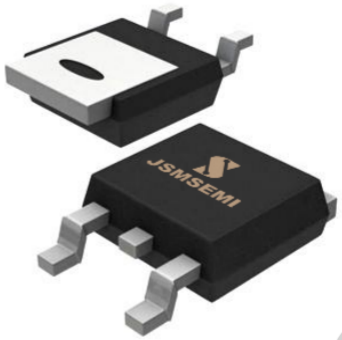
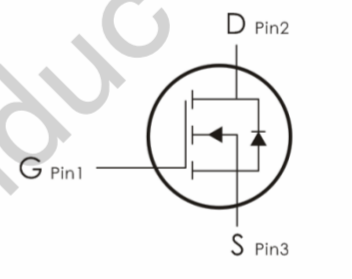
Description：

This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.It can be used in a wide variety of applications.



Features：

- V_{DS}=40V,I_D=60A,$R_{DS(ON)}$<12mΩ@V_{GS}=10V
- Low gate charge.
- Green device available.
- Advanced high cell denity trench technology for ultra $R_{DS(ON)}$.
- Excellent package for good heat dissipation.



Absolute Maximum Ratings (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current-TC=25℃	60	A
	Continuous Drain Current-TC=100℃	42	
	Pulsed Drain Current	200	
E_{AS}	Single Pulse Avalanche Energy[5]	400	mJ
P_D	Power Dissipation	65	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case[2]	2.3	℃/W

Electrical Characteristics (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	40	45	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=40V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics[3]						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1.2	1.6	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=10V,I_D=20A	---	7.3	12	mΩ
G_{FS}	Forward Transconductance	V_{DS}=10V,I_D=20A	15	---	---	S
Dynamic Characteristics[4]						
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	---	1800	---	pF
C_{oss}	Output Capacitance		---	280	---	
C_{rss}	Reverse Transfer Capacitance		---	190	---	
Switching Characteristics[4]						
td(on)	Turn-On Delay Time	V_{DD}=20V,I_D=2A,R_L=1ΩV$_{GS}$=10V,R_G=3Ω	---	6.4	---	ns
t_r	Rise Time		---	17.2	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	29.6	---	ns
t_f	Fall Time		---	16.8	---	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=20V, I_D=20A	---	29	---	nC
Q_{gs}	Gate-Source Charge		---	4.5	---	nC
Q_{gd}	Gate-Drain " Miller" Charge		---	6.4	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage[3]	V_{GS}=0V,I_S=10A	---	---	1.2	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board, t ≤ 10 sec.

3. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.

4. Guaranteed by design, not subject to production

5. EAS condition : Tj=25℃,VDD=20V,VG=10V,L=1mH,Rg=25Ω.

Typical Characteristics (T_C=25℃ unless otherwise noted)

