-off Fall Time		-	4	9	
Gate Charge Characteristics [b]						
Q_g	Total Gate Charge	V_{DS}=15V, V_{GS}=10V, I_{DS}=8A	-	10.2	14	nC
	Total Gate Charge	V_{DS}=15V, V_{GS}=4.5V, I_{DS}=8A	-	5.3	-	
Q_{gth}	Threshold Gate Charge		-	0.78	-	
Q_{gs}	Gate-Source Charge		-	1.7	-	
Q_{gd}	Gate-Drain Charge		-	2.2	-	

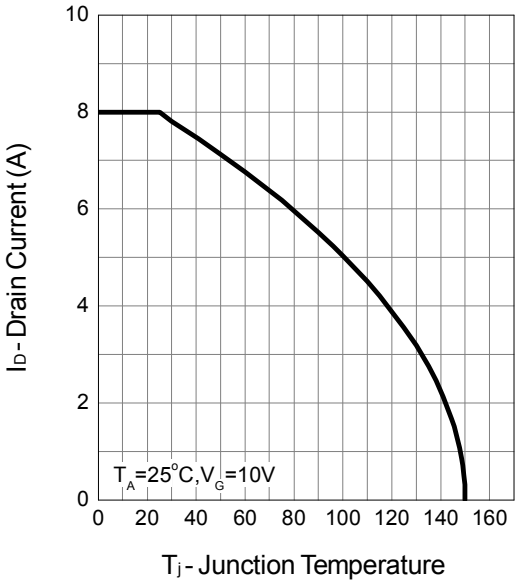
Note a : Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2%.
Note b : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

