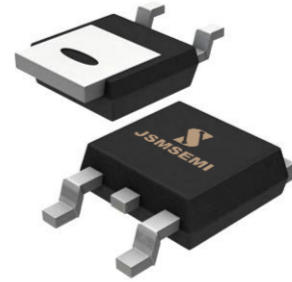


Description:

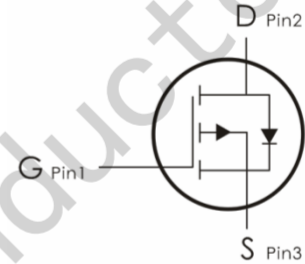
This P-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.



Features:

- 1) $V_{DS}=-100V, I_D=-12A, R_{DS(ON)}<200m\Omega @V_{GS}=-10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.



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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-100	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current ¹	-12	A
	Continuous Drain Current-TC=100°C	-9.2	
	Pulsed Drain Current ²	-52	
E_{AS}	Single Pulse Avalanche Energy ³	65	mJ
P_D	Power Dissipation ⁴	40	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	°C

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case ^(Note 2)	3.13	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ¹	---	

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	-100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=-100V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0A$	---	---	± 10	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	-1	-1.9	-3	V
$R_{DS(ON)}$	Drain-Source On Resistance ²	$V_{GS}=-10V, I_D=16A$	---	170	200	$m\Omega$
		$V_{GS}=-4.5V, I_D=A$	---	---	---	
G_{FS}	Forward Transconductance	$V_{DS}=-50V, I_D=-10A$	12	---	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=-25V, V_{GS}=0V, f=1MHz$	---	760	---	pF
C_{oss}	Output Capacitance		---	260	---	
C_{rss}	Reverse Transfer Capacitance		---	170	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	$V_{DD}=-50V, I_D=10A,$ $R_{GEN}=9.1\Omega, V_{GS}=-10V$	---	14	---	ns
t_r	Rise Time		---	18	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	50	---	ns
t_f	Fall Time		---	18	---	ns
Q_g	Total Gate Charge	$V_{GS}=-10V, V_{DS}=-50V,$ $I_D=-10A$	---	25	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	7	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage ²	$V_{GS}=0V, I_S=10A$	---	---	-1.2	V
I_S	Diode Forward Current (Note 2)	$V_D=V_G=0V$	---	---	-13	A
T_{rr}	Reverse Recovery Time	$T_J = 25^\circ\text{C}, I_F = -10A$ $di/dt = 100A/\mu s$ (Note3)	---	35	---	ns
Q_{rr}	Reverse Recovery Charge		---	46	---	nC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production
5. E_{AS} condition: $T_J=25^\circ C, V_{DD}=-50V, V_G=-10V, L=0.5mH, R_g=25\Omega$

Typical Characteristics: ($T_C=25^\circ C$ unless otherwise noted)

