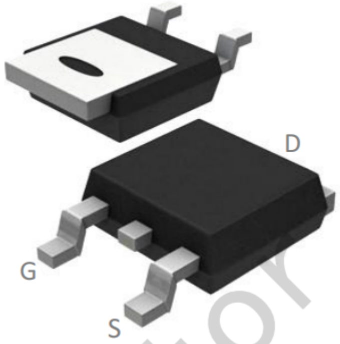
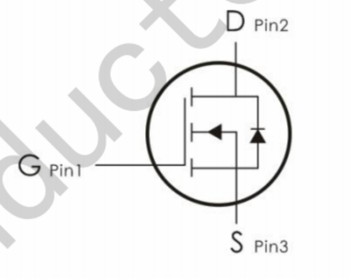
Description:

This N-Channel MOSFET uses advanced SGT 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=36A,$R_{DS(ON)}$<20mΩ @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_C=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℃	36	A
$I_{D,\ pulse}$	Pulsed drain current[2)], T_C=25℃	90	A
I_S	Continuous diode forward current[1)], T_C=25℃	30	A
$I_{S,\ pulse}$	Diode pulsed current[2)], T_C=25℃	90	A
P_D	Power dissipation[3)], T_C=25℃	71	W
E_{AS}	Single pulsed avalanche energy[5)]	57	mJ
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	1.76	℃/W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient[4)]	62	

Electrical Characteristics： (T_C=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, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1.4	---	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=10V,I_D=10A	---	13.8	20	mΩ
		V_{GS}=4.5V,I_D=7A	---	17.4	26	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=50V, V_{GS}=0V,f =100KHz	---	1000	---	pF
C_{oss}	Output Capacitance		---	180	---	
C_{rss}	Reverse Transfer Capacitance		---	9.5	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=50V, I_D=5A, V_{GS}=10V,R_G=10Ω	---	16.6	--	ns
t_r	Rise Time		---	3.8	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	75.5	---	ns
t_f	Fall Time		---	46	---	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=50V,I_D =5A	---	16.2	---	nC
Q_{gs}	Gate-Source Charge		---	2.8	---	nC
Q_{gd}	Gate-Drain Charge		---	4.1	---	nC
$V_{plateau}$	Gate plateau voltage		---	3	---	V
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage	V_{GS}=0V,I_S=12A	---	---	1.3	V

trr	Reverse Recovery Time	V_R=50 V,I_S=5 A, di/dt=100 A/ μ s	-----	49	-----	Nsn
qrr	Reverse Recovery Charge		----	61.8	----	c
I_{rmm}	Peak reverse recovery current			2.4		A

Notes:

1)2 Calculated continuous current based on maximum