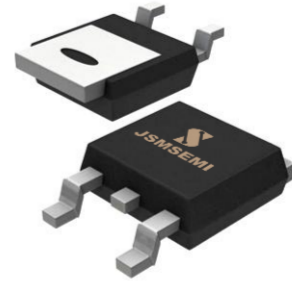


Description:

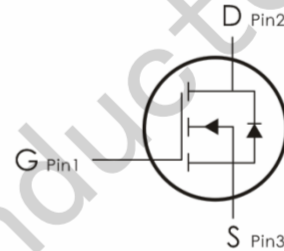
This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.



Features:

- 1) $V_{DS}=100V, I_D=19A, R_{DS(ON)} < 60m\Omega @ V_{GS}=10V$
- 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- $T_C=25^\circ C$	19	A
	Continuous Drain Current- $T_C=100^\circ C$	12	
	Pulsed Drain Current ¹	70	
P_D	Power Dissipation($T_c=25^\circ C$)	55	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	2.27	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance,Junction to ambient	62	$^\circ C/W$

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	$V_{GS}=0V, I_D=250\ \mu\text{A}$	100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=100V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	1.2	1.6	2.5	V
$R_{DS(on)}$	Drain-Source On Resistance	$V_{GS}=10V, I_D=5A$	---	45	60	$\text{m}\Omega$
		$V_{GS}=4.5V, I_D=3A$	---	50	70	$\text{m}\Omega$
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=50V, V_{GS}=0V, f=1\text{MHz}$	---	1680	2150	pF
C_{oss}	Output Capacitance		---	480	700	
C_{rss}	Reverse Transfer Capacitance		---	35	55	
Switching Characteristics						
$t_d(on)$	Turn-On Delay Time ^{2,3}	$V_{DD}=30V, I_D=1A$ $R_{GEN}=3.3\Omega$	---	2.9	6	ns
t_r	Rise Time ^{2,3}		---	9.5	18	ns
$t_d(off)$	Turn-Off Delay Time ^{2,3}		---	18.4	35	ns
t_f	Fall Time ^{2,3}		---	5.3	10	ns
Q_g	Total Gate Charge ^{2,3}	$V_{GS}=10V, V_{DS}=48V,$ $I_D=5A$	---	9.3	13	nC
Q_{gs}	Gate-Source Charge ^{2,3}		---	2.1	4.2	nC
Q_{gd}	Gate-Drain "Miller" Charge ^{2,3}		---	1.8	4	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage	$V_{GS}=0V, I_S=1\text{A}$	---	---	1	V

