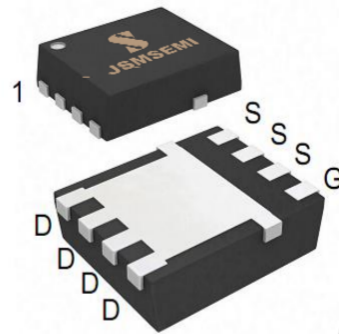


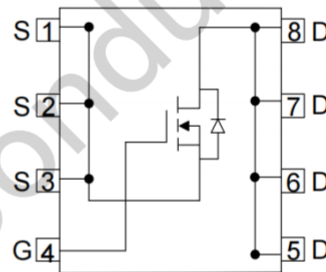
Features

- 30V/150A,
 $R_{DS(ON)} = 1.5m\Omega$ (Typ.) @ $V_{GS} = 10V$
 $R_{DS(ON)} = 2.2m\Omega$ (Typ.) @ $V_{GS} = 4.5V$
- Reliable and Rugged
- Lower Q_g and Q_{gd} for high-speed switching
- Lower $R_{DS(ON)}$ to Minimize Conduction Losses
- 100% UIS + R_g Tested
- Lead Free and Green Devices Available
 (RoHS Compliant)



Applications

- Power Management in Desktop Computer or DC/DC Converters.
- Power Load Switch.
- Notebook Battery Management.



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	°C
T _{STG}	Storage Temperature Range		-55 to 150	
I _D	Continuous Drain Current	T _C =25°C	150	A
		T _C =100°C	100	
P _D	Maximum Power Dissipation	T _C =25°C	75	W
		T _C =100°C	32	
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	2.2	°C/W
I _{DM}	Pulsed Drain Current	T _C =25°C	400	A
I _{AS} ^c	Avalanche Current, Single pulse	L=0.1mH	80	A
E _{AS} ^c	Avalanche Energy, Single pulse	L=0.1mH	320	mJ

Note a : Surface Mounted on $1in^2$ pad area, $t \leq 10sec$. $R_{\theta JA}$ steady state $t = 999s$.

Note b : Pulse width is limited by max. junction temperature.