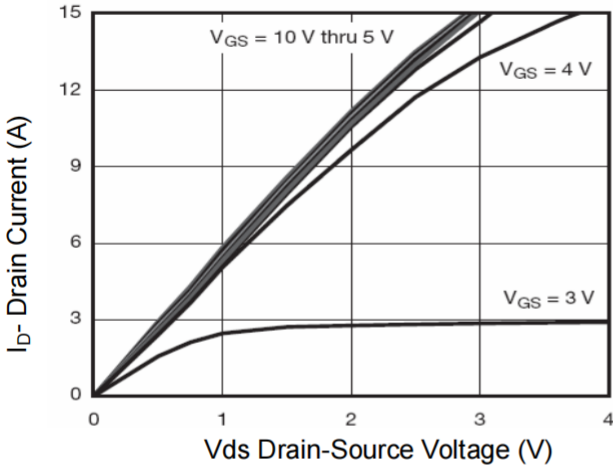


Figure 1 Output Characteristics

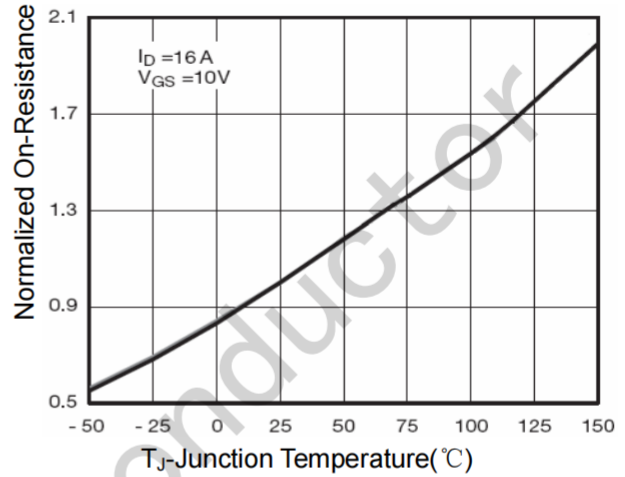


Figure 4 Rdson-Junction Temperature

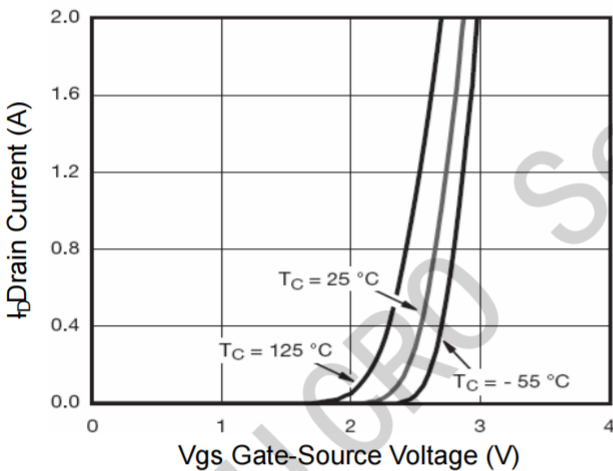


Figure 2 Transfer Characteristics

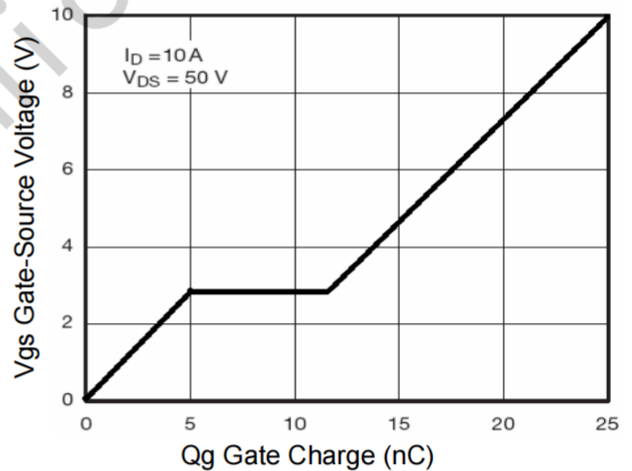


Figure 5 Gate Charge

