

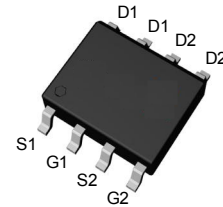
Features

- 60V/7A,
 $R_{DS(ON)} = 25m\Omega$ (typ.) @ $V_{GS} = 10V$
 $R_{DS(ON)} = 30m\Omega$ (typ.) @ $V_{GS} = 4.5V$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

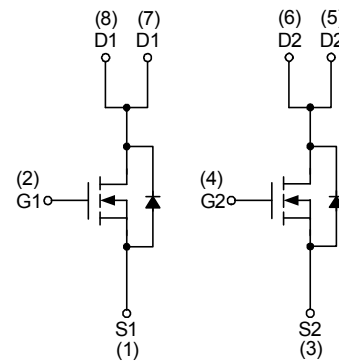
Applications

- Power Management in Note book.
- Battery Powered System.
- DC/DC Converter.
- Load Switch.

Pin Description



Top View of SOP8



N-Channel MOSFET

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

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		60	V
V _{GSS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	T _A =25°C	7	A
I _D	Continuous Drain Current	T _A =25°C	7	A
		T _A =70°C	5	
I _{DM} ^a	Pulse Drain Current Tested	T _A =25°C	21	A
P _D	Maximum Power Dissipation	T _A =25°C	2	W
		T _A =70°C	1.28	
R _{θJL}	Thermal Resistance-Junction to Lead	Steady State	50	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient	t ≤ 10s	62.5	°C/W
		Steady State ^b	110	
I _{AS} ^c	Avalanche Current, Single pulse	L=0.5mH	10	A
E _{AS} ^c	Avalanche Energy, Single pulse	L=0.5mH	25	mJ

Note a : Pulse width limited by max. junction temperature.

Note b : Surface Mounted on 1in² pad area, $t = 999\text{sec}$.