Notes:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

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

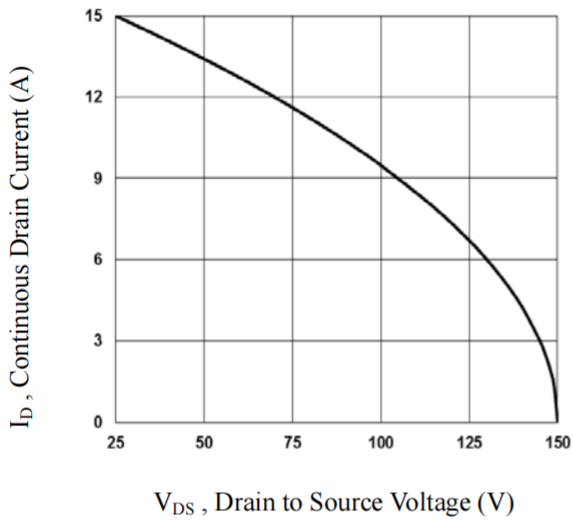


Fig.1 Output Characteristics

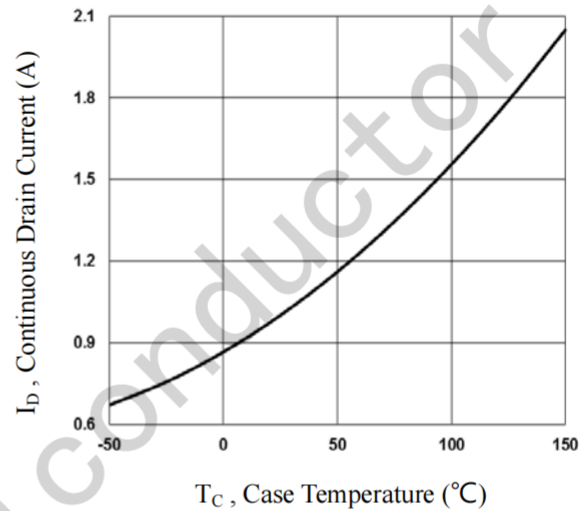


Fig.2 Continuous Drain Current vs. T_C

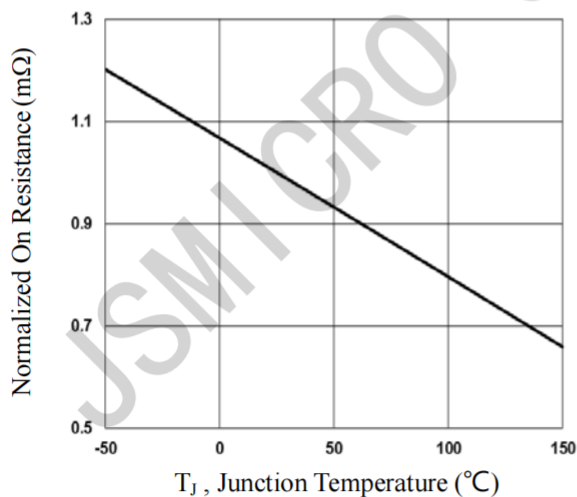


Fig.3 Normalized $R_{DS(on)}$ vs. T_J

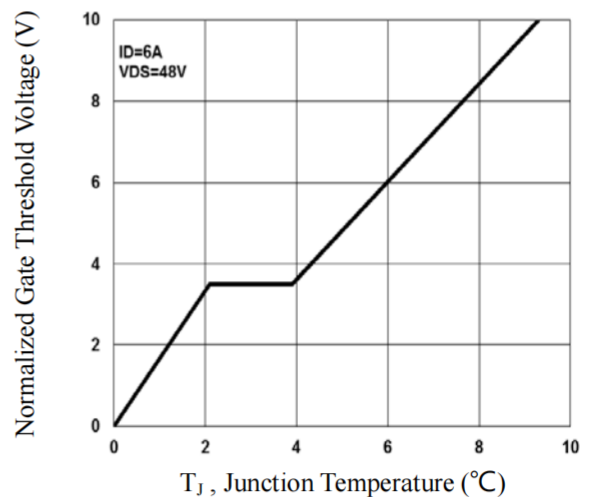