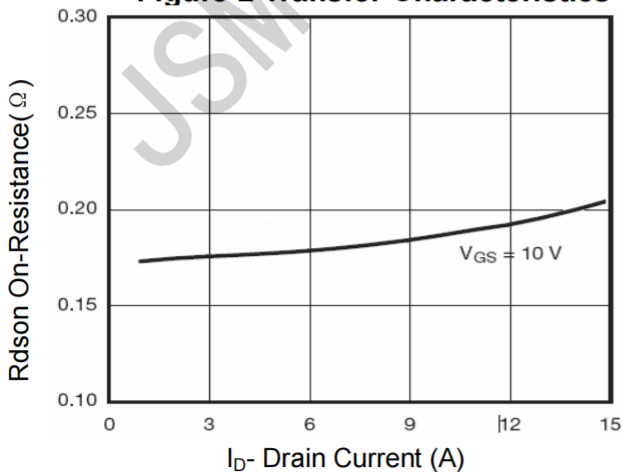


Figure 3 Rdson- Drain Current

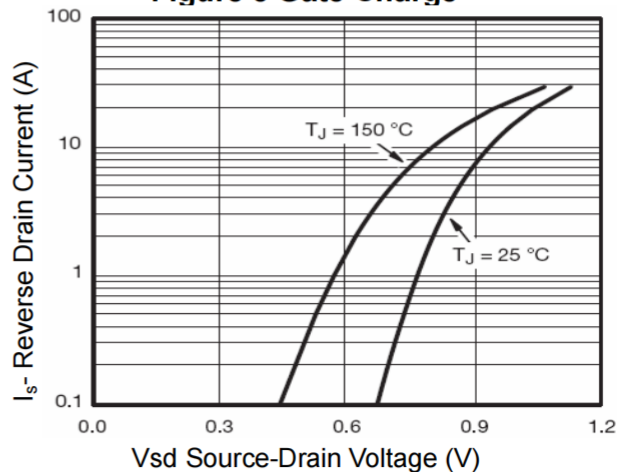


Figure 6 Source- Drain Diode Forward

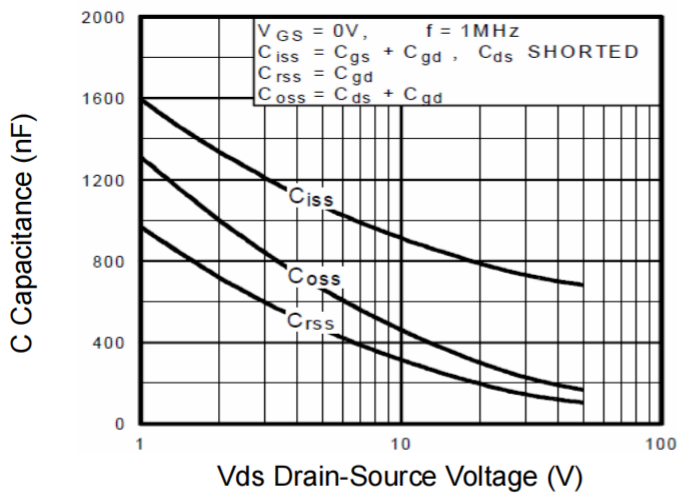


Figure 7 Capacitance vs Vds

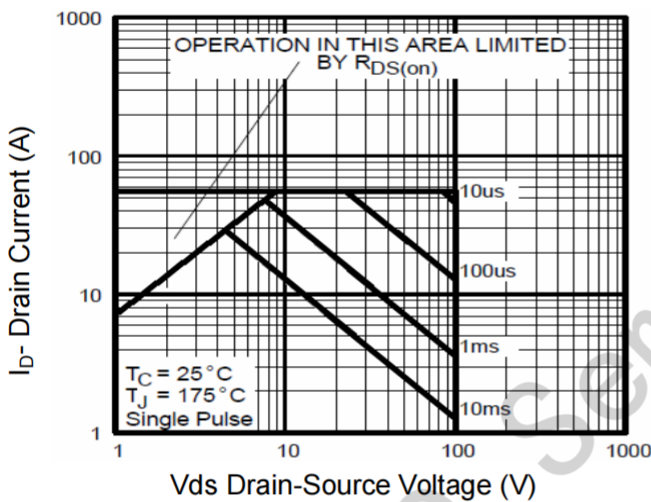
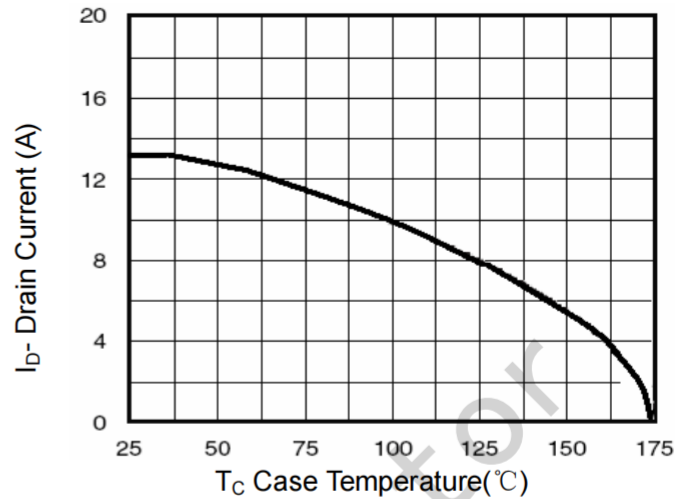