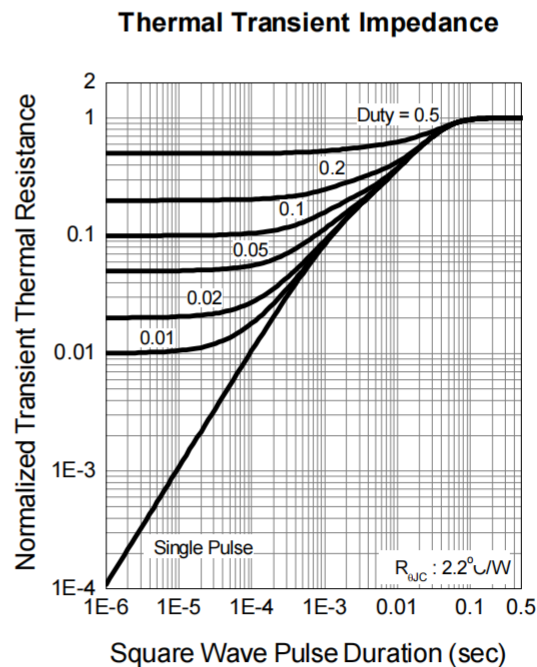
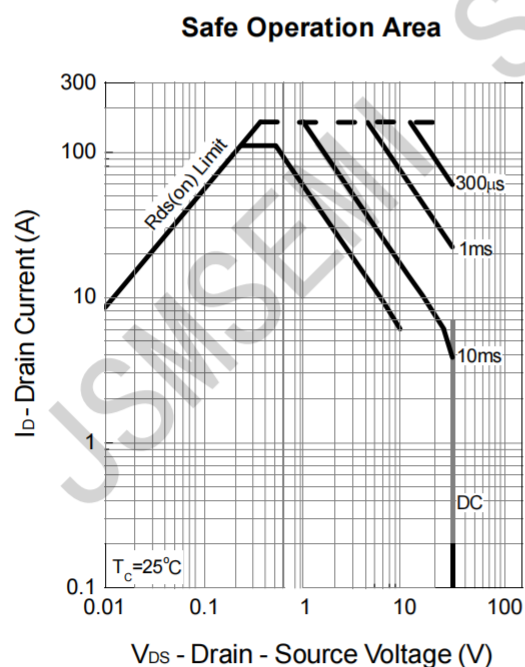
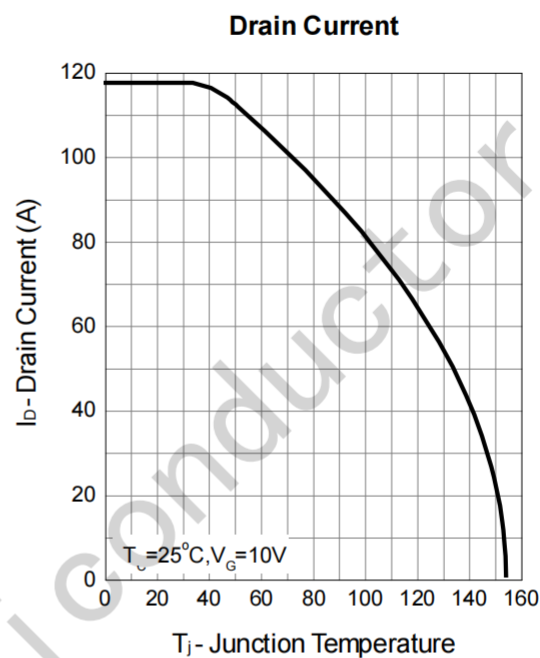
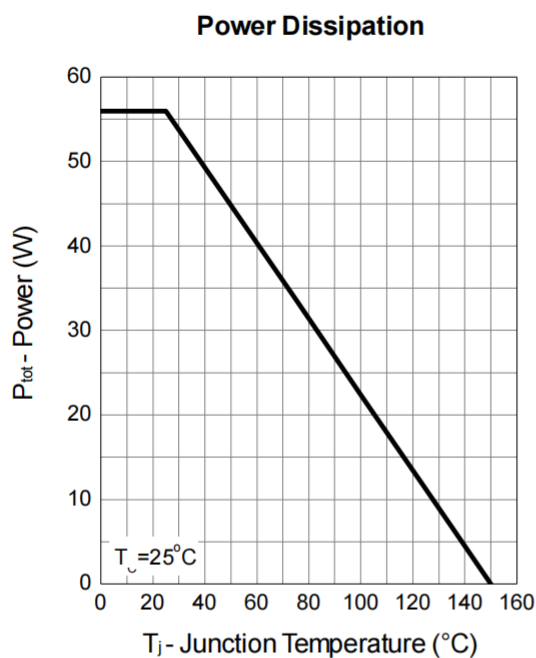
Note c : UIS tested and pulse width limited by maximum junction temperature $150^\circ C$ (initial temperature $T_J = 25^\circ C$).

