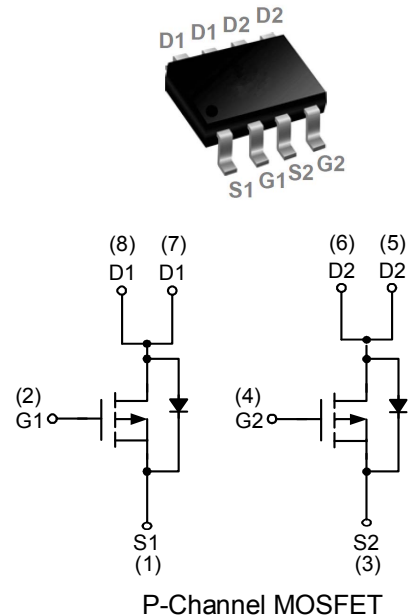


Features

- -30V/-6A,
 $R_{DS(ON)}=40m\Omega(max.) @ V_{GS}=-10V$
 $R_{DS(ON)}=50m\Omega(max.) @ V_{GS}=-4.5V$
- Reliable and Rugged
- Lead Free and Green Devices Available
 (RoHS Compliant)

Applications

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

SOP-8 Pin Configuration

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

Symbol	Parameter	Rating	Unit
Common Ratings			
V_{DSS}	Drain-Source Voltage	-30	V
V_{GSS}	Gate-Source Voltage	± 20	
T_J	Maximum Junction Temperature	150	$^\circ C$
T_{STG}	Storage Temperature Range	-55 to 150	
I_S	Diode Continuous Forward Current	$T_A=25^\circ C$ -1	A
I_D	Continuous Drain Current	$T_A=25^\circ C$ -6	
		$T_A=70^\circ C$ -5	
I_{DM}^a	Pulsed Drain Current	$T_A=25^\circ C$ -30	
P_D	Maximum Power Dissipation	$T_A=25^\circ C$ 2	W
		$T_A=70^\circ C$ 1.5	
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	$t \leq 10s$ 50	$^\circ C/W$
		Steady State 90	
$R_{\theta JL}$	Thermal Resistance-Junction to Lead	Steady State 20	
I_{AS}^b	Avalanche Current, Single pulse	$L=0.1mH$ 20	A
		$L=0.5mH$ 12	
E_{AS}^b	Avalanche Energy, Single pulse	$L=0.1mH$ 25	mJ
		$L=0.5mH$ 40	

Note a : Pulse width is limited by maximum junction temperature.

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

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=-250\mu A$	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$	-	-	-1	μA
		$T_J=85^\circ C$	-	-	-30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=-250\mu A$	-1.0	-1.5	-2.3	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 25V, V_{DS}=0V$	-	-	± 100	nA
$R_{DS(ON)}^c$	Drain-Source On-state Resistance	$V_{GS}=-10V, I_{DS}=-6A$	-	27	40	m Ω
		$V_{GS}=-4.5V, I_{DS}=-5A$	-	35	50	
Diode Characteristics						
V_{SD}^c	Diode Forward Voltage	$I_{SD}=-1A, V_{GS}=0V$	-	-0.7	-1	V
t_{rr}^d	Reverse Recovery Time	$I_{SD}=-6A, dI_{SD}/dt=100A/\mu s$	-	18	-	ns
Q_{rr}^d	Reverse Recovery Charge		-	9	-	nC
Dynamic Characteristics^d						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$	-	3.6	-	Ω
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=-15V, Frequency=1.0MHz$	-	971	-	pF
C_{oss}	Output Capacitance		-	235	-	
C_{riss}	Reverse Transfer Capacitance		-	82	-	
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=-15V, R_L=15\Omega, I_{DS}=-1A, V_{GEN}=-10V, R_G=6\Omega$	-	12.4	-	ns
t_r	Turn-on Rise Time		-	8.5	-	
$t_{d(OFF)}$	Turn-off Delay Time		-	41	-	
t_f	Turn-off Fall Time		-	6.9	-	
Gate Charge Characteristics^d						
Q_g	Total Gate Charge	$V_{DS}=-15V, V_{GS}=-10V, I_{DS}=-6A$	-	18	-	nC
	Total Gate Charge		-	2.4	-	
Q_{gs}	Gate-Source Charge	$V_{DS}=-15V, V_{GS}=-4.5V, I_{DS}=-6A$	-	18	-	
Q_{gd}	Gate-Drain Charge		-	2.4	-	
Q_{gth}	Threshold Gate Charge		-	3.1	-	