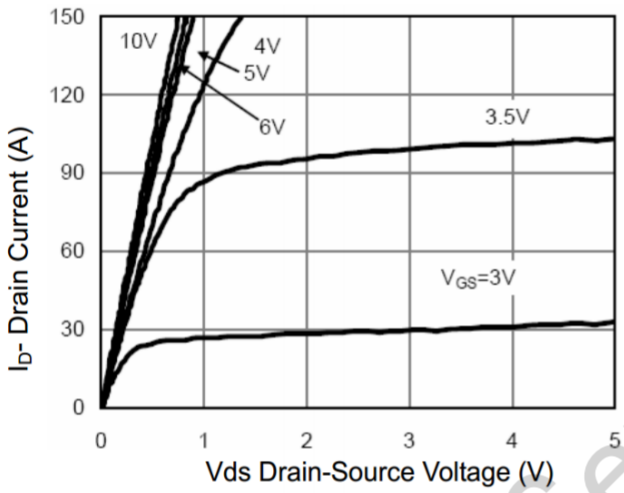


Figure 1 Output Characteristics

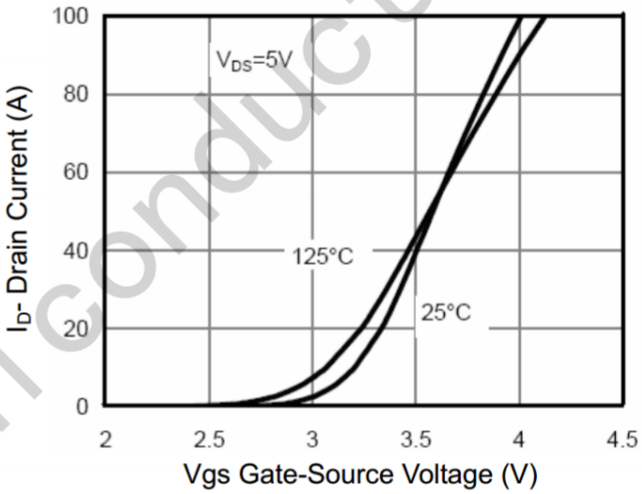


Figure 2 Transfer Characteristics

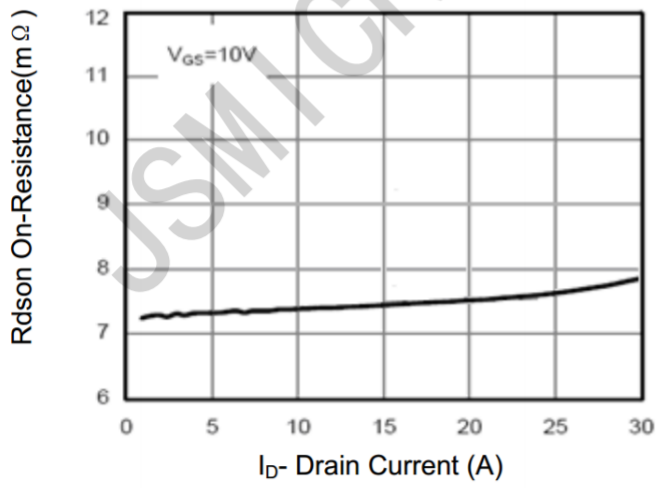


Figure 3 Rdson- Drain Current

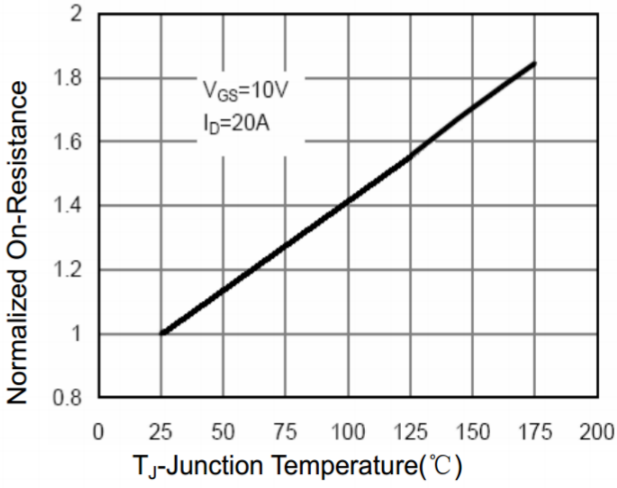


Figure 4 Rdson-JunctionTemperature

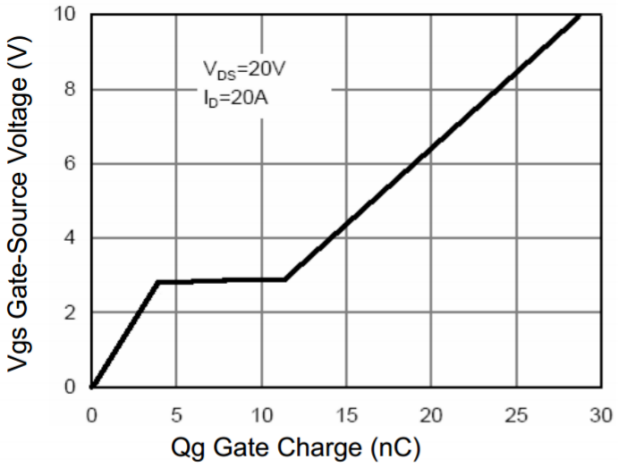