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

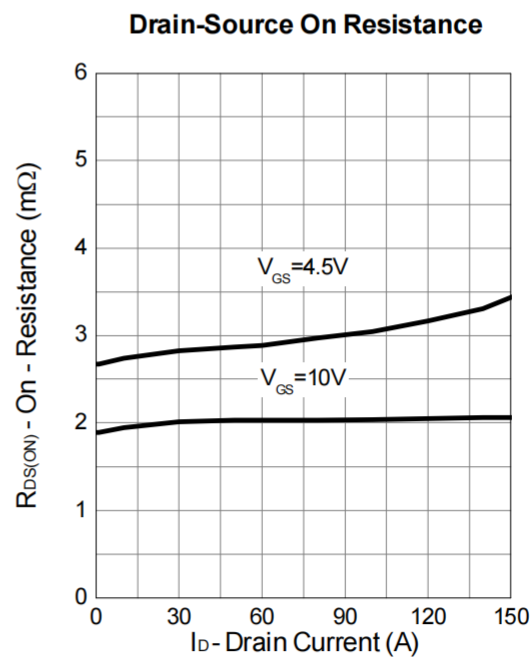
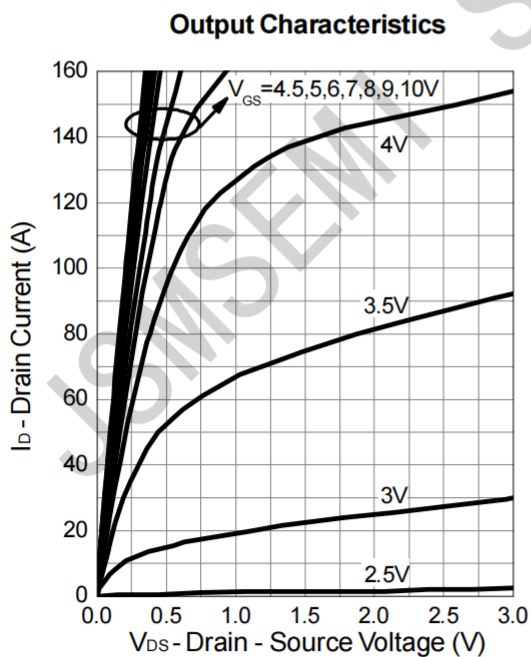
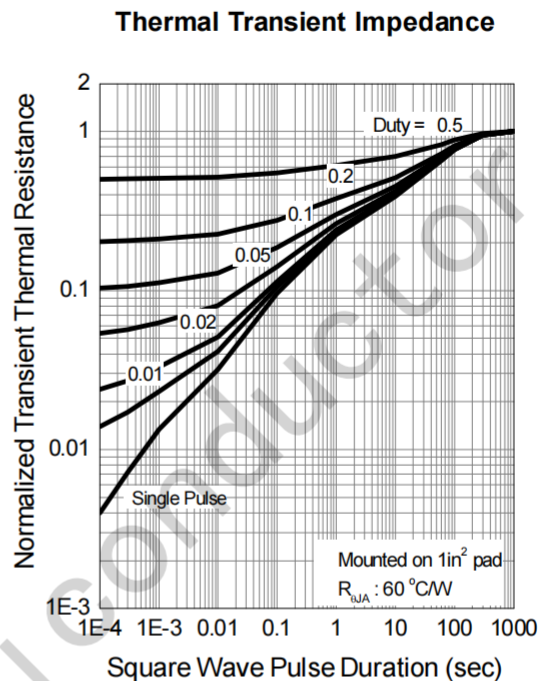
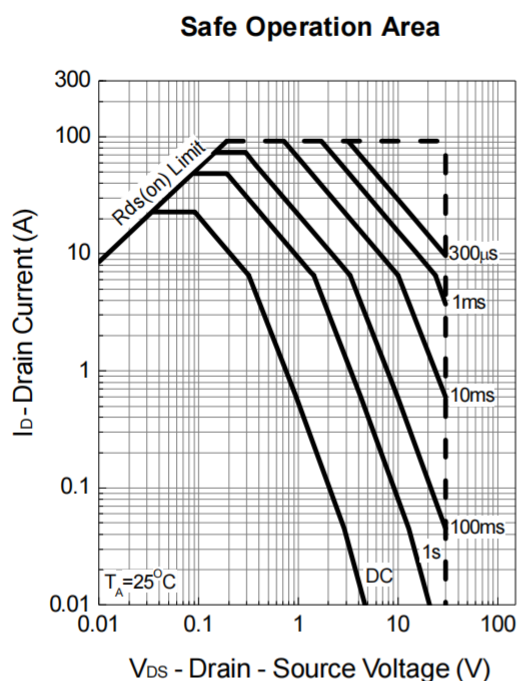
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	30	-	-	V
$BV_{DSS(t)}$	Drain-Source Breakdown Voltage (transient)	$V_{GS}=0V, I_{D(av)}=36A$ $T_{case}=25^{\circ}C, t_{transient}=100ns$	34	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$ $T_J=85^{\circ}C$	-	-	1 30	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	1.4	1.7	2.5	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 12	μA
$R_{DS(ON)}^d$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=20A$ $T_J=125^{\circ}C$	-	1.5 2.2	2.5 -	$m\Omega$
		$V_{GS}=4.5V, I_{DS}=15A$	-	2.2	3.5	
Gfs	Forward Transconductance	$V_{DS}=5V, I_{DS}=15A$	-	30	-	S
Diode Characteristics						
V_{SD}^d	Diode Forward Voltage	$I_{SD}=20A, V_{GS}=0V$	-	0.8	1.1	V
t_{rr}	Reverse Recovery Time	$I_{SD}=5A, di_{SD}/dt=100A/\mu s$	-	39	-	ns
t_a	Charge Time		-	23	-	
t_b	Discharge Time		-	16	-	
Q_{rr}	Reverse Recovery Charge		-	33	-	nC
Dynamic Characteristics						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$	-	4.9	5.1	Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=15V,$ Frequency=1.0MHz	-	5860	7400	pF
C_{oss}	Output Capacitance		-	3220	3586	
C_{rss}	Reverse Transfer Capacitance		-	92	120	
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=15V, R_L=15\Omega,$ $I_{DS}=1A, V_{GEN}=10V,$ $R_G=6\Omega$	-	15	-	ns
t_r	Turn-on Rise Time		-	8	-	
$t_{d(OFF)}$	Turn-off Delay Time		-	68	-	
t_f	Turn-off Fall Time		-	94	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	$V_{DS}=15V, V_{GS}=10V,$ $I_{DS}=20A$	-	30	45	nC
Q_g	Total Gate Charge	$V_{DS}=15V, V_{GS}=4.5V,$ $I_{DS}=20A$	-	14	-	
Q_{gth}	Threshold Gate Charge		-	3	-	
Q_{gs}	Gate-Source Charge		-	5.3	-	
Q_{gd}	Gate-Drain Charge		-	3.6	-	