Figure 8 Safe Operation Area

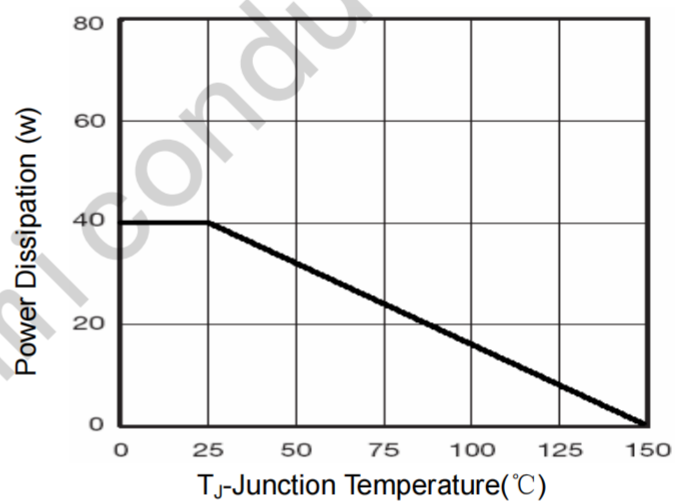


Figure 10 Power De-rating

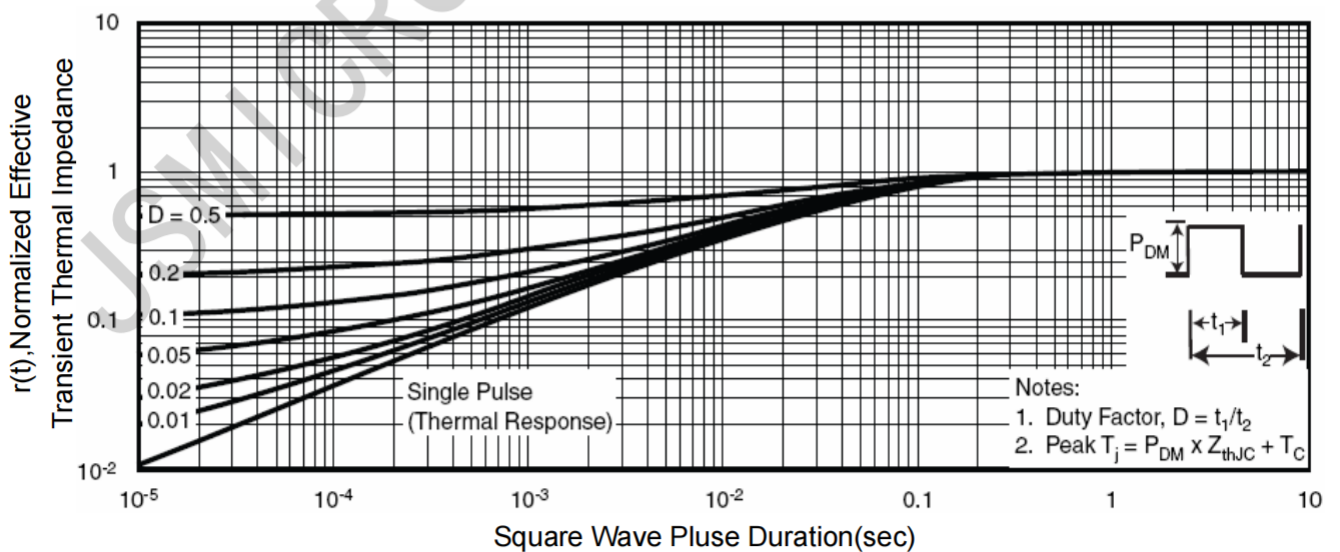
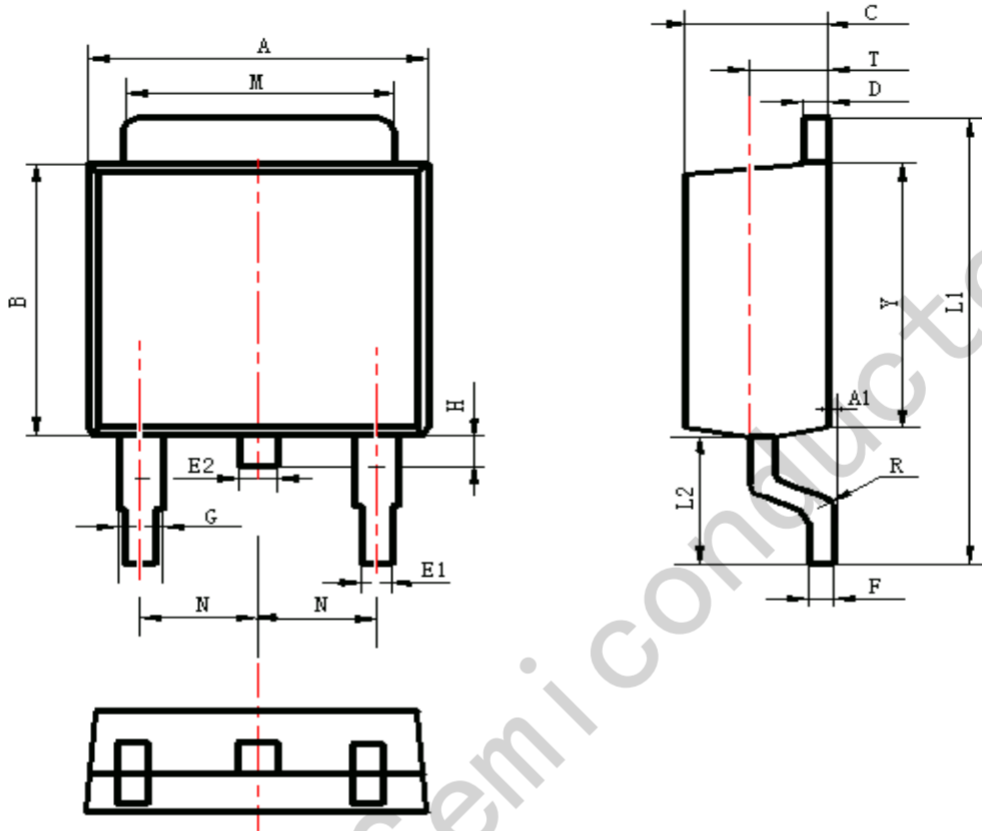


Figure 11 Normalized Maximum Transient Thermal Impedance

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

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