Figure 5 Gate Charge

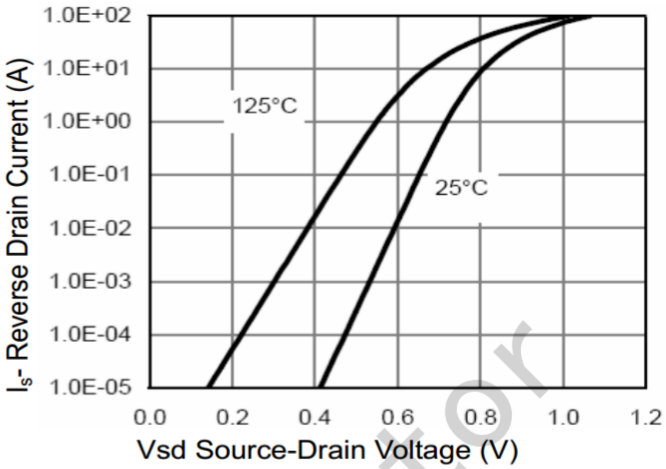


Figure 6 Source- Drain Diode Forward

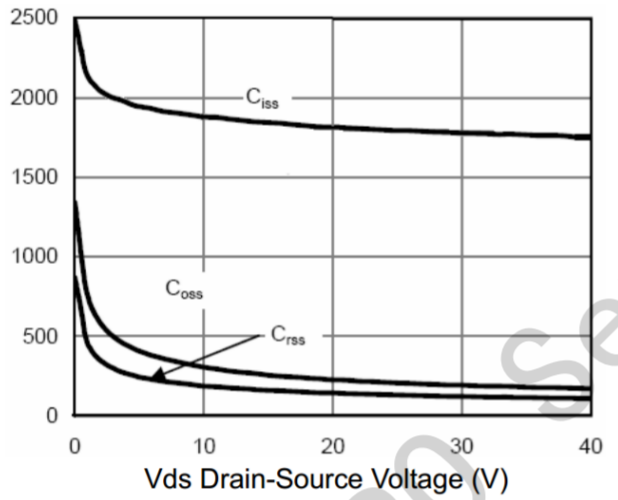


Figure 7 Capacitance vs Vds

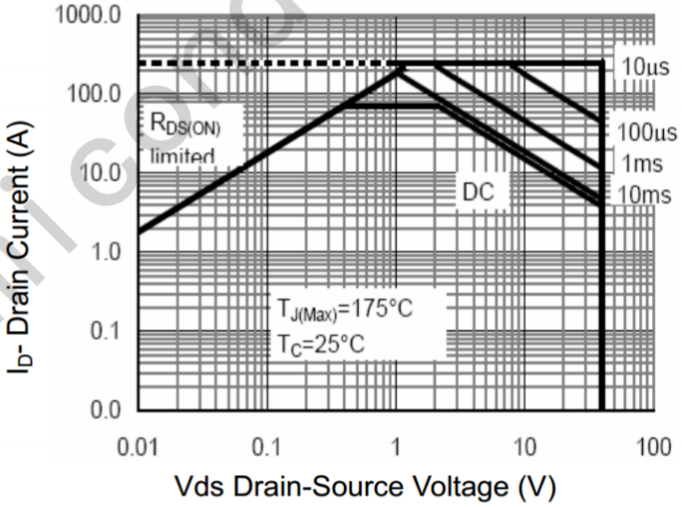


Figure 8 Safe Operation Area

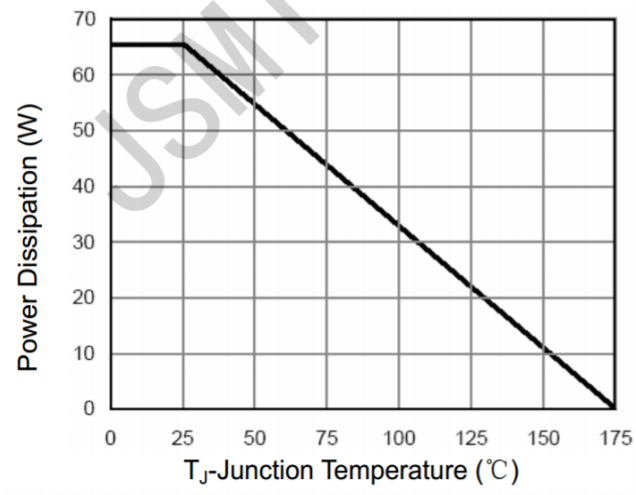


Figure 9 Power De-rating

