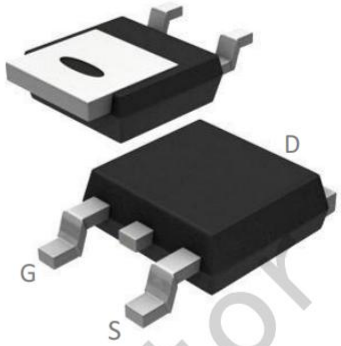
Description：

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.



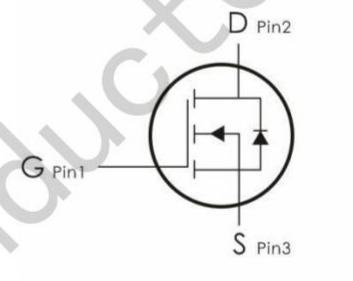
Features：

(1) V_{DS}=40V,I_D=70A ,$R_{DS(ON)}$<6.2m Ω @V_{GS}=10V

(2) Lead free and Green Device Available

(3) Excellent RDS(ON) and Low Gate Charge

(4) Lead free product is acquired



Absolute Maximum Ratings： (TC=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-T_C=25℃	70	A
	Continuous Drain Current-T_C=100℃	46	A
I_{DM}	Pulsed Drain Current note1	280	A
E_{AS}	Single Pulsed Avalanche Energy note2	96	mJ
P_D	Power Dissipation-T_C=25℃	58	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	2.6	℃/W

Electrical Characteristics: (T_J=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	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=40V, V_{GS}=0V,	---	---	1.0	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1.0	1.5	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistanc[2]	V_{GS}=10V,I_D=30A	---	4.8	6.2	mΩ
		V_{GS}=4.5V,I_D=20A	---	7.2	11	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=20V, V_{GS}=0V, f=1MHz	---	2950	---	pF
C_{oss}	Output Capacitance		---	220	---	
C_{rss}	Reverse Transfer Capacitance		---	190	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	VDD=20V , VGS=10V , RG=3Ω， I_D=30A	---	8	---	ns
t_r	Rise Time		---	16	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	21	---	ns
t_f	Fall Time		---	10	---	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	70	A
I_{SM}	Pulsed Source Current		---	---	280	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=30A ,	---	---	1.2	V

Trr	Reverse Recovery Time	IF=20A , dI/dt=100A/μs , T_J=25℃	---	20	---	ns
Qrr	Reverse Recovery Charge		---	10	---	nC
Qg	Total Gate Charge	VDS =20V, ID =30A VGS =10V	---	46	---	nC
Qgs	Gate-Source Charge		---	7.2	---	nC
Qgd	Gate-Drain("Miller") Charge		---	8.8	---	nC

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: T_J=25℃, V_{DD}=20V, R_G=25Ω， L=0.5mH, I_{AS}=19.6A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics: (T_A=25℃ unless otherwise noted)