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

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

Typical Operating Characteristics

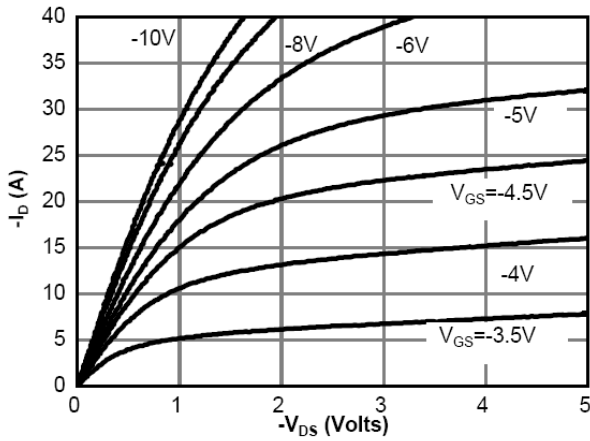


Fig 1: On-Region Characteristics

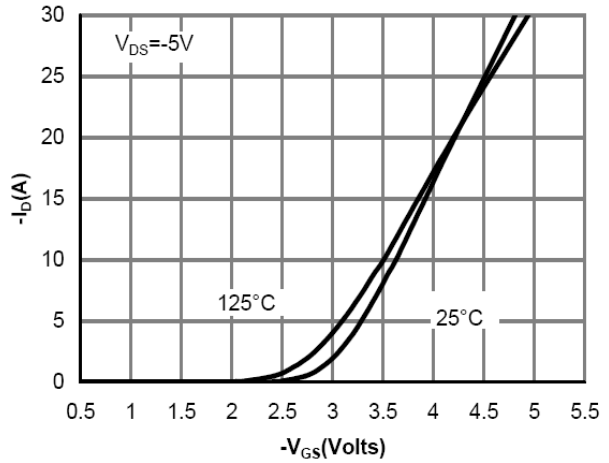


Figure 2: Transfer Characteristics

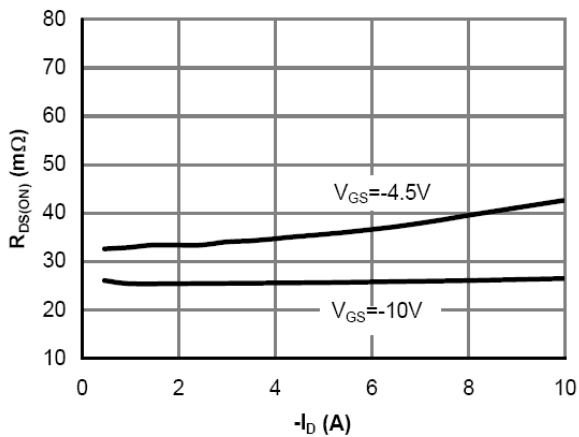


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

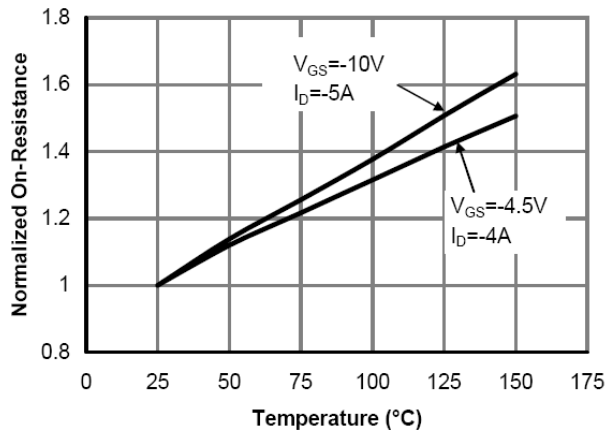


Figure 4: On-Resistance vs. Junction Temperature

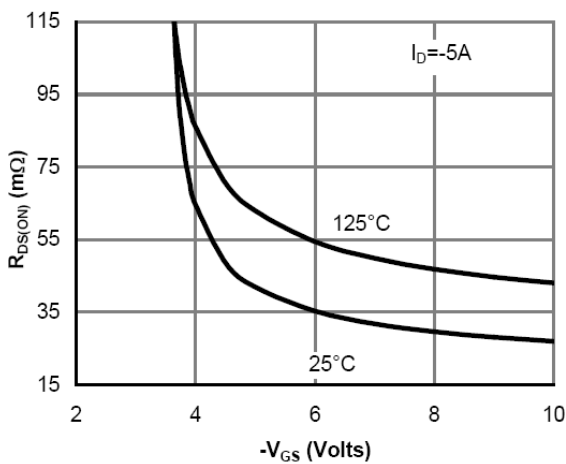


Figure 5: On-Resistance vs. Gate-Source Voltage

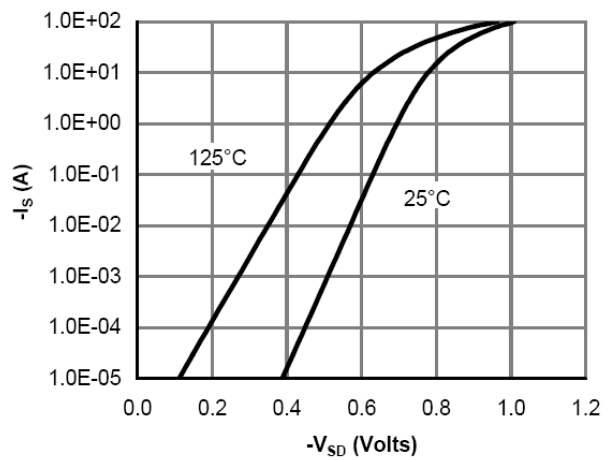


Figure 6: Body-Diode Characteristics

Typical Operating Characteristics (Cont.)