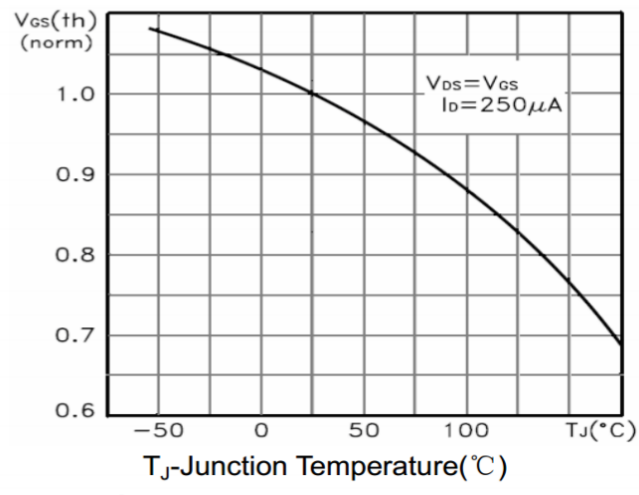


Figure 10 $V_{GS(th)}$ vs Junction Temperature

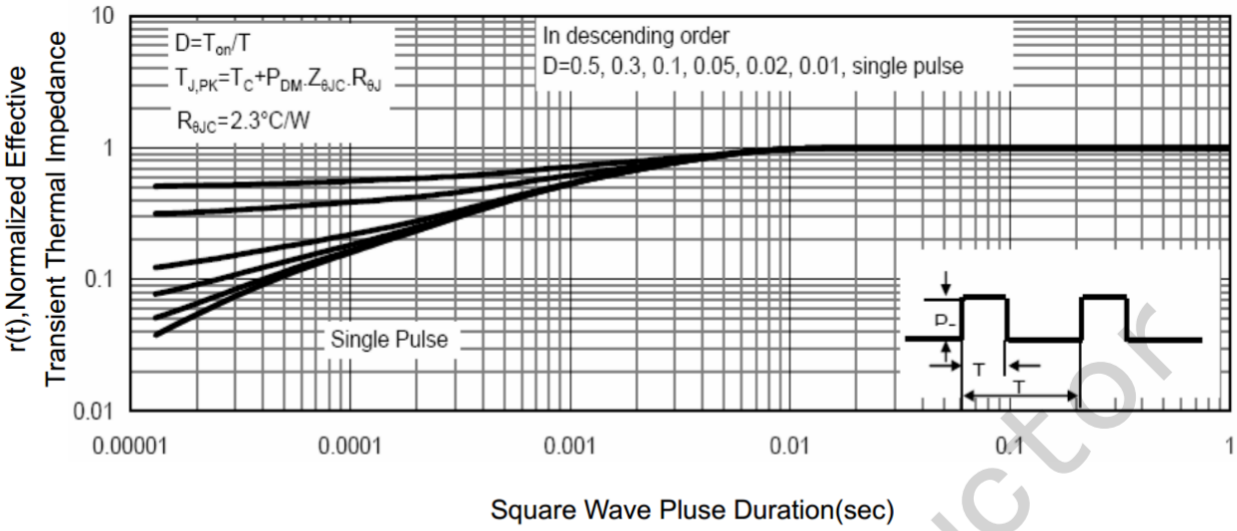
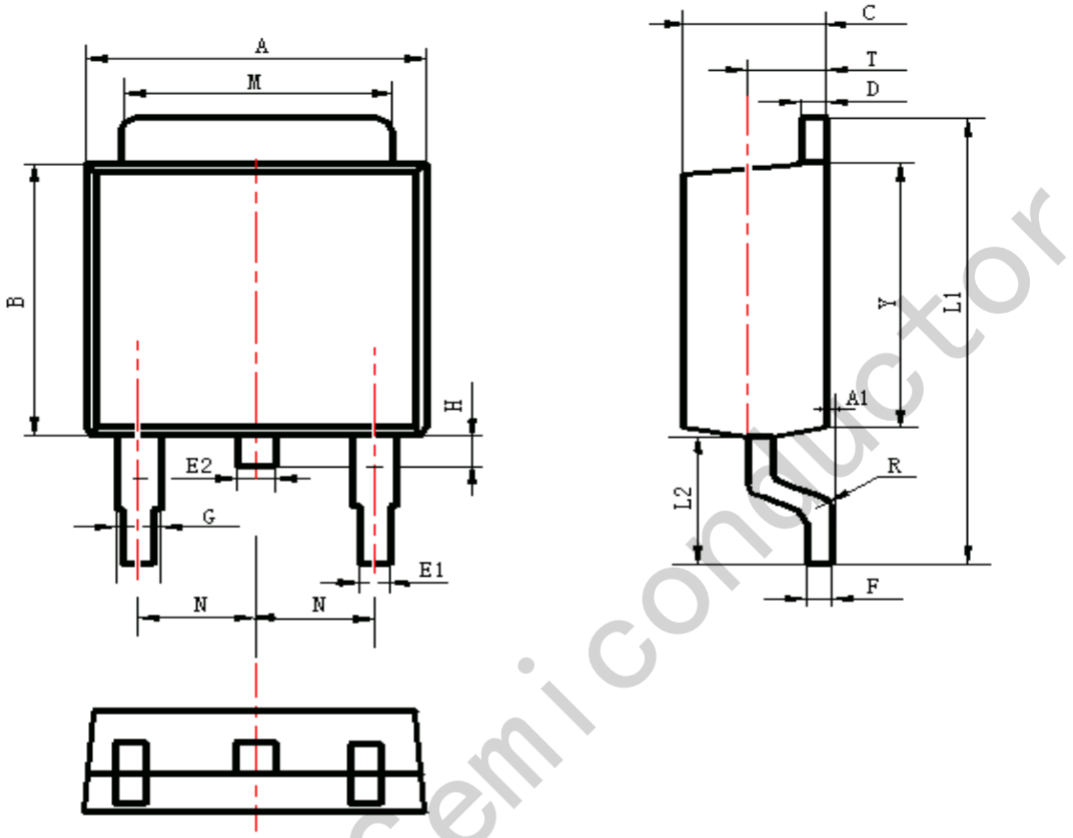


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Information

TO-252



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	6.30	6.90	0.248	0.272
A1	0.00	0.16	0.000	0.006
B	5.70	6.30	0.224	0.248
C	2.10	2.50	0.083	0.098
D	0.30	0.70	0.012	0.028
E1	0.60	0.90	0.024	0.035
E2	0.70	1.00	0.028	0.039
F	0.30	0.60	0.012	0.024
G	0.70	1.20	0.028	0.047
L1	9.60	10.50	0.378	0.413
L2	2.70	3.10	0.106	0.122
H	0.40	1.00	0.016	0.039
M	5.10	5.50	0.201	0.217
N	2.09	2.49	0.082	0.098
R	0.30		0.012	
T	1.40	1.60	0.055	0.063
Y	5.10	6.30	0.201	0.248