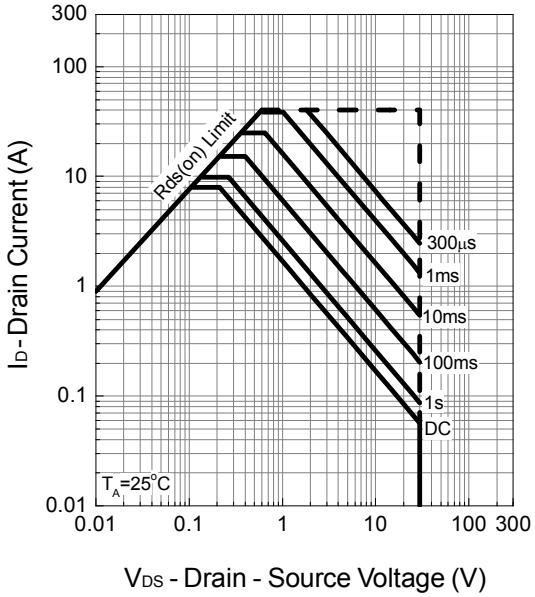
Power Dissipation



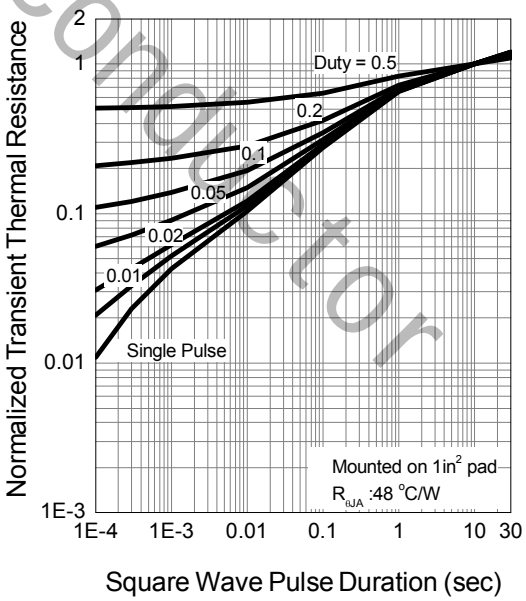
Drain Current



Safe Operation Area

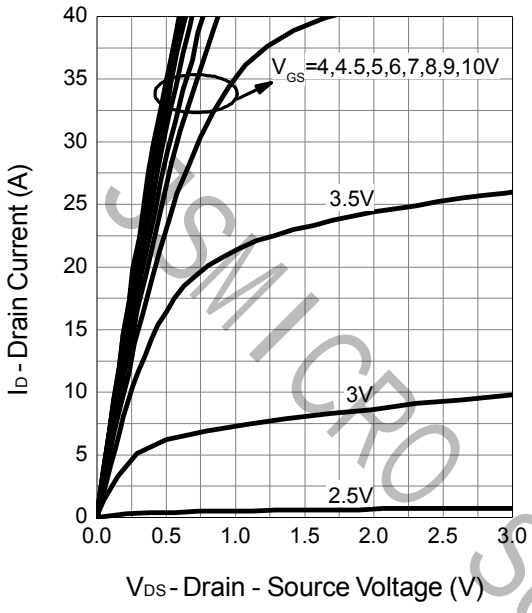


Thermal Transient Impedance

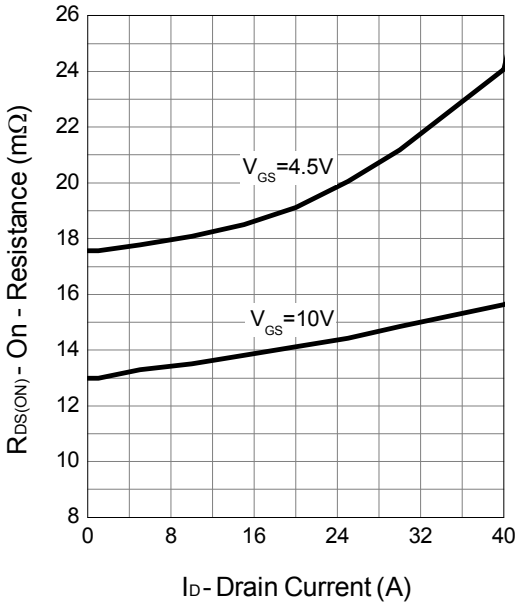


Typical Operating Characteristics (Cont.)