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

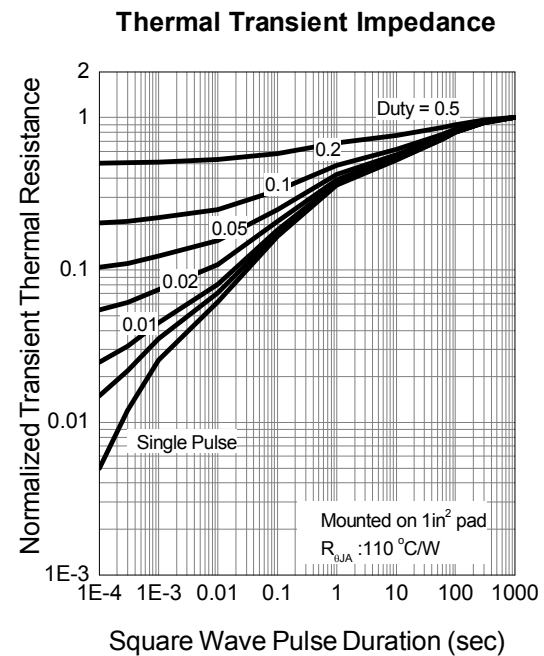
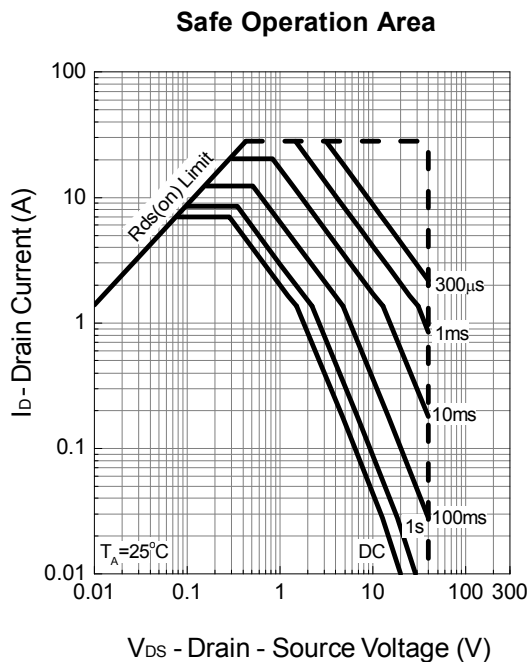
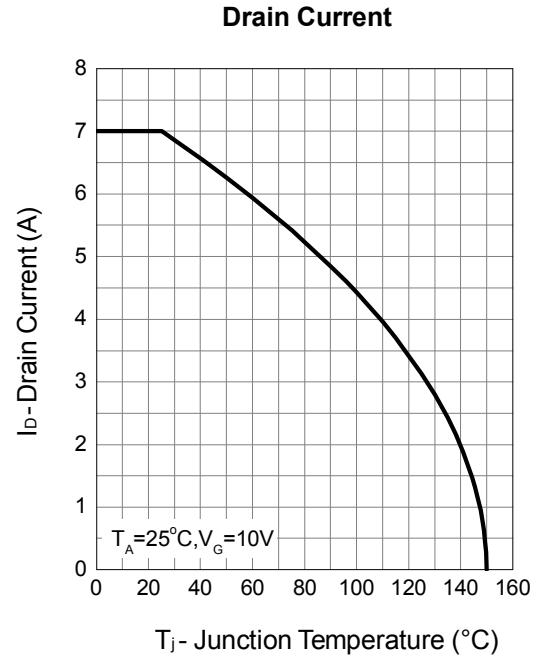
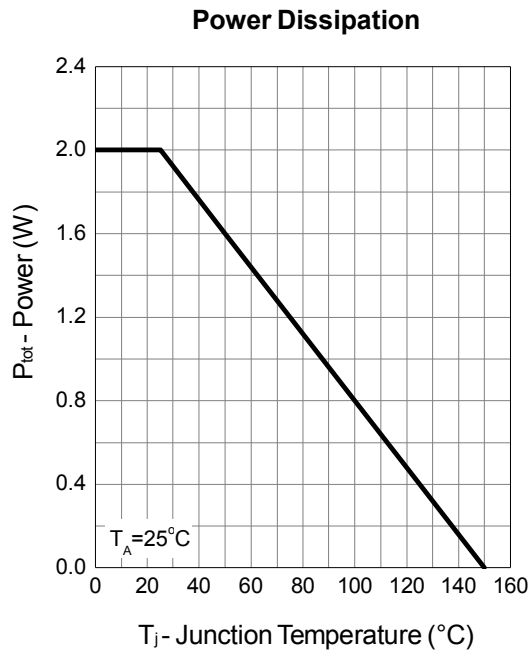
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =48V, V _{GS} =0V	-	-	1	μA
		T _J =85°C	-	-	30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1.5	2	2.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^c	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =6A	-	25	30	mΩ
		V _{GS} =4.5V, I _{DS} =5A	-	30	35	
Diode Characteristics						
V _{SD} ^c	Diode Forward Voltage	I _{SD} =1A, V _{GS} =0V	-	0.75	1.1	V
t _{rr}	Reverse Recovery Time	I _{DS} =6A, dI _{SD} /dt=100A/μs	-	13	-	ns
Q _{rr}	Reverse Recovery Charge		-	8.7	-	nC
Dynamic Characteristics ^d						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	2.5	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =20V, Frequency=1.0MHz	-	815	-	pF
C _{oss}	Output Capacitance		-	95	-	
C _{rss}	Reverse Transfer Capacitance		-	60	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =20V, R _L =20Ω, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω	-	7.8	-	ns
t _r	Turn-on Rise Time		-	6.9	-	
t _{d(OFF)}	Turn-off Delay Time		-	22.4	-	
t _f	Turn-off Fall Time		-	4.8	-	
Gate Charge Characteristics ^d						
Q _g	Total Gate Charge	V _{DS} =20V, V _{GS} =10V, I _{DS} =6A	-	15.7	22	nC
Q _g	Total Gate Charge	V _{DS} =20V, V _{GS} =4.5V, I _{DS} =6A	-	7.5	10.5	
Q _{gth}	Threshold Gate Charge		-	1.85	-	
Q _{gs}	Gate-Source Charge		-	3.24	-	
Q _{gd}	Gate-Drain Charge		-	2.75	-	

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

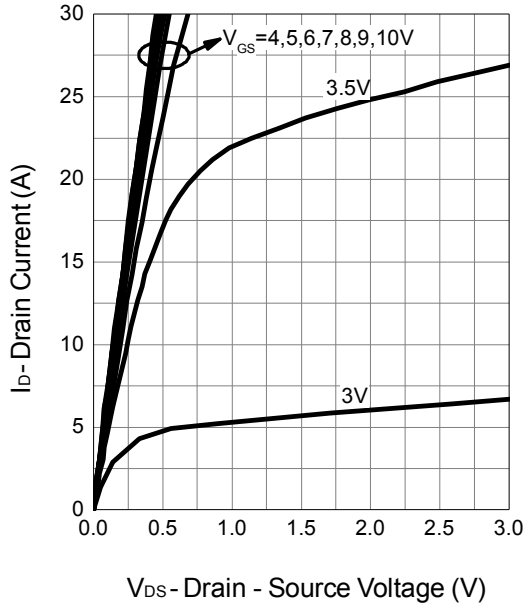
Note d : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

