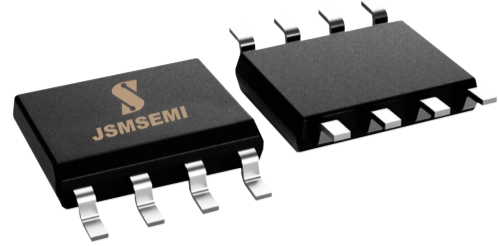


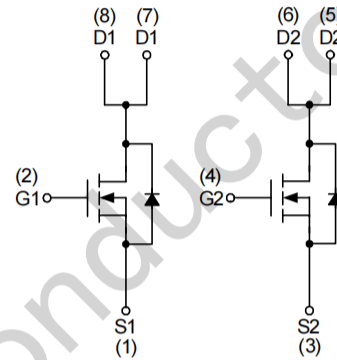
Features

- 30V/12A,
 $R_{DS(ON)} = 7.5m\Omega$ (max.) @ $V_{GS} = 10V$
 $R_{DS(ON)} = 11m\Omega$ (max.) @ $V_{GS} = 4.5V$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available
 (RoHS Compliant)



Applications

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



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		30	V
V _{GSS}	Gate-Source Voltage		±20	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	
I _S	Diode Continuous Forward Current	T _A =25°C	2	A
I _{DM} ^a	Pulsed Drain Current	T _A =25°C	50	
I _D ^b	Continuous Drain Current	T _A =25°C	10	
		T _A =70°C	8	
P _D ^b	Power Dissipation	T _A =25°C	1.31	W
		T _A =70°C	0.84	
R _{θJA} ^b	Thermal Resistance-Junction to Ambient	t ≤ 10s	54	°C/W
		Steady State	95	
R _{θJL}	Thermal Resistance-Junction to Lead	Steady State	32	
I _{AS} ^c	Avalanche Current, Single pulse	L=0.1mH	20	A
E _{AS} ^c	Avalanche Energy, Single pulse	L=0.1mH	20	mJ

Note a : Max. current is limited by bonding wire.

Note b : $R_{\theta JA}$ steady state $t=999s$. $R_{\theta JA}$ is measured with the device mounted on 1in2, FR-4 board with 2oz. Copper.