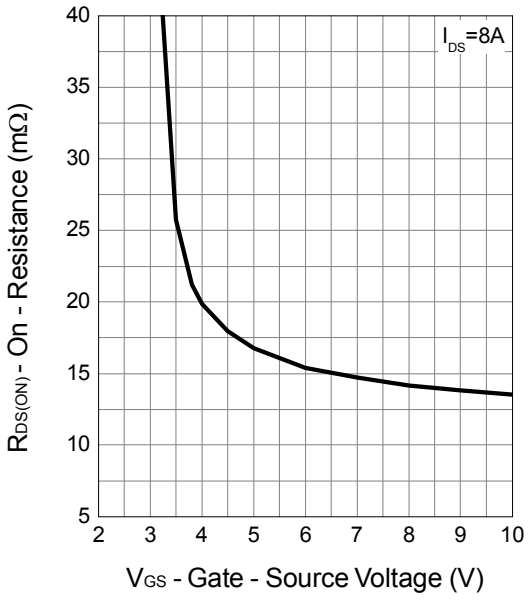
Output Characteristics



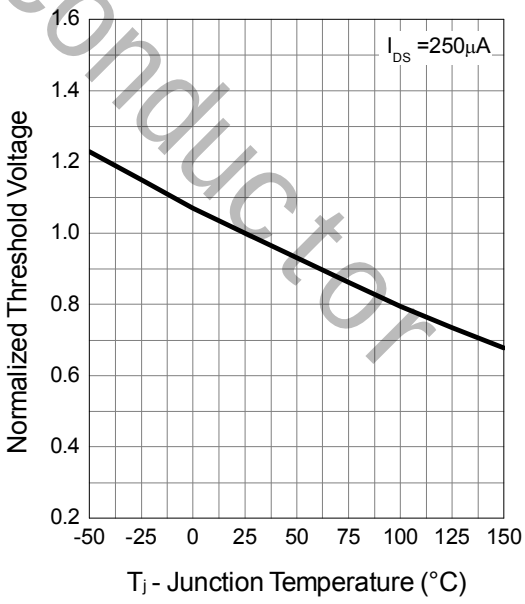
Drain-Source On Resistance



Gate-Source On Resistance

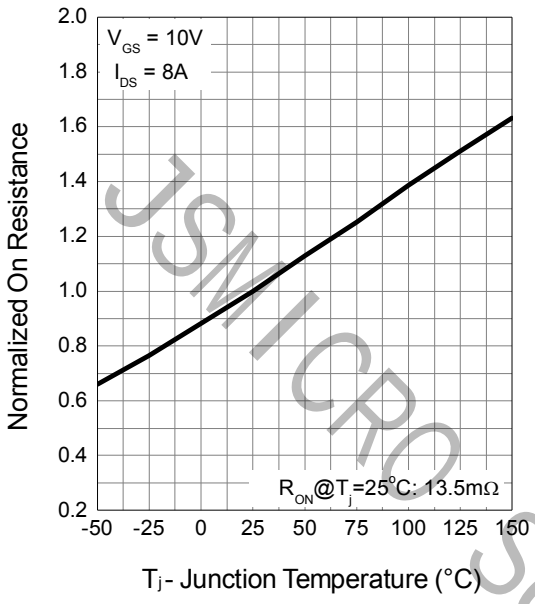


Gate Threshold Voltage

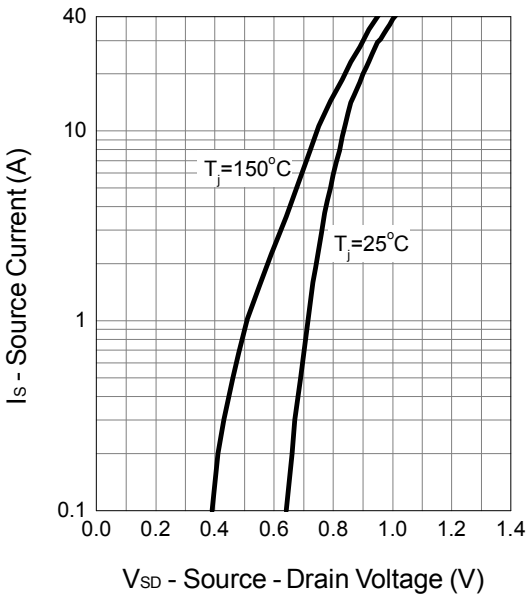


Typical Operating Characteristics (Cont.)