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

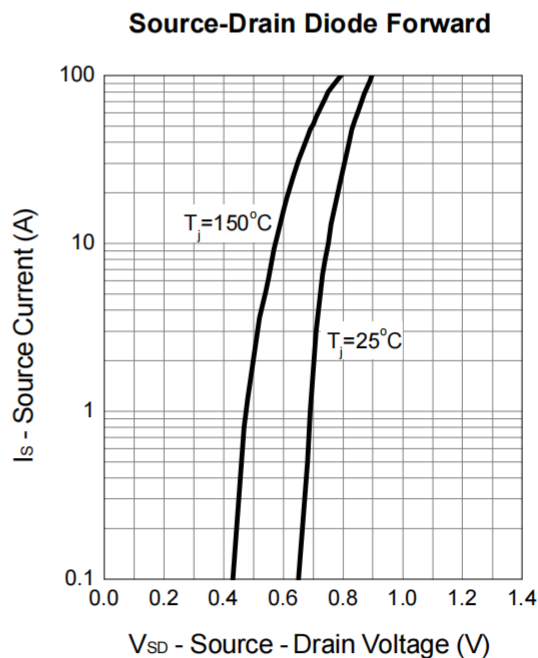
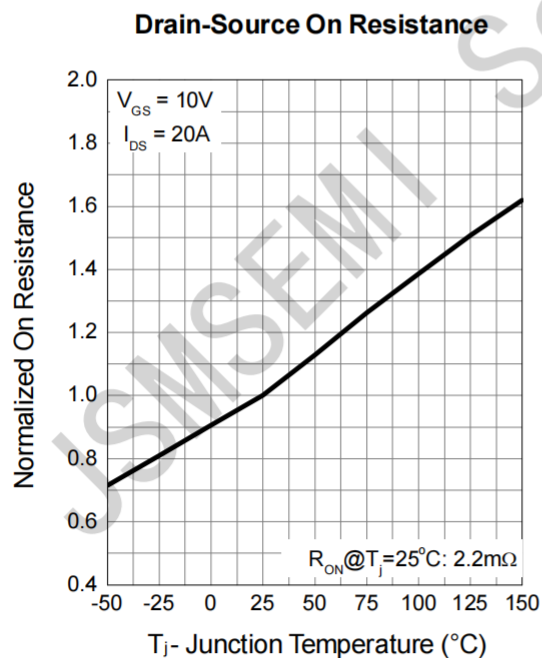
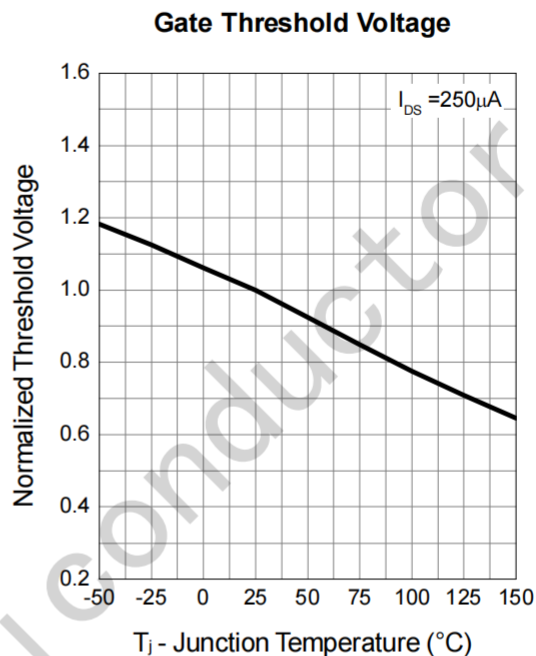
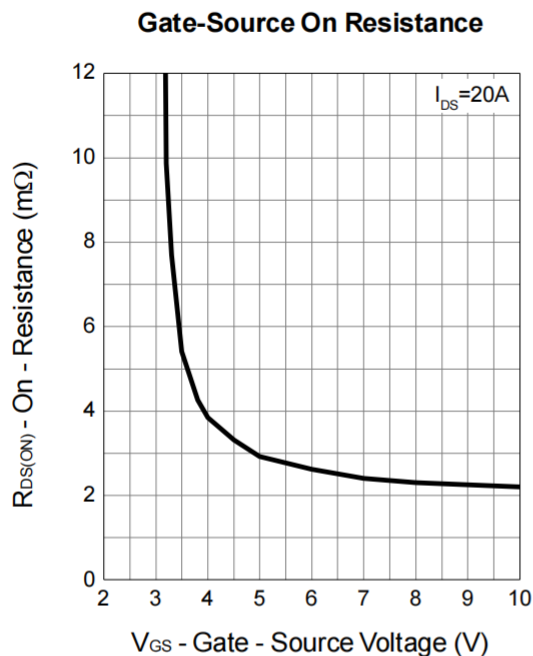
Typical Operating Characteristics