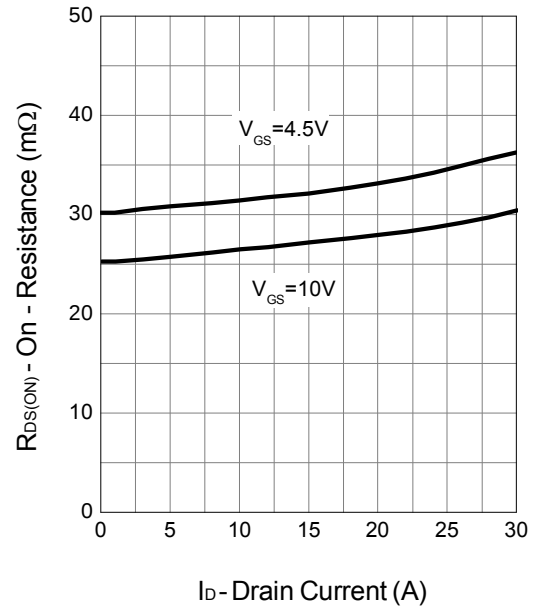


Typical Operating Characteristics (Cont.)

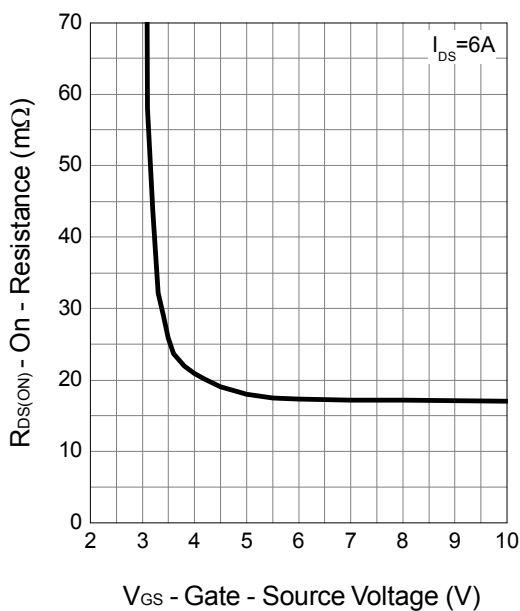
Output Characteristics



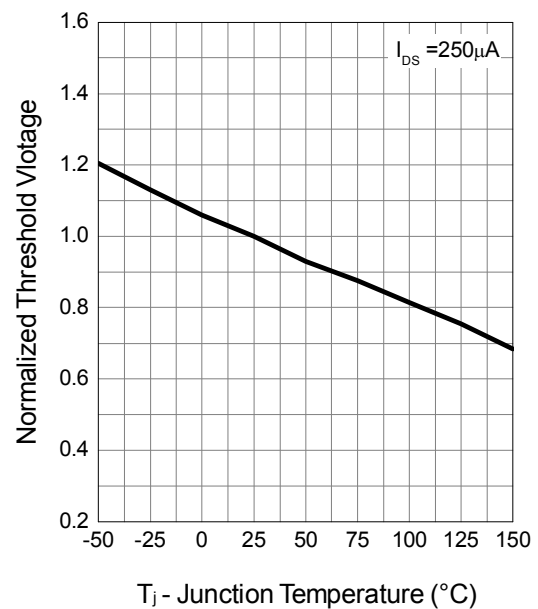