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

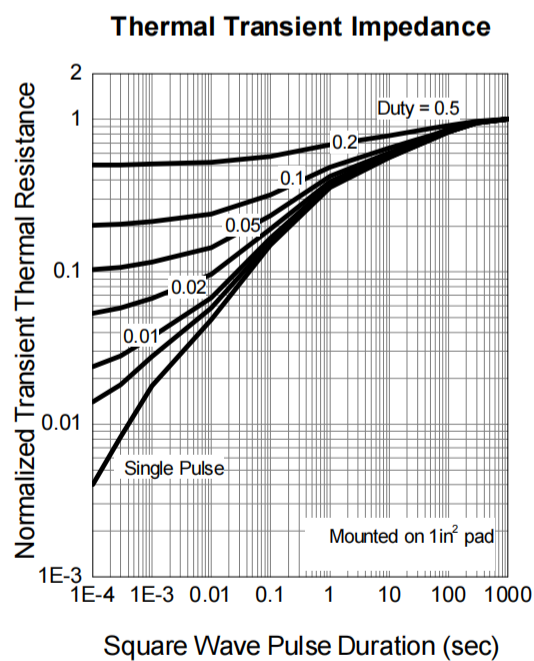
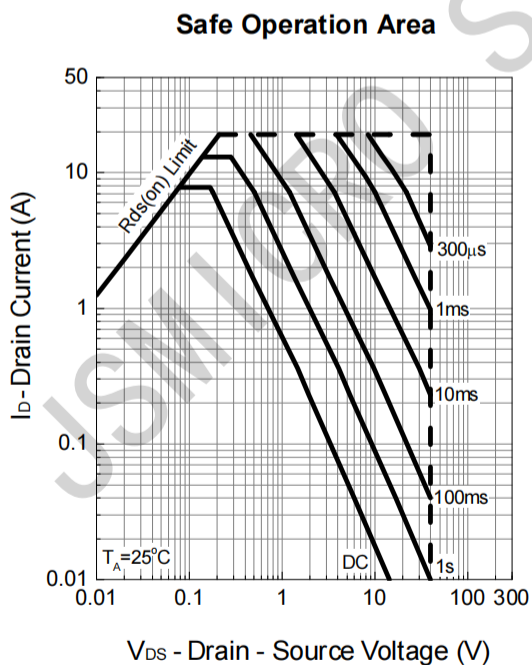
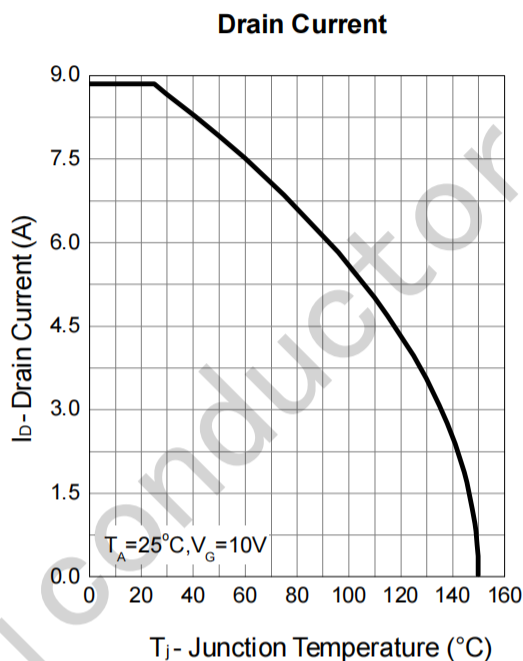
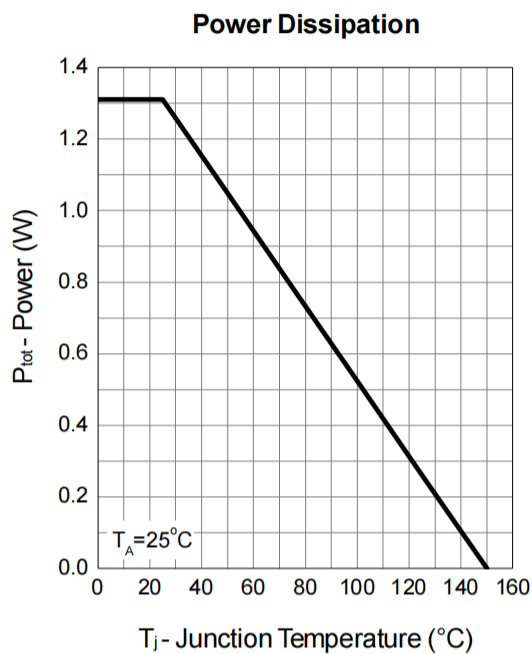
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V T _J =85°C	-	-	1 30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1.5	1.7	2.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±	nA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =15A V _{GS} =4.5V, I _{DS} =8A	-	7.5 10.5	100 10.5	mΩ
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =10A, V _{GS} =0V	-	0.88	1.1	V
t _{rr}	Reverse Recovery Time	I _{DS} =12A, di _{SD} /dt=100A/μs	-	17	-	ns
Q _{rr}	Reverse Recovery Charge	V _{DS} =20V	-	12	-	nC
Dynamic Characteristics ^e						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	1.3	2.5	Ω
C _{iss}	Input Capacitance	V _{GS} =0V,	-	1395	2024	pF
C _{oss}	Output Capacitance	V _{DS} =20V,	-	135	176	
C _{rss}	Reverse Transfer Capacitance	Frequency=1.0MHz	-	74	111	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =30V, R _L =30Ω, I _{DS} =1A, V _G =10V, R _G =6Ω	-	8.2	-	ns
t _r	Turn-on Rise Time		-	6.8	-	
t _{d(OFF)}	Turn-off Delay Time		-	25.2	-	
t _f	Turn-off Fall Time		-	6.4	-	
Gate Charge Characteristics ^e						
Q _g	Total Gate Charge	V _{DS} =20V, V _{GS} =10V, I _{DS} =12A	-	20	30	nC
Q _g	Total Gate Charge	V _{DS} =20V, V _{GS} =4.5V I _{SD} =12A	-	9.6	-	
Q _{gs}	Gate-Source Charge		-	2.5	-	
Q _{gd}	Gate-Drain Charge		-	3.8	-	
Q _{gth}	Threshold Gate Charge		-	1.5	-	