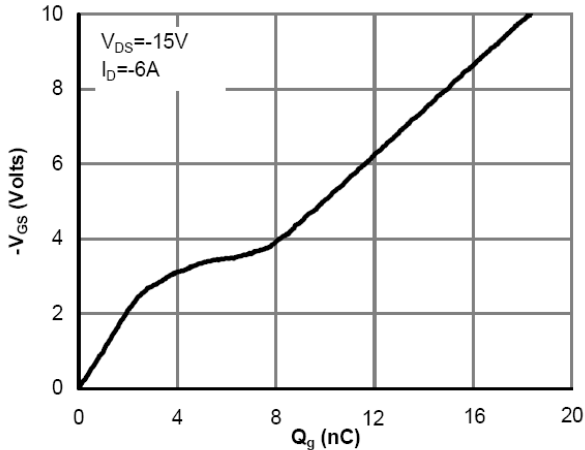


Figure 7: Gate-Charge Characteristics

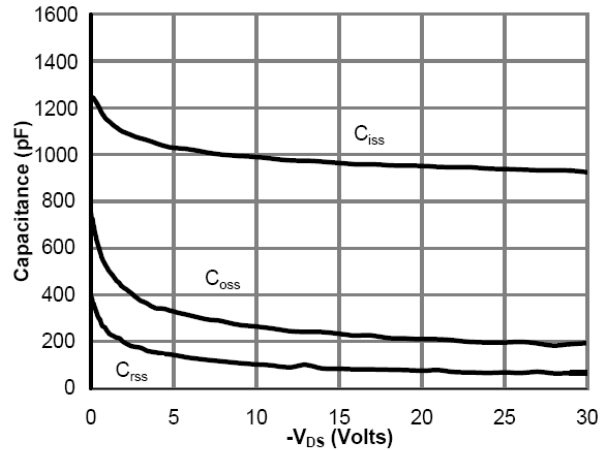


Figure 8: Capacitance Characteristics

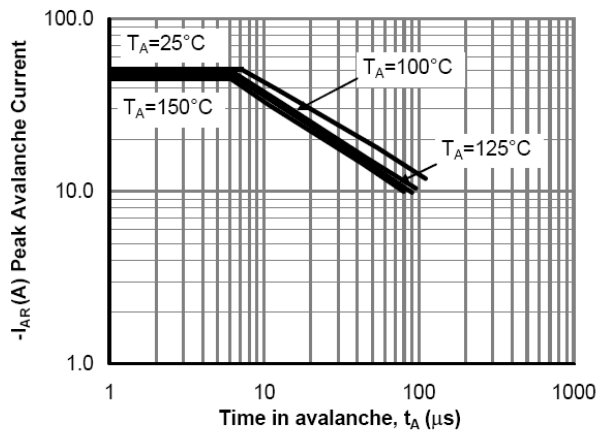


Figure 9: Single Pulse Avalanche capability

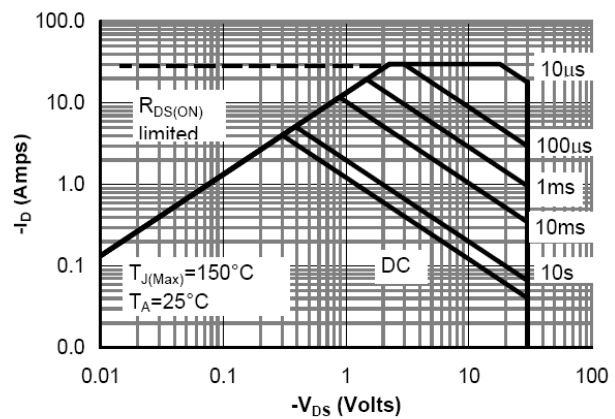


Figure 10: Maximum Forward Biased Safe Operating Area