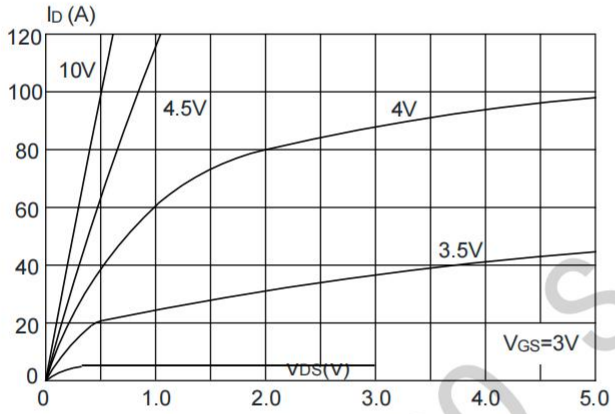


Figure1: Output Characteristics

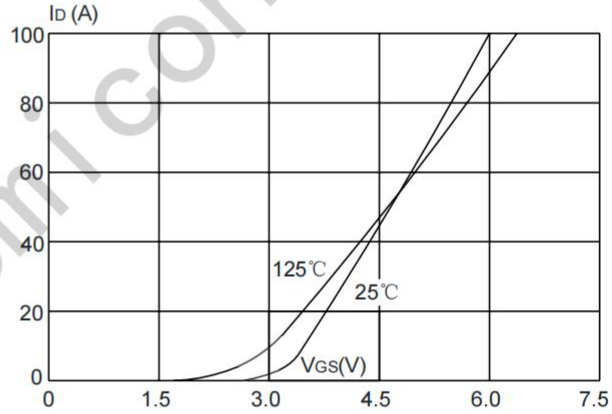


Figure 2: Typical Transfer Characteristics

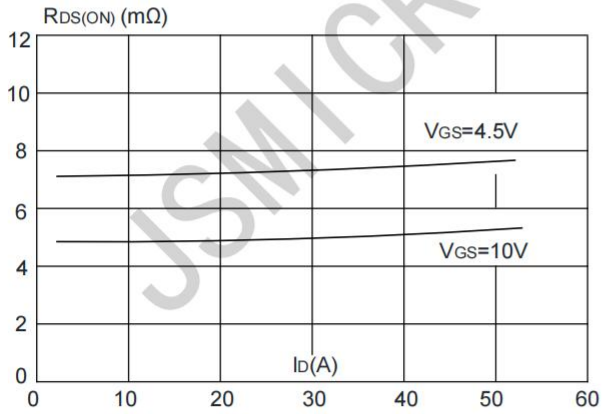


Figure 3: On-resistance vs. Drain Current

VGS(V)

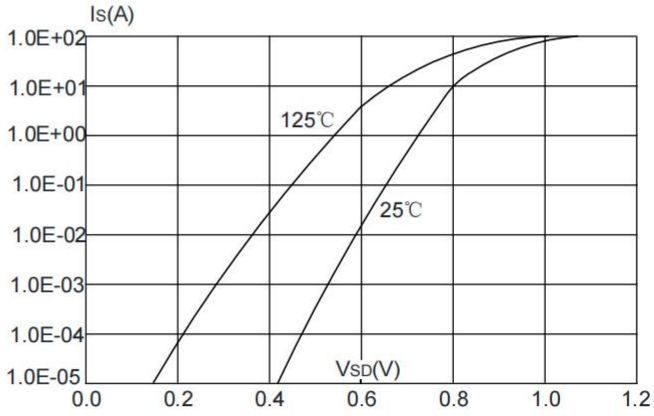


Figure 4: Body Diode Characteristics

C(pF)