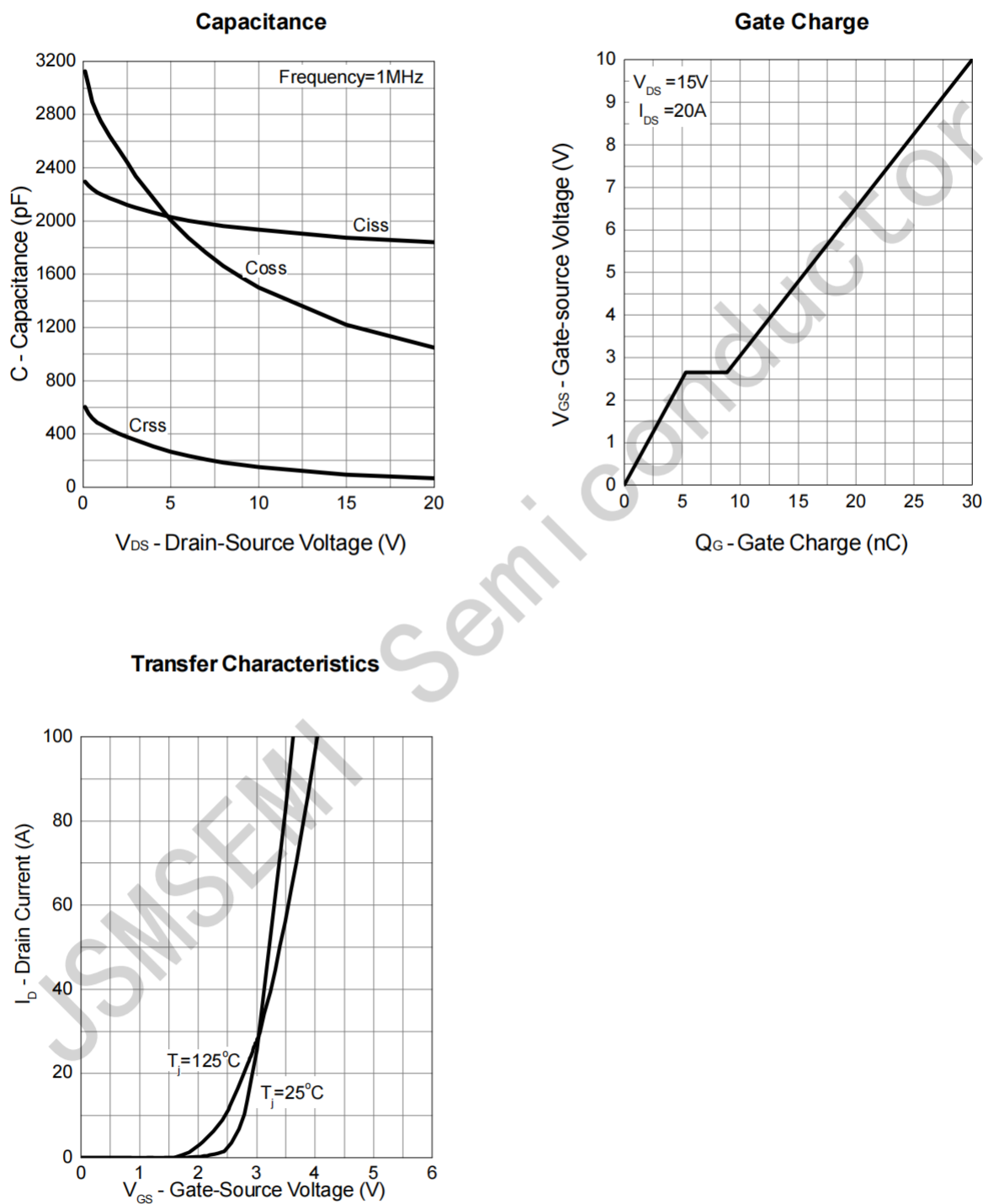
Typical Operating Characteristics (Cont.)