Drain-Source On Resistance



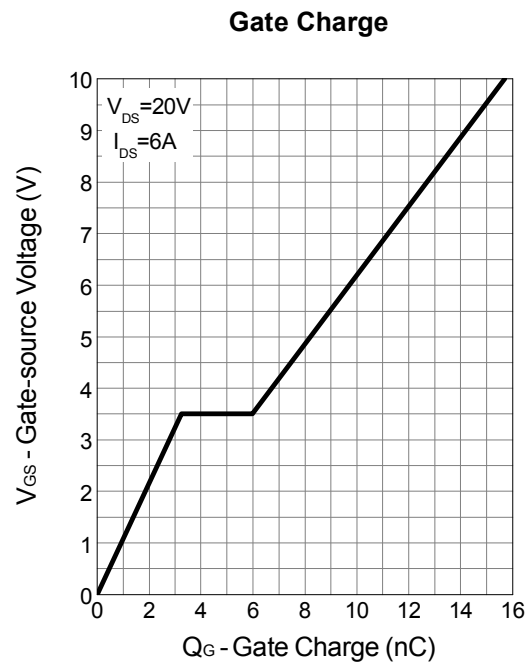
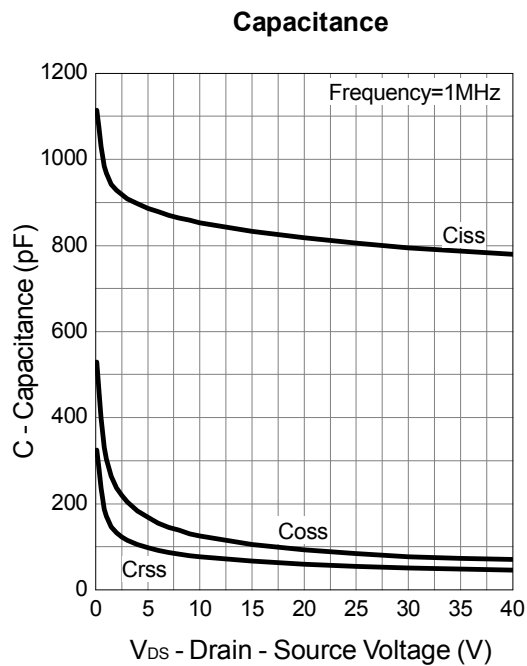
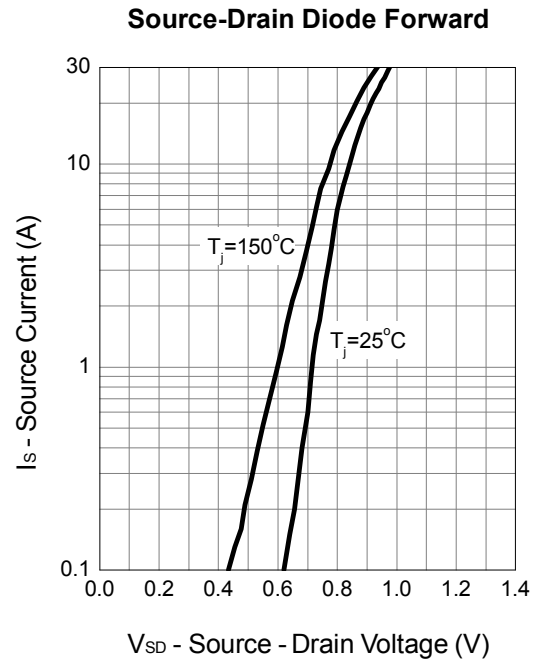
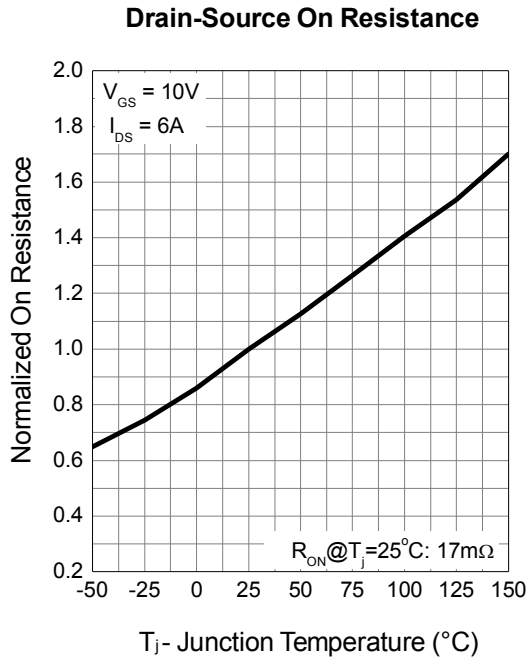
Gate-Source On Resistance