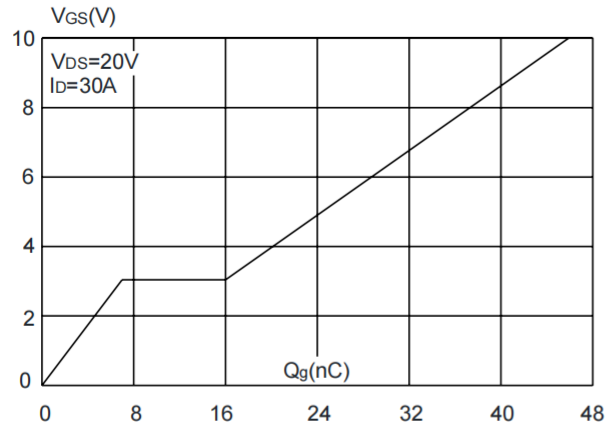


Figure 5: Gate Charge Characteristics

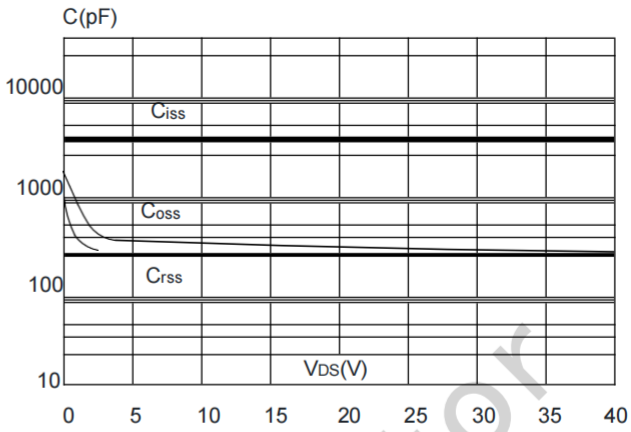


Figure 6: Capacitance Characteristics

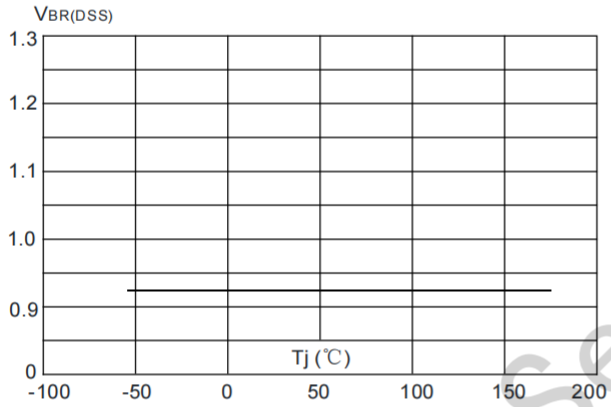


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

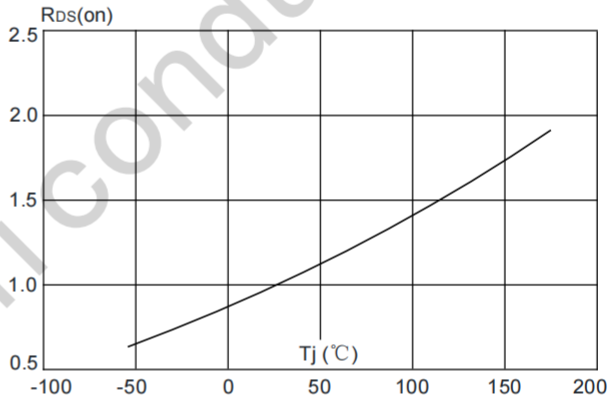


Figure 8: Normalized on Resistance vs. Junction Temperature