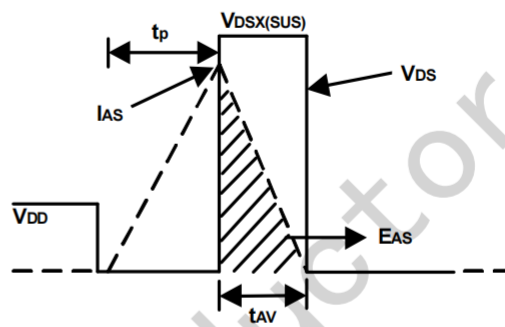
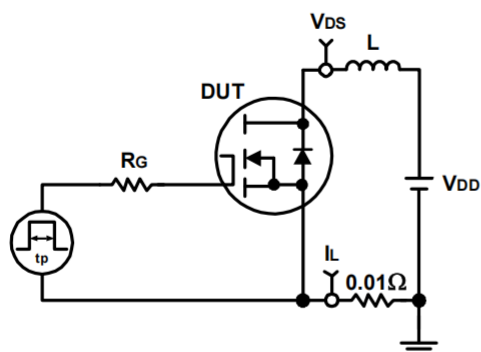
Typical Operating Characteristics (Cont.)



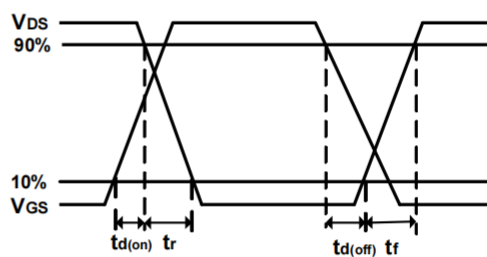
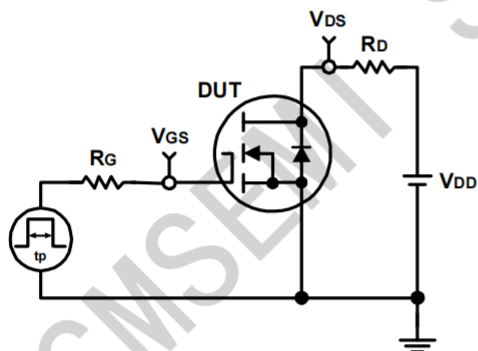
Typical Operating Characteristics (Cont.)