Fig.4 Normalized V_{th} vs. T_J

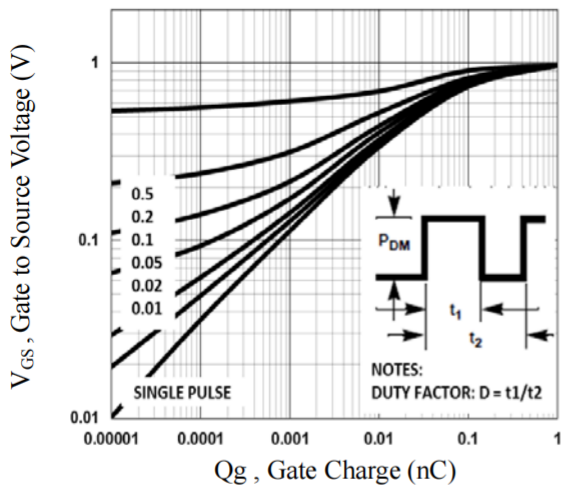


Fig.5 Gate Charge Waveform

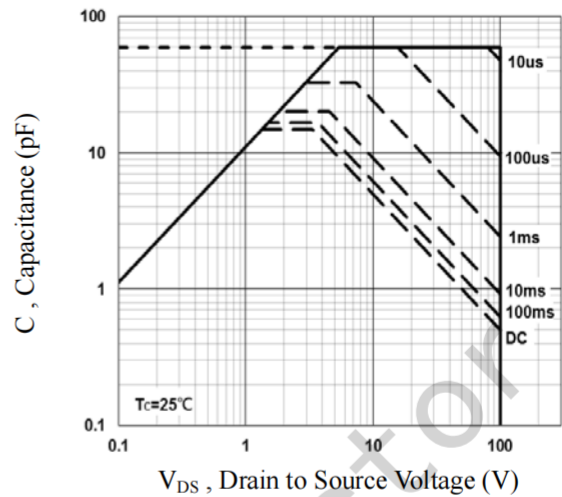


Fig.6 Capacitance Characteristics

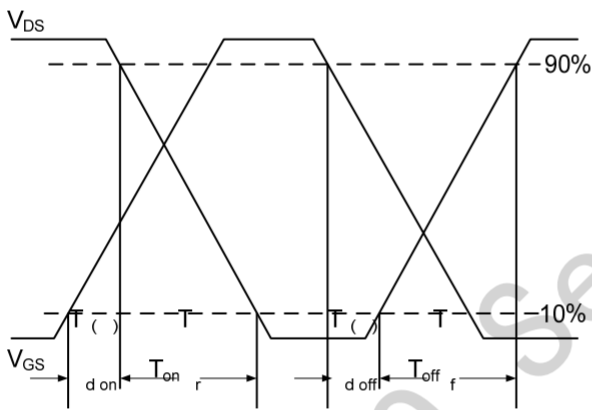


Fig.7 Switching Time Waveform

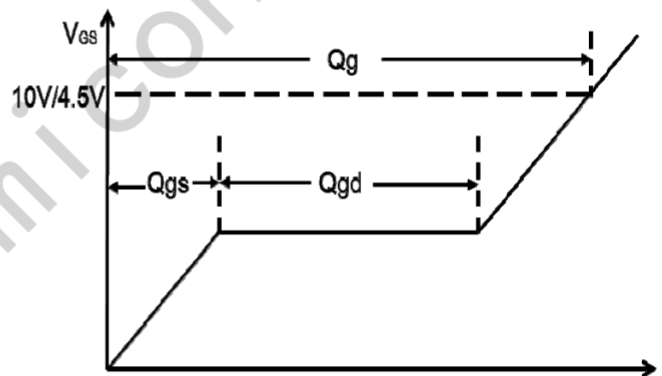
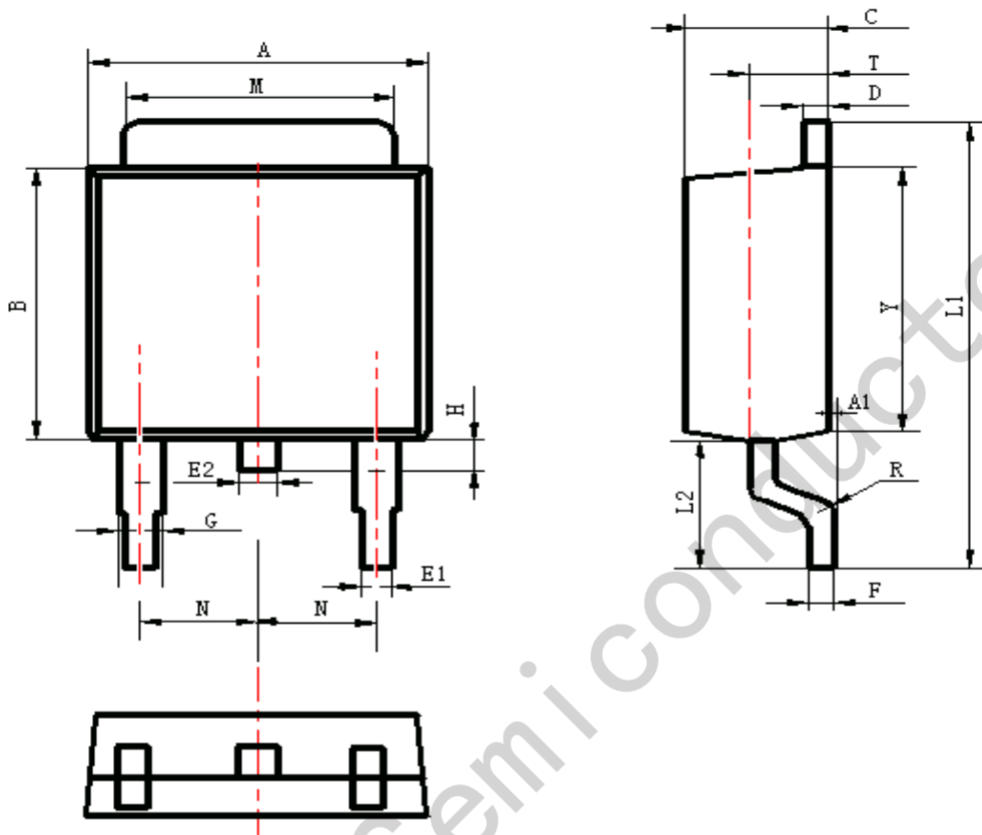


Fig.8 Gate Charge Waveform

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