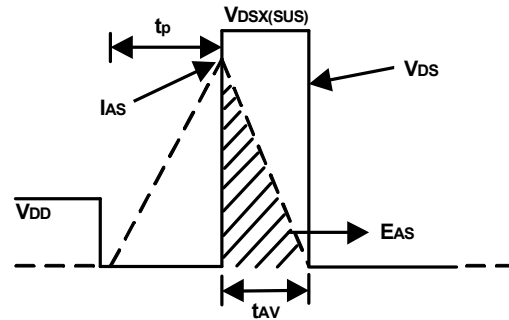
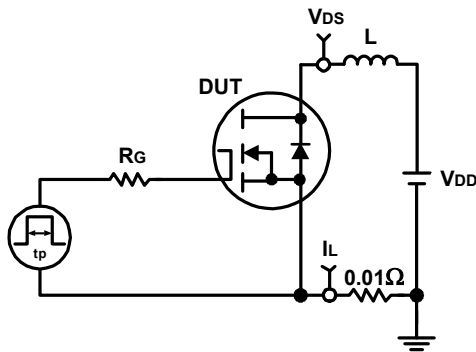
Gate Threshold Voltage



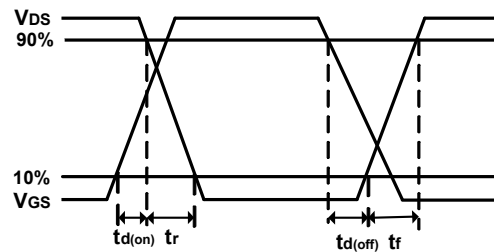
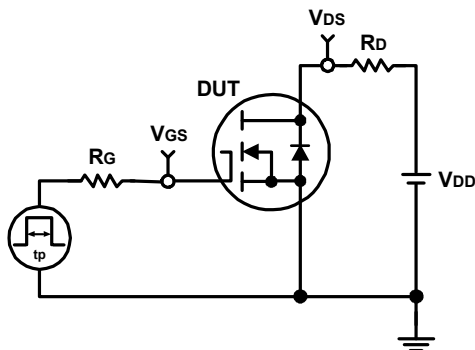
Typical Operating Characteristics (Cont.)



Avalanche Test Circuit and Waveforms

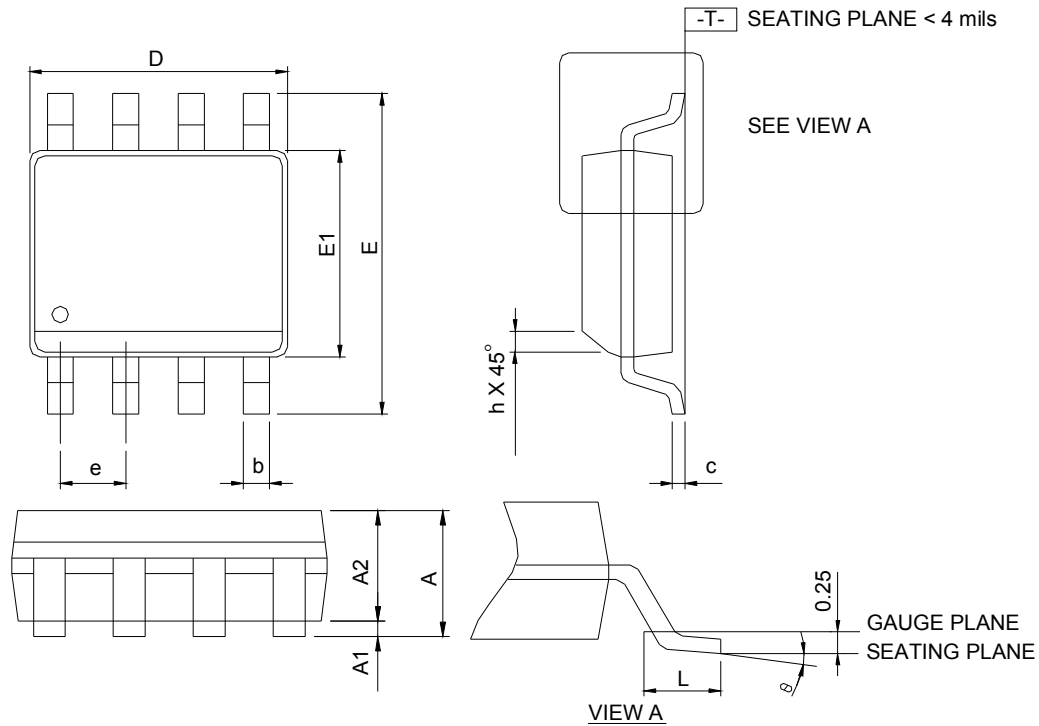


Switching Time Test Circuit and Waveforms



Package Information

SOP8



	SOP8			
	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°

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.

RECOMMENDED LAND PATTERN

