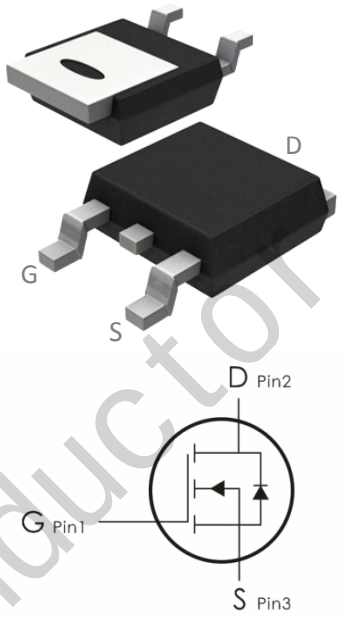
Description：

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=25A,$R_{DS(ON)}$<25mΩ @V_{GS}=10V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.

Absolute Maximum Ratings： (T_J=25℃ 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]-T_C=25℃	25	A
E_{AS}	Single Pulse Avalanche Energy[5]	8	mJ
I_{DM}	Pulsed Drain Current[2]-T_C=25℃	84	A
I_S	Continuous diode forward current[1]-T_C=25℃	25	A
I_{SM}	Diode pulsed current[2]- T_C=25℃	84	A
P_D	Power Dissipation[3]-T_C=25℃	27	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	4.63	℃/W
$R_{\theta JA}$	Thermal resistance, junction-ambient[4]	62	℃/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	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}=±20V	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1	---	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=10V,I_D=10A	---	20	25	mΩ
		V_{GS}=4.5V,I_D=10A	---	25	30	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	---	680	---	pF
C_{oss}	Output Capacitance		---	371	---	
C_{rss}	Reverse Transfer Capacitance		---	25	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{GS}=10V ,V_{DS}=50V, R_G=2Ω,I_D=20A	---	16.8	---	ns
t_r	Rise Time		---	3.2	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	25.4	---	ns
t_f	Fall Time		---	2	---	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=50V, I_D=20A	---	11	---	nC
Q_{gs}	Gate-Source Charge		---	1.8	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	2.4	---	nC
Drain-Source Diode Characteristics						

V_{SD}	Source-Drain Diode Forward Voltage	V_{GS}=0V,I_S=20A	---	---	1.3	V
trr	Body Diode Revrse Recovery Time	I_S=20A,**V_R=50V**	---	41.6	---	ns
Qrr	Body Diode Revrse Recovery Charge	dI/dt=100A/ μ s	---	54.6	---	nc

Notes:

1. Calculated continuous current based on maximum allowable junction temperature.

2. Repetitive rating; pulse width limited by max. junction temperature.

3.Pd is based on max. junction temperature, using junction-case thermal resistance.

4. The value of **$R_{\theta JA}$** is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with Ta=25℃.

5.V_{DD}=30V,V_{GS}=10V, L=0.3mH, starting T_j=25℃.