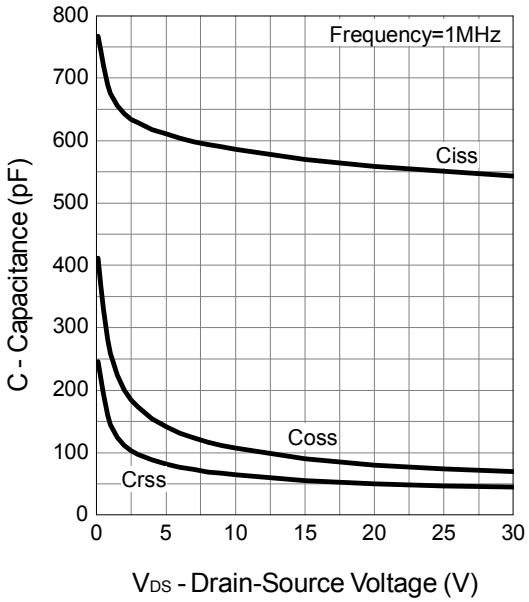
Drain-Source On Resistance



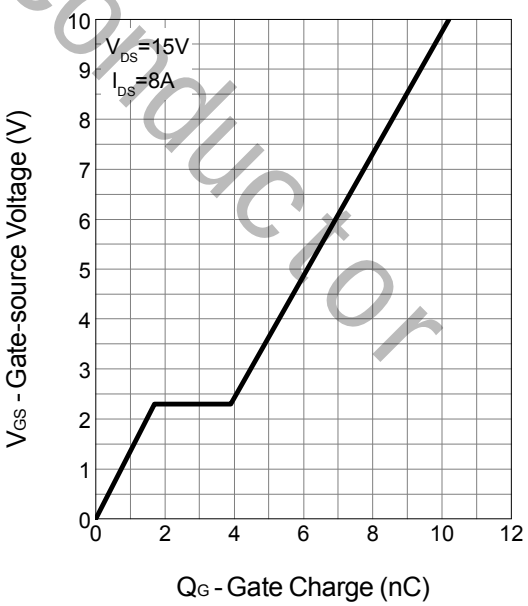
Source-Drain Diode Forward



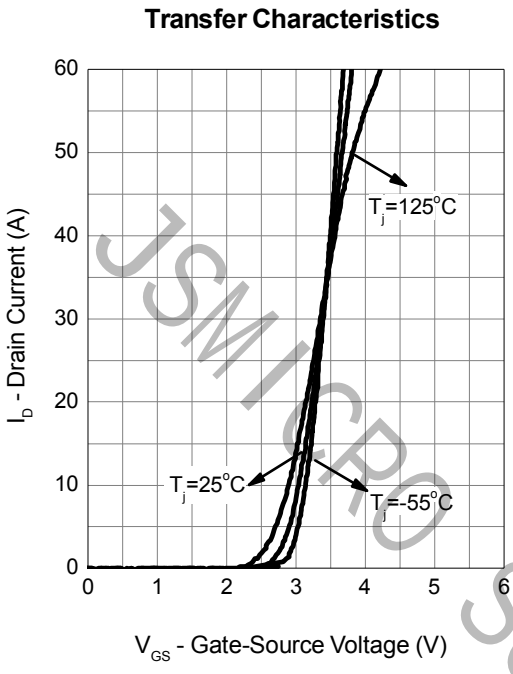
Capacitance



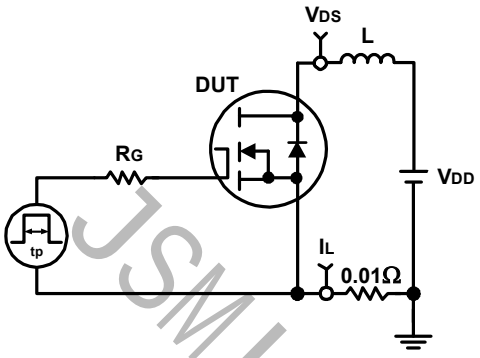
Gate Charge

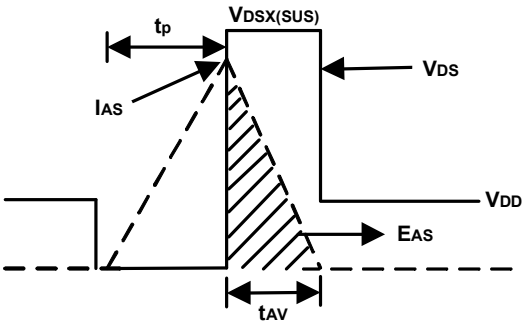


Typical Operating Characteristics (Cont.)