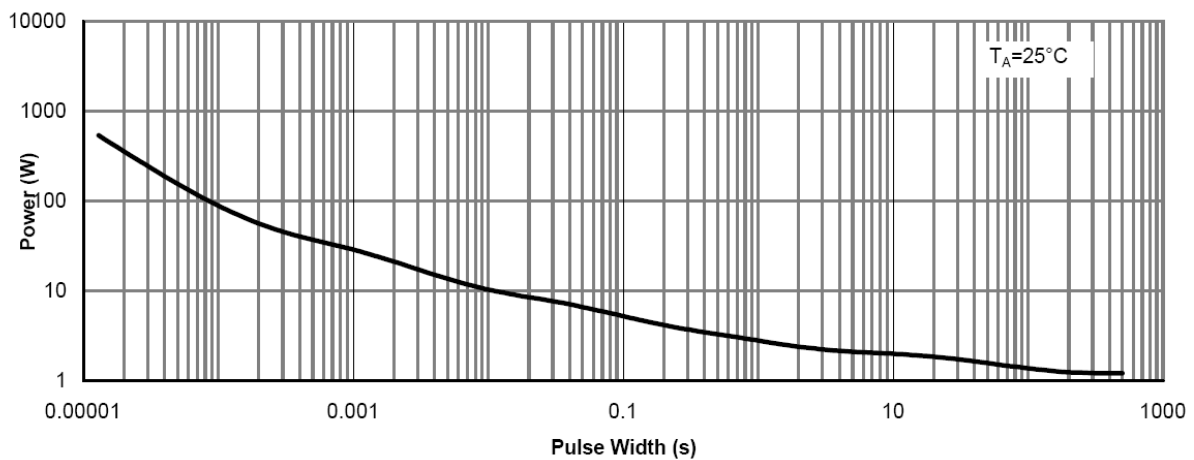
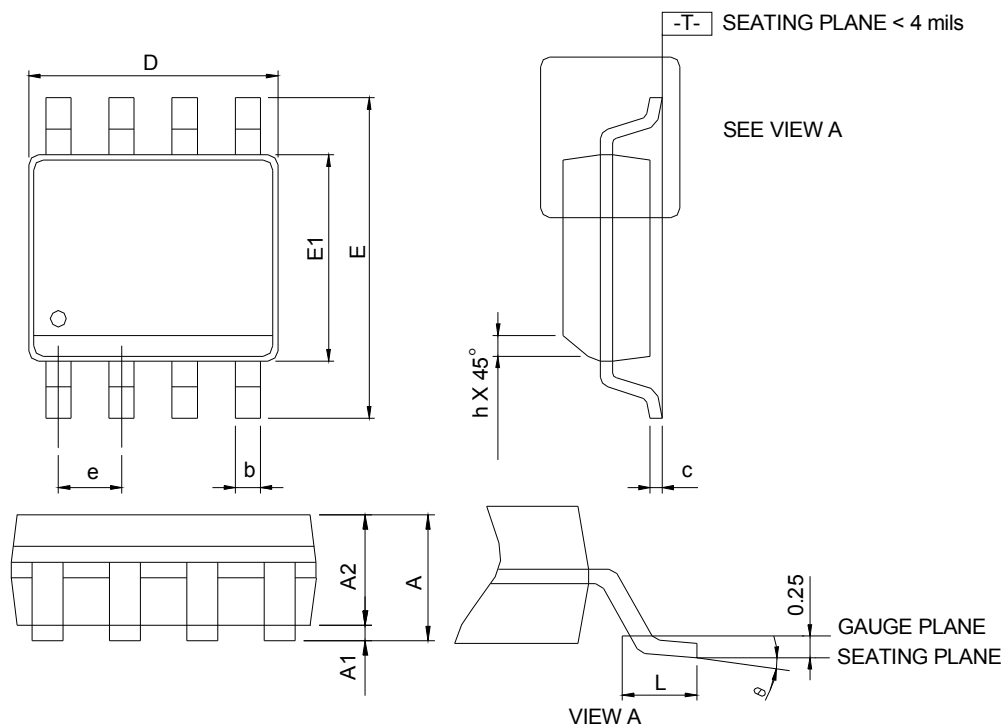


Figure 11: Single Pulse Power Rating Junction-to-Ambient

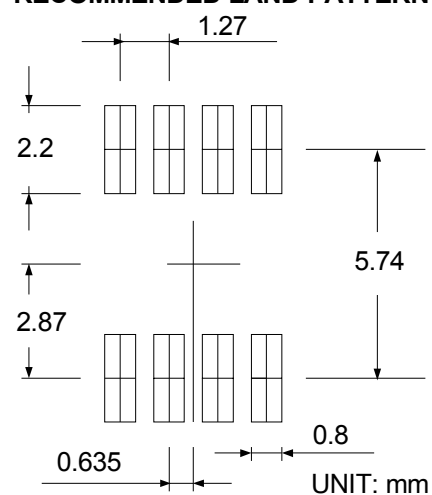
Package Information

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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