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

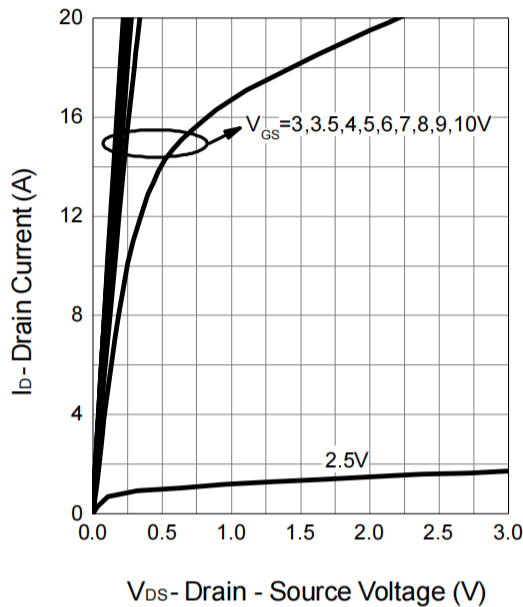
Note e : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

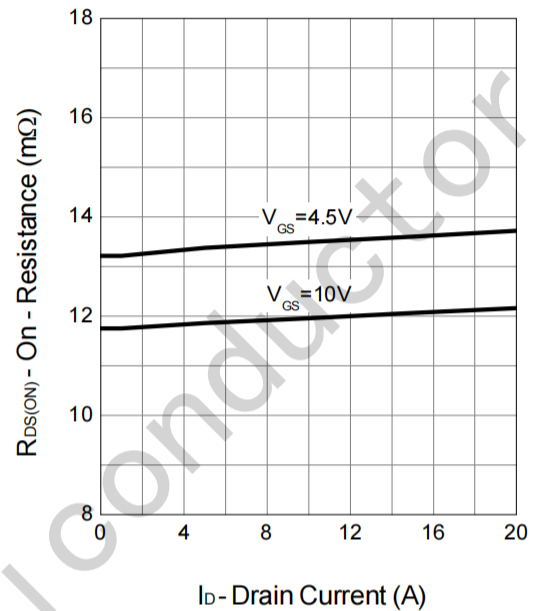


Typical Operating Characteristics (Cont.)