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

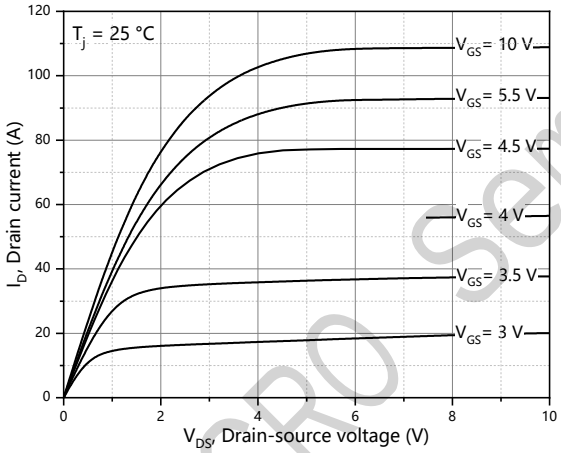


Figure 1. Typ. output characteristics

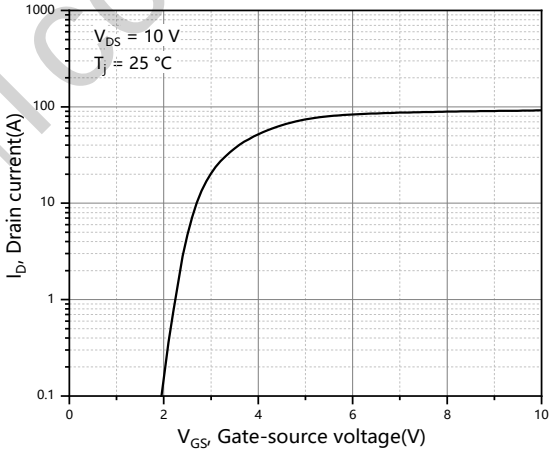


Figure 2. Typ. transfer characteristics

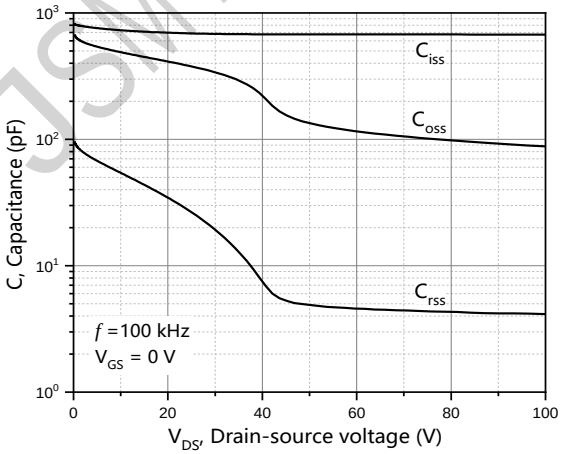


Figure 3. Typ. capacitances

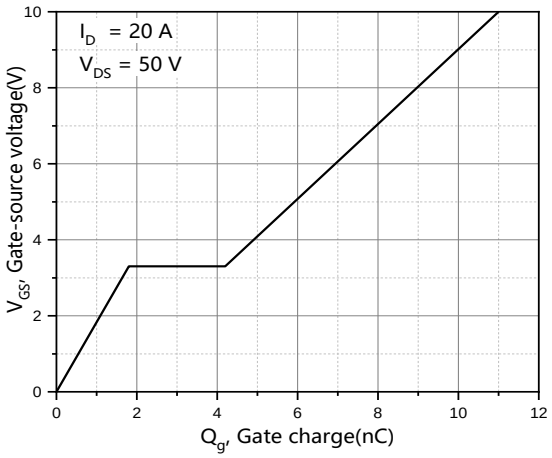


Figure 4. Typ. gate charge

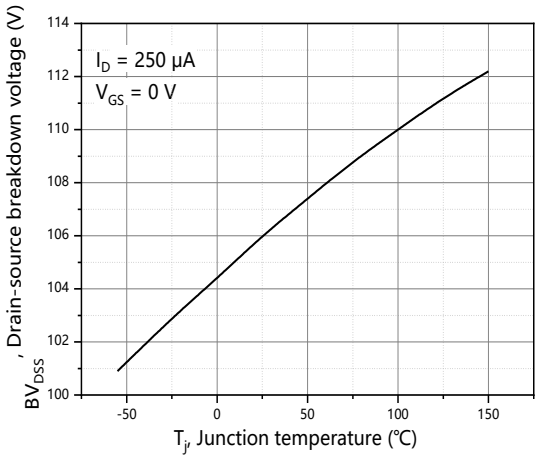


Figure 5. Drain-source breakdown voltage

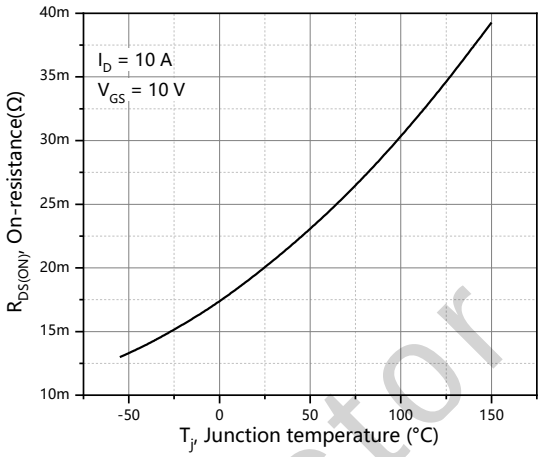


Figure 6. Drain-source on-state resistance

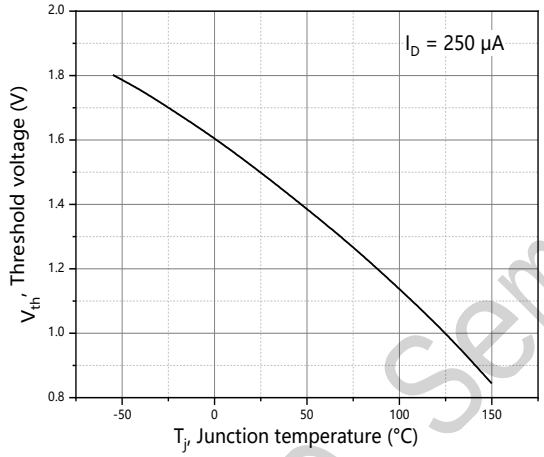


Figure 7. Threshold voltage

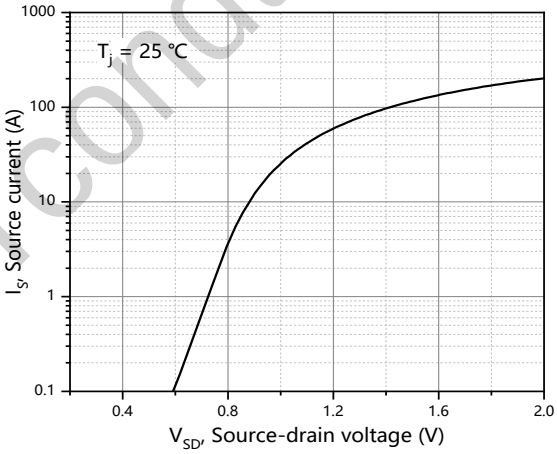


