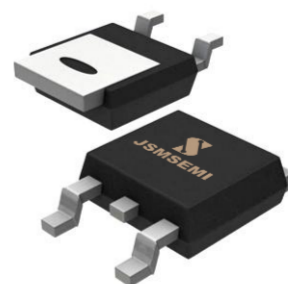


Description:

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

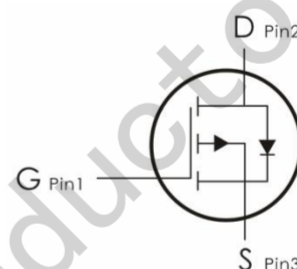
It can be used in a wide variety of applications.



TO-252

Features:

- 1) $V_{DS}=-30V, I_D=-50A, R_{DS(on)} < 14m\Omega @ V_{GS}=-10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(on)}$.
- 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	-30	V
V_{GS}	Gate-Source Voltage	± 25	V
I_D	Continuous Drain Current- $T_C=25^\circ C$	-50	A
	Continuous Drain Current- $T_C=100^\circ C$	-38	
$I_{DM (pulse)}$	Drain Current – Pulsed ^(Note 1)	-220	A
P_D	Power Dissipation- $T_C=25^\circ C$	75	W
	Power Dissipation- $T_C=100^\circ C$	37.5	
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	2	$^\circ C/W$

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 μ A	-30	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =-30V	---	---	1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 25V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	-1	-1.6	-2.5	V
R _{DS(ON)}	Drain-Source On Resistance	V _{GS} =-10V, I _D =-20A	---	9.5	14	m Ω
		V _{GS} =-4.5V, I _D =-15A	---	13	21	
G _{FS}	Forward Transconductance	V _{DS} =-5V, I _D =-6A	10	22	---	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	---	2350	---	pF
C _{oss}	Output Capacitance		---	380	---	
C _{rss}	Reverse Transfer Capacitance		---	285	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} =-15V, I _D =-1A, R _L =15 Ω ,R _G =2.5 Ω , V _{GS} =-10V	---	11	---	ns
t _r	Rise Time		---	24	---	ns
t _{d(off)}	Turn-Off Delay Time		---	38	---	ns
t _f	Fall Time		---	10	---	ns
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-10V, I _D =-12A	---	40	---	nC
Q _{gs}	Gate-Source Charge		---	7.5	---	nC
Q _{gd}	Gate-Drain Charge		---	10	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Source-Drain Diode Forward Voltage	V _{GS} =0V, I _S =-6A	---	---	-1.2	V

I_{SD}	Continuous Source Current	---	---	---	-55	A
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Notes: 1.Repetitive Rating: Pulse width limited by maximum junction temperature