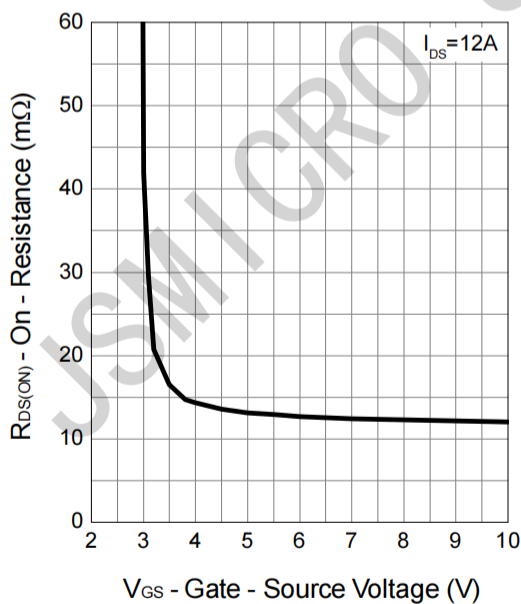
Output Characteristics



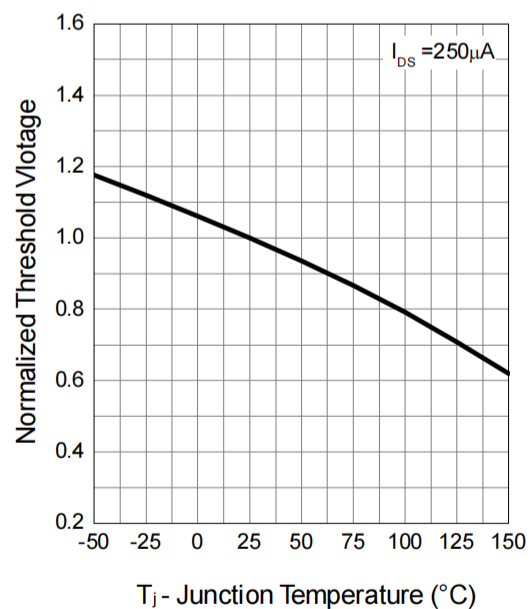
Drain-Source On Resistance



Gate-Source On Resistance

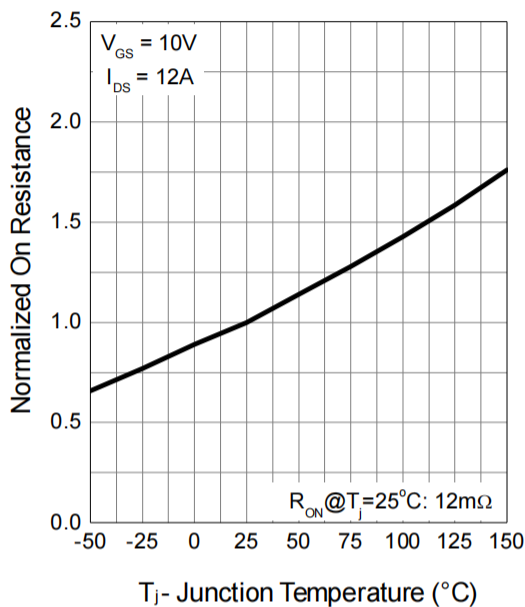


Gate Threshold Voltage

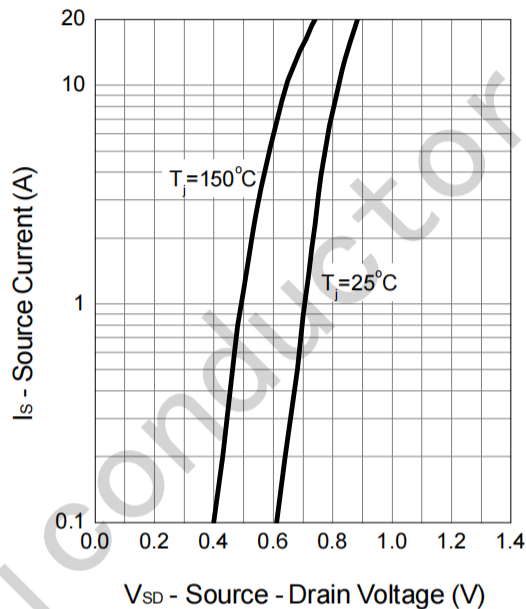


Typical Operating Characteristics (Cont.)