Figure 8. Forward characteristic of body diode

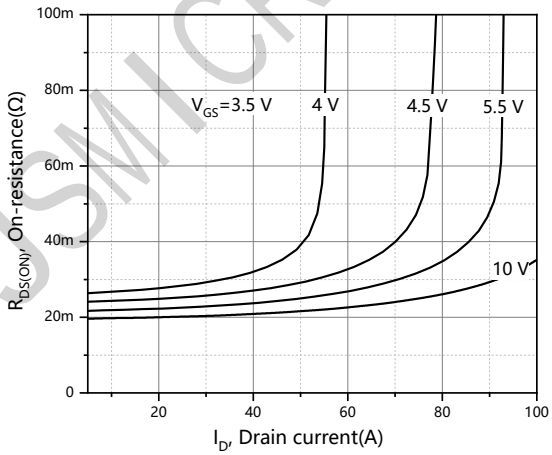


Figure 9. Drain-source on-state resistance

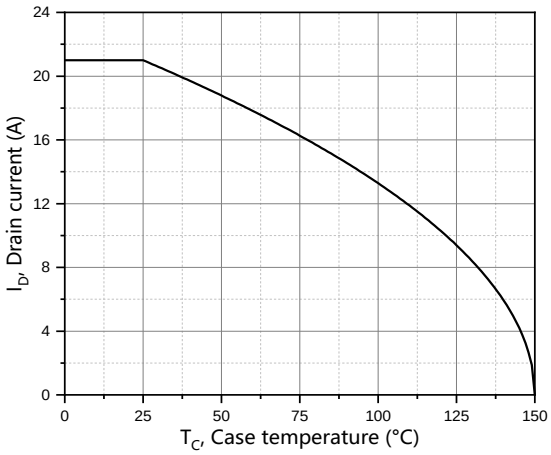


Figure 10. Drain current

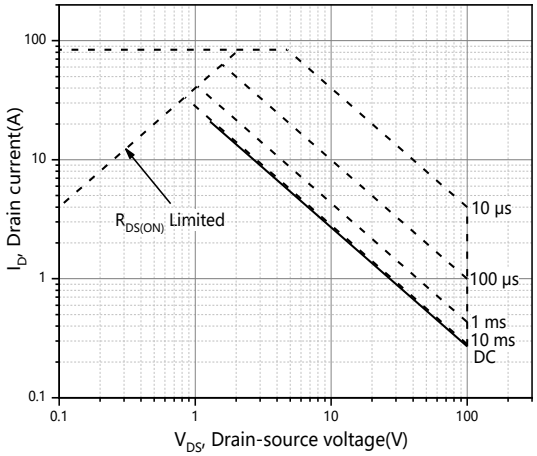


Figure 11. Safe operation area T_C=25℃

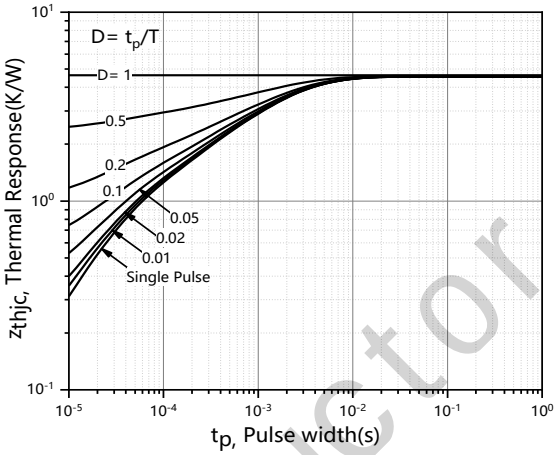


Figure 12. Max. transient thermal impedance

TO-252 Package Dimensions

UNIT：mm

SYMBOL	min	nom	max	SYMBOL	min	nom	max
A	6.40		6.60	D	2.90		3.10
A1	5.20		5.40	D1	0.45		0.55
A2	4.40		4.60	D2	0.45		0.55
A3	4.40		4.60	e		2.30	
A4	0		0.15	E	2.20		2.40
A5	4.65		4.95	F	0.45		0.55
B	5.90		6.20	G		1.70	
B1	1.57		1.77	L	1.40		1.60
C	0.90		0.96	θ（度）	0		10.00