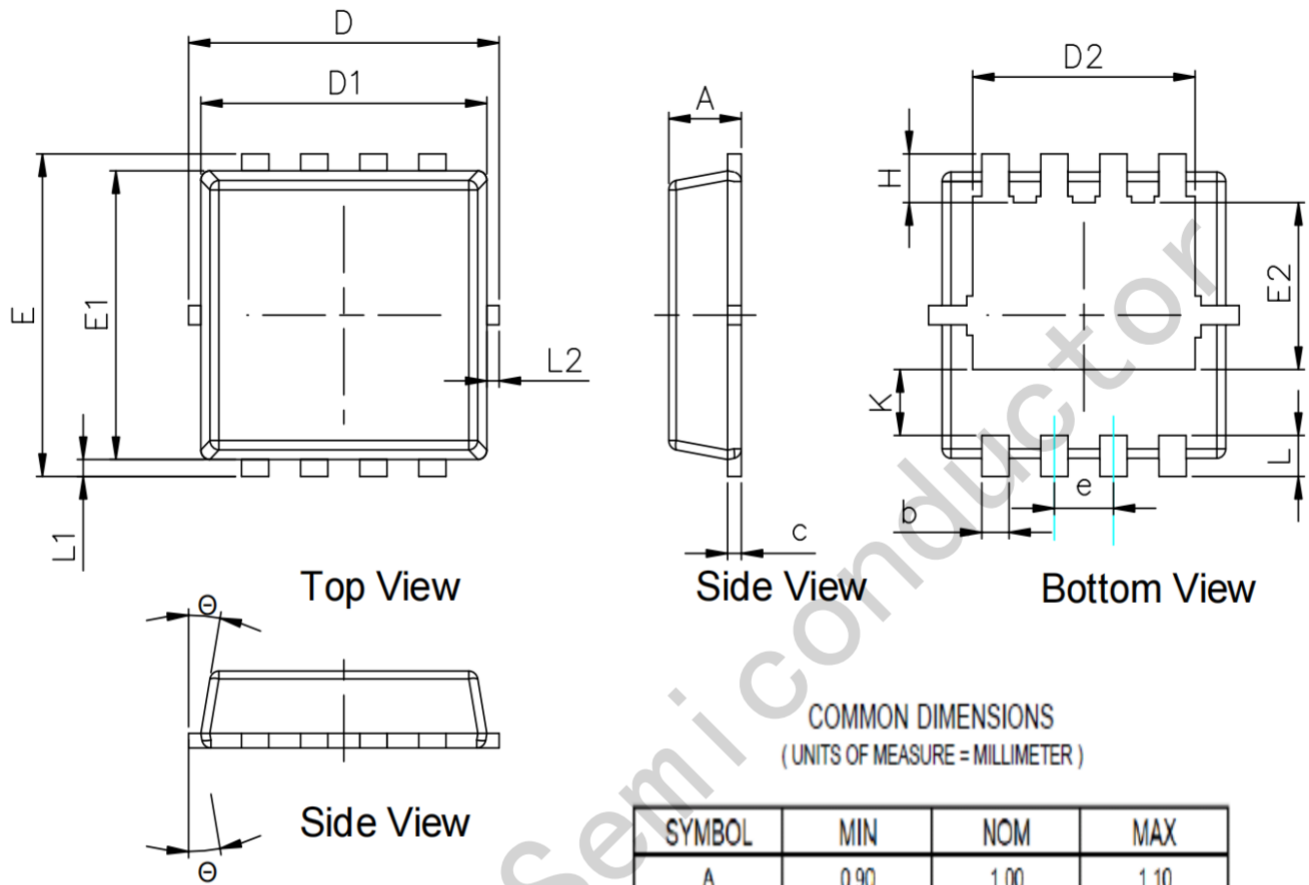
Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Package Outlines



SYMBOL	MIN	NOM	MAX
A	0.90	1.00	1.10
b	0.35	0.40	0.45
c	0.21	0.25	0.34
D	-	-	5.1
D1	4.85	4.90	4.95
D2	3.96	4.01	4.06
e	1.27 BSC		
E	5.95	6.00	6.05
E1	5.70	5.75	5.80
E2	3.425	3.475	3.525
H	0.60	0.65	0.70
K	1.29	-	-
L	0.60	0.65	0.70
L1	0.05	0.15	0.25
L2	-	-	0.12
θ	8°	10°	12°
P	1.05	1.10	1.15