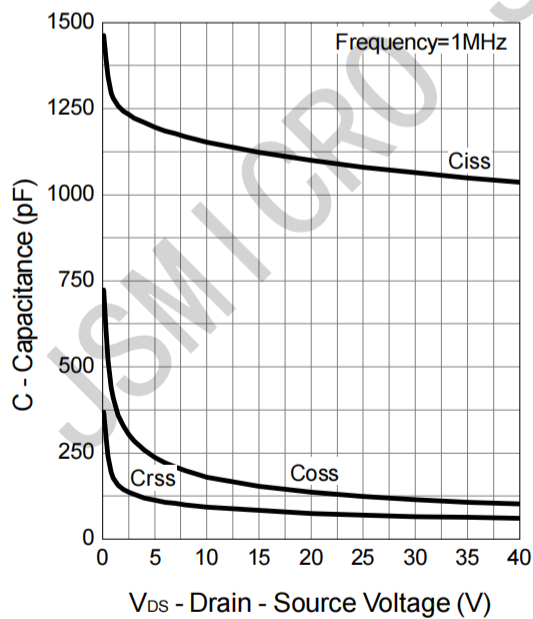
Drain-Source On Resistance



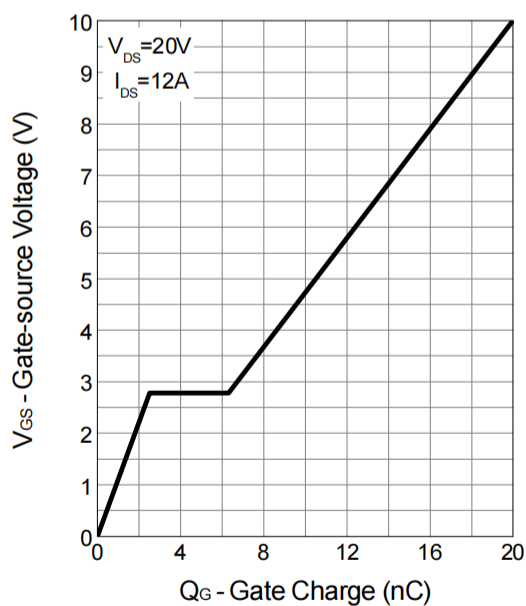
Source-Drain Diode Forward



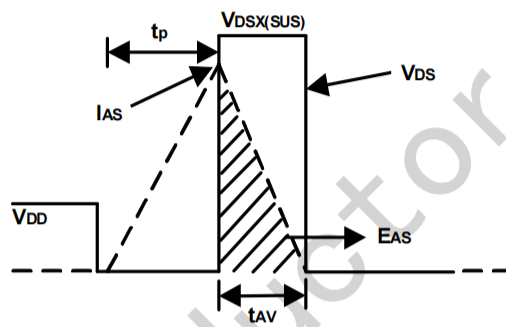
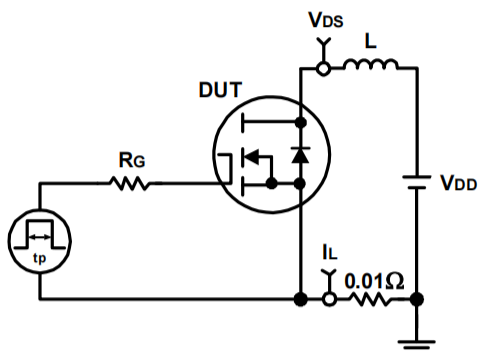
Capacitance



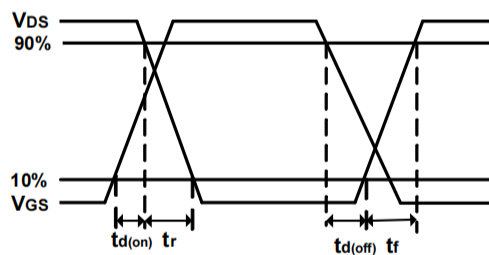
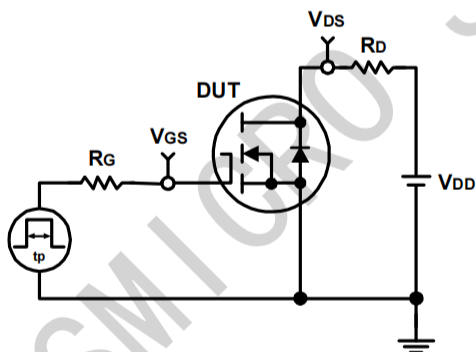
Gate Charge



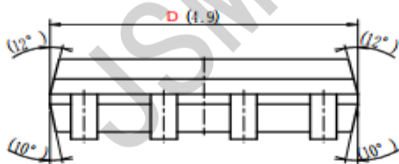
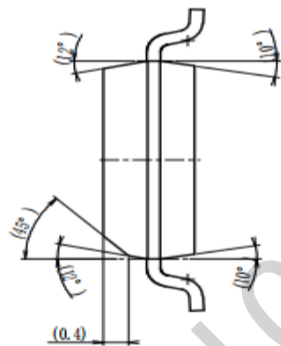
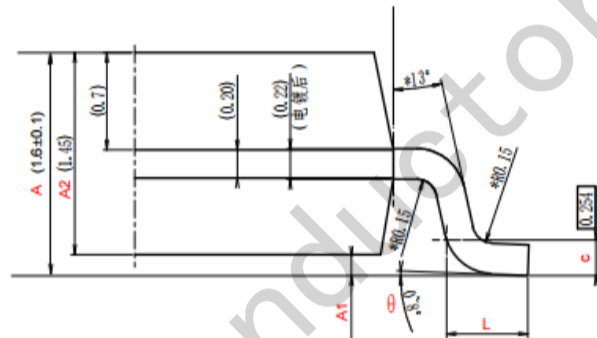
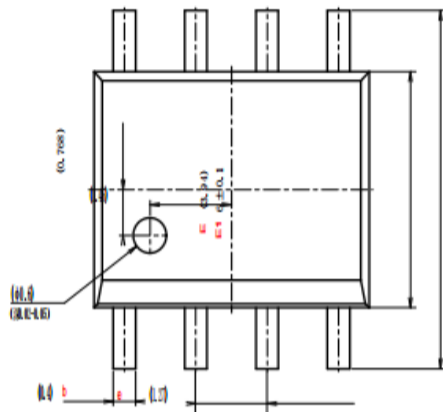
Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



SOP8 PACKAGE OUTLINE



字符	Dimension millimeters		
	Min	Standard	Max
A	1.500	1.600	1.700
A1	0.040	0.080	0.150
A2	1.350	1.450	1.550
b	0.300	0.400	0.500
c	0.220	0.254	0.280
D	4.800	4.900	5.000
E	3.840	3.940	4.040
E1	5.900	6.000	6.100
e		1.27 (BSC)	
L	0.400	0.550	0.700
θ	0°		8°