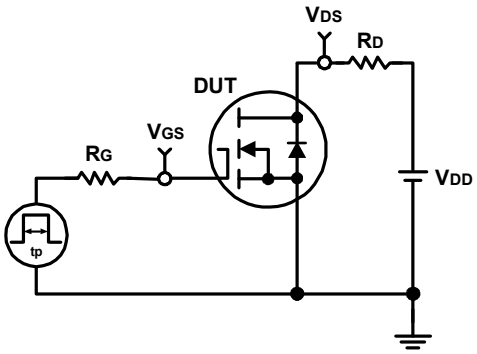


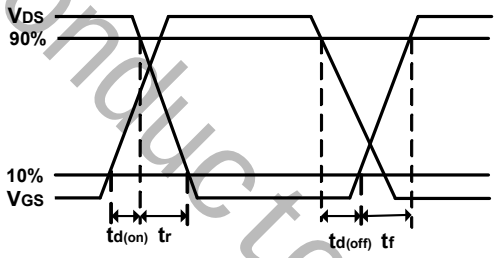
Avalanche Test Circuit and Waveforms





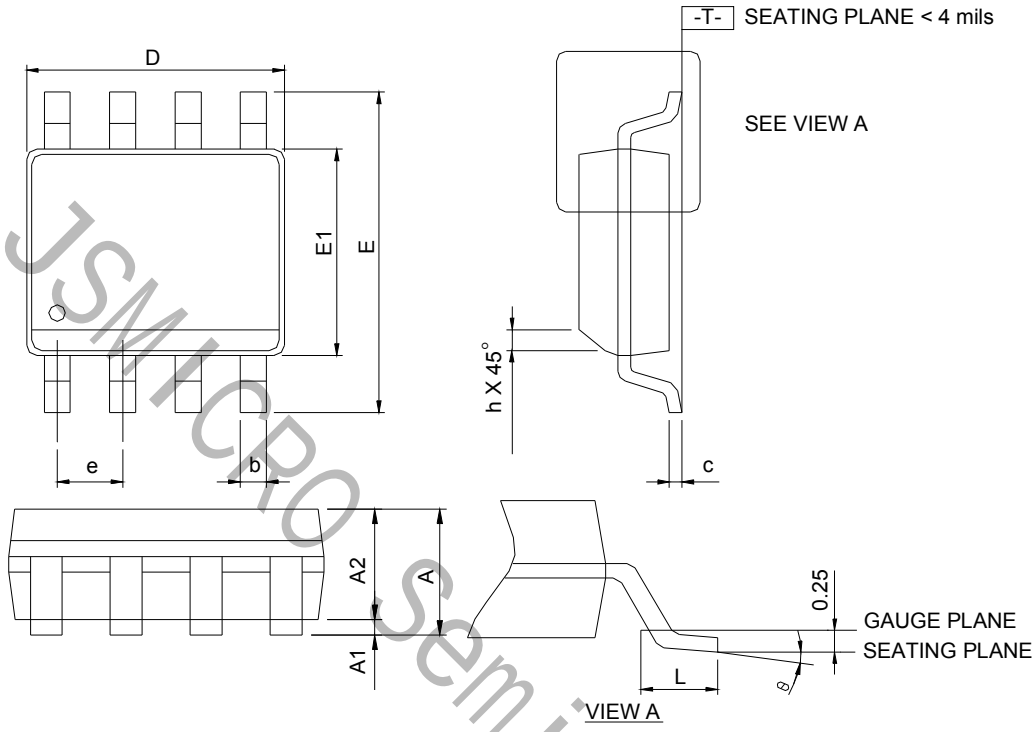
Switching Time Test Circuit and Waveforms





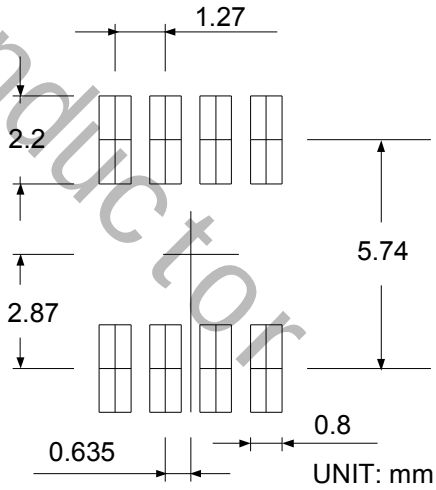
Package Information

SOP-8



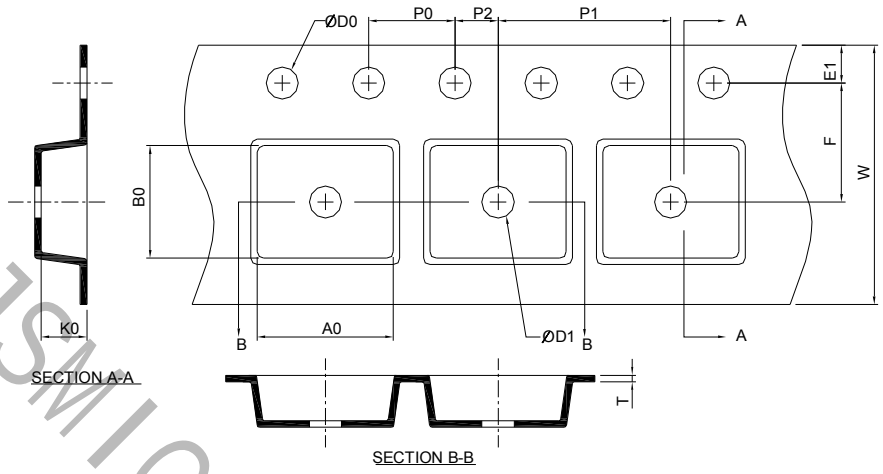
SYMBOL	SOP-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	-	1.75	-	0.069
A1	0.10	0.25	0.004	0.010
A2	1.25	-	0.049	-
b	0.31	0.51	0.012	0.020
c	0.17	0.25	0.007	0.010
D	4.80	5.00	0.189	0.197
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
h	0.25	0.50	0.010	0.020
L	0.40	1.27	0.016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