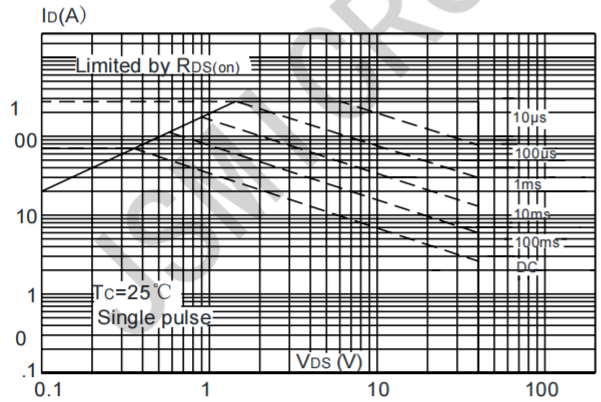


Figure 9: Maximum Safe Operating Area

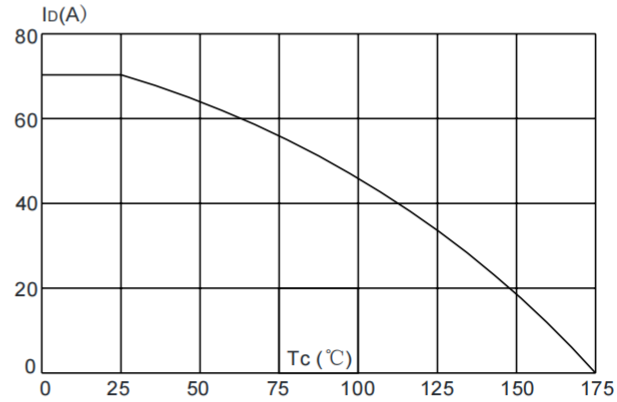


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

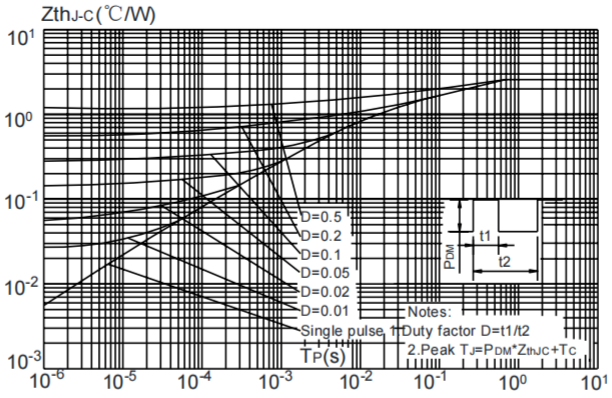
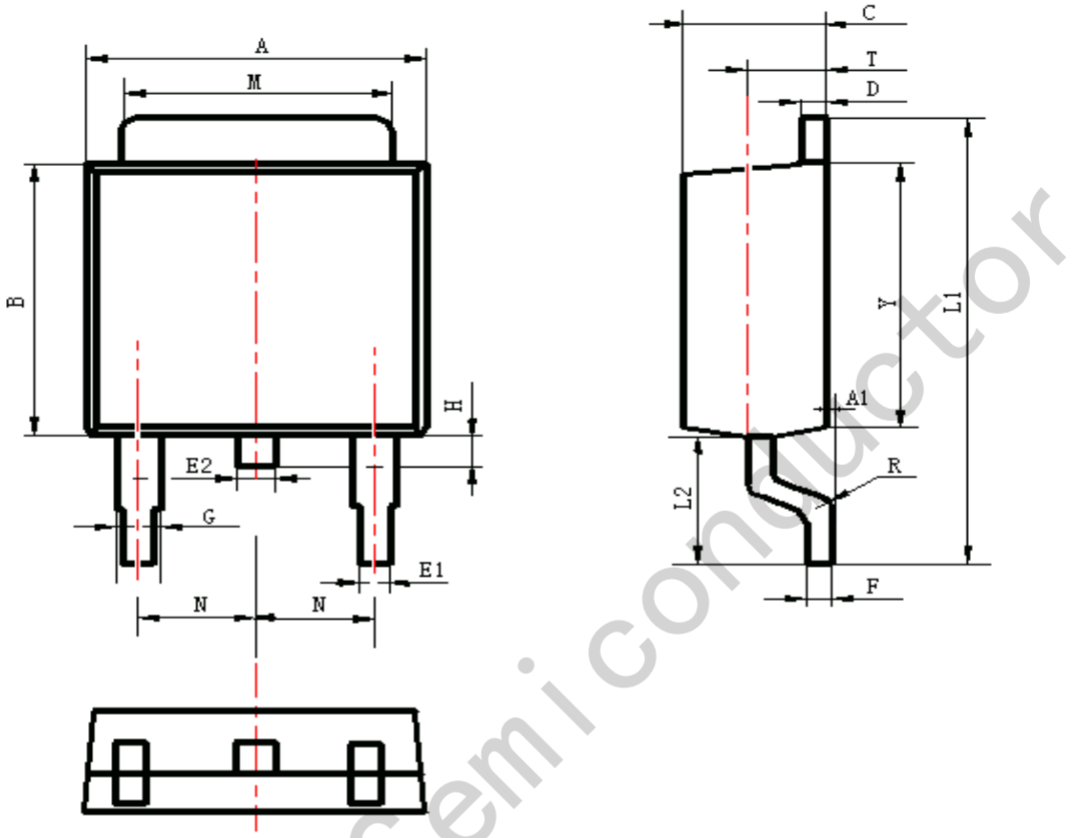


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

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