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

Figure1. Power Dissipation

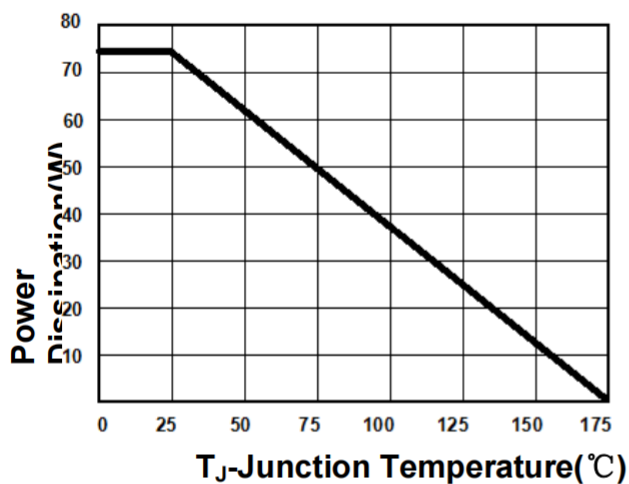


Figure2. Drain Current

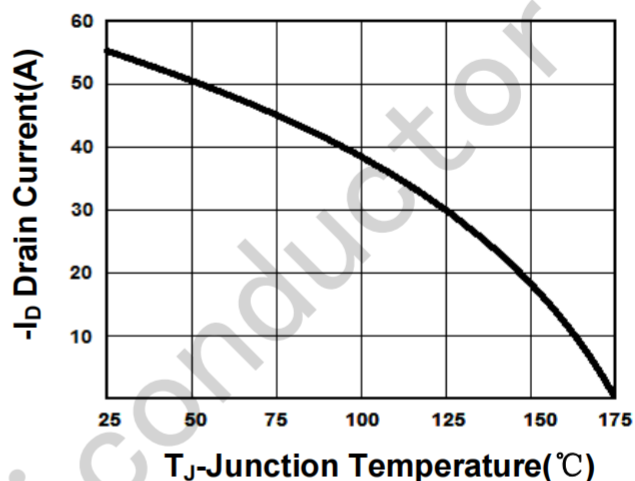


Figure3. Output Characteristics

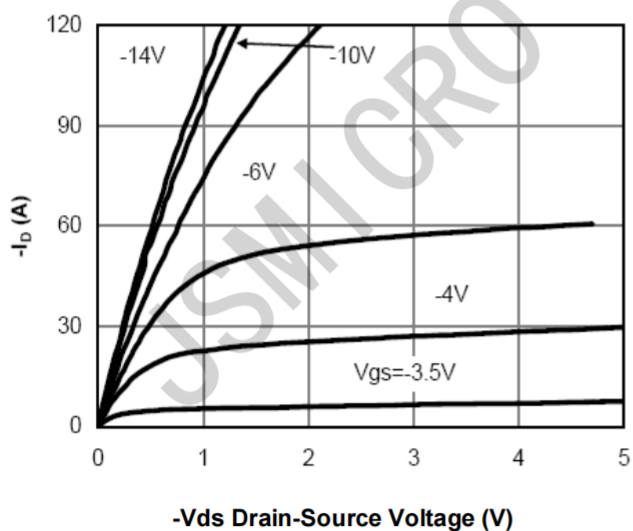


Figure4. Transfer Characteristics

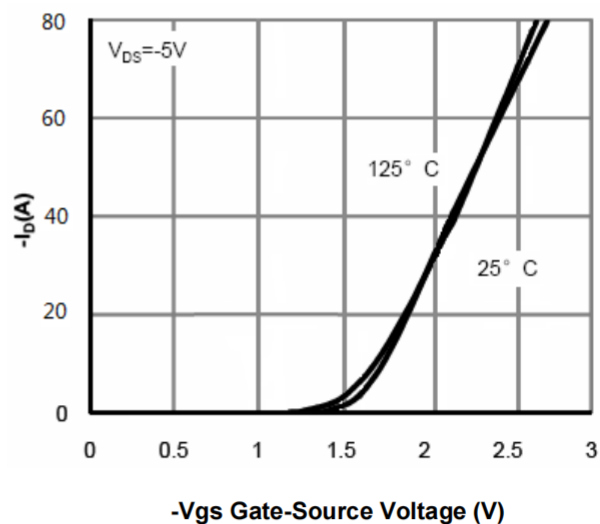


Figure5. Capacitance

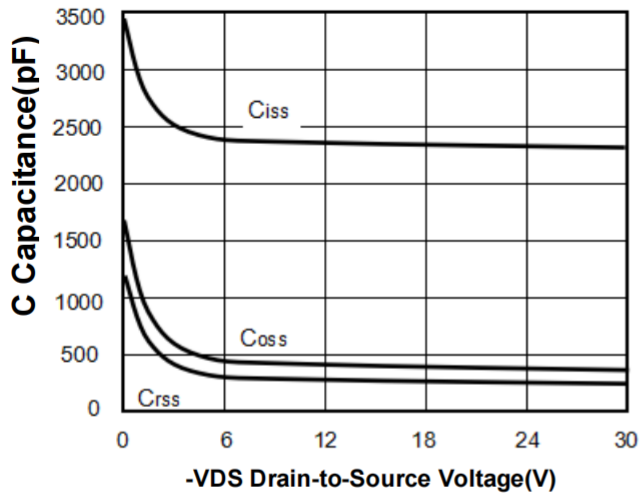


Figure6. $R_{DS(ON)}$ vs Junction Temperature

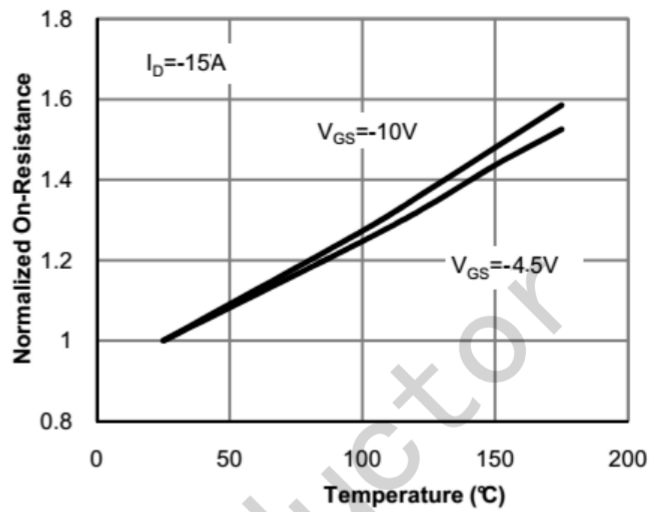


Figure7. Max BV_{DSS} vs Junction Temperature

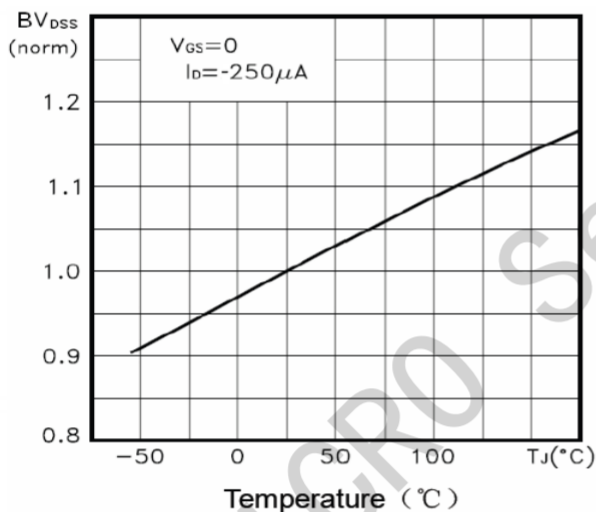


Figure8. $V_{GS(th)}$ vs Junction Temperature

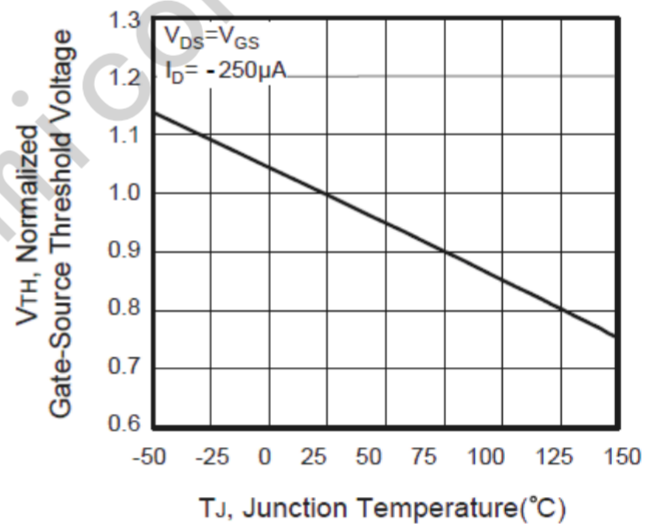


Figure9. Gate Charge Waveforms

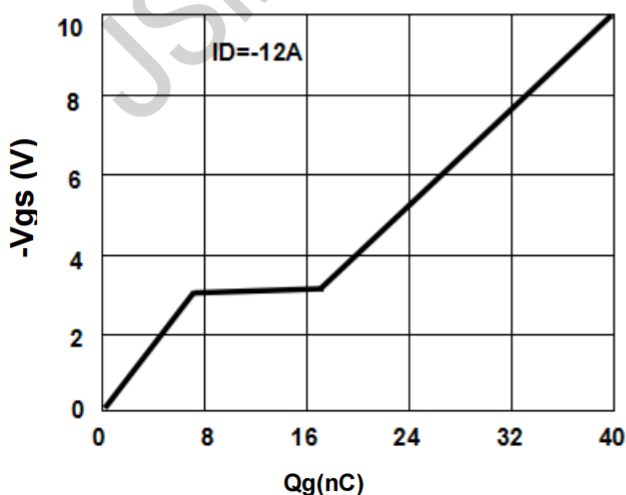


Figure10. Maximum Safe Operating Area

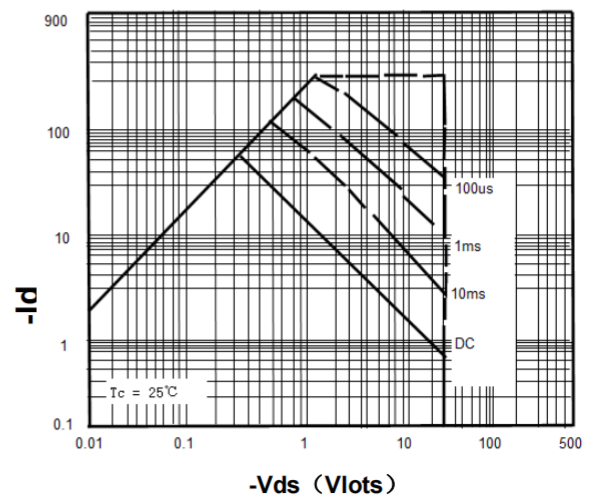
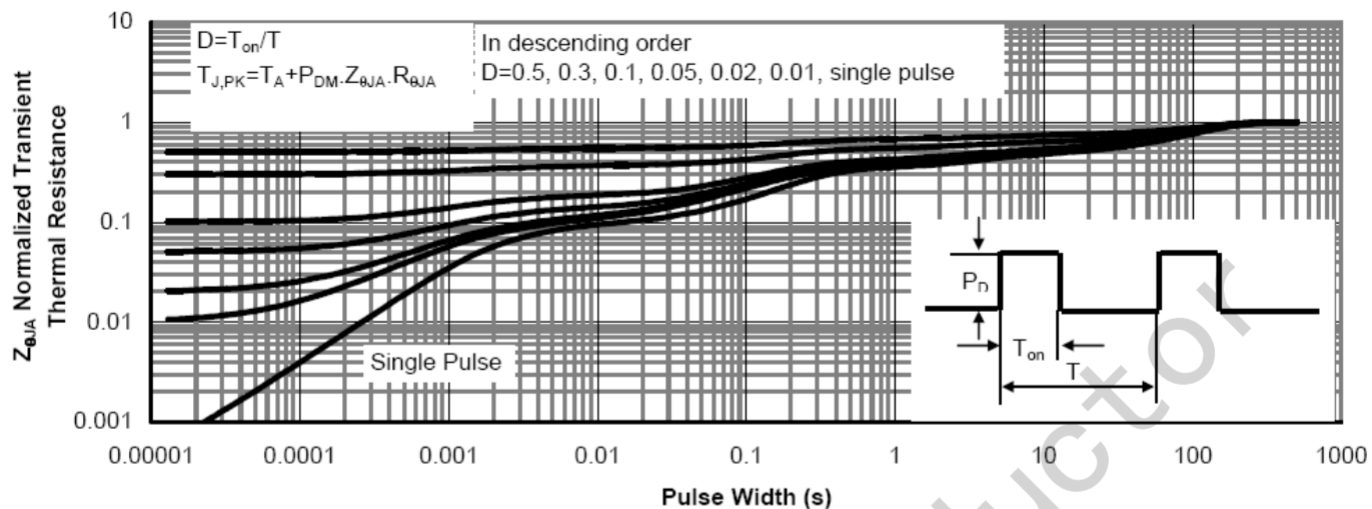


Figure11. Normalized Maximum Transient Thermal Impedance



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