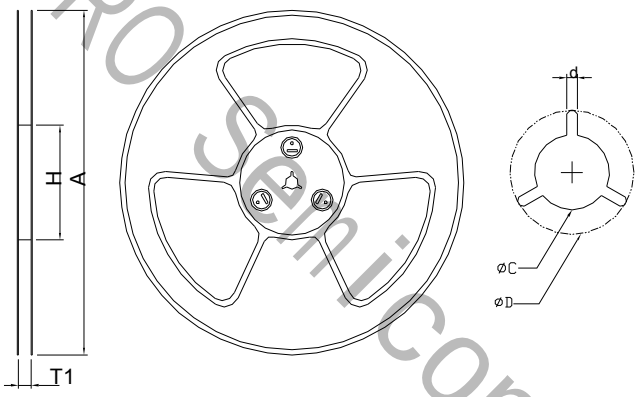
RECOMMENDED LAND PATTERN



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.

Carrier Tape & Reel Dimensions



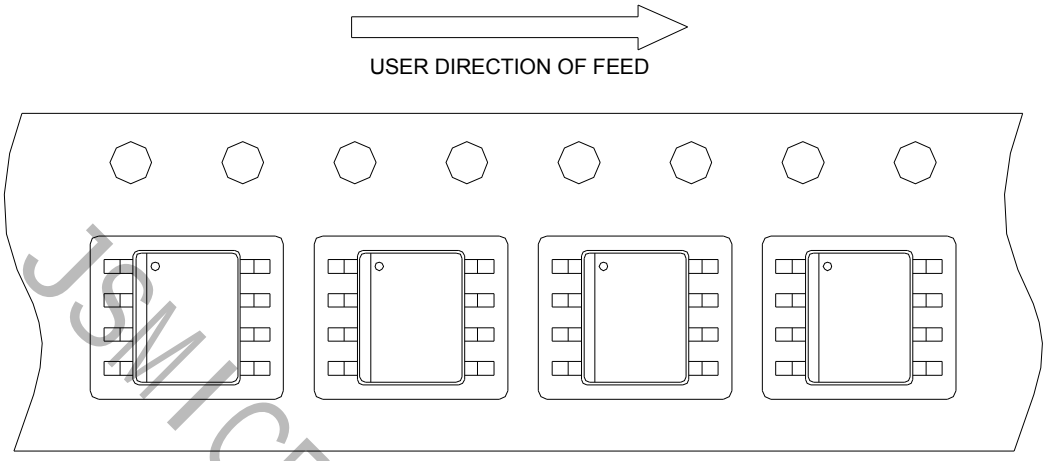


Application	A	H	T1	C	d	D	W	E1	F
SOP-8 3000/reel	330.0± 2.00	50 MIN.	12.4+2.00 -0.00	13.0+0.50 -0.20	1.5 MIN.	20.2 MIN.	12.0±0.30	1.75±0.10	5.5±0.05
	P0	**P1**	**P2**	**D0**	**D1**	**T**	**A0**	**B0**	**K0**
	4.0±0.10	8.0±0.10	2.0±0.05	1.5+0.10 -0.00	1.5 MIN.	0.6+0.00 -0.40	6.40±0.20	5.20±0.20	2.10±0.20

(mm)

Taping Direction Information

SOP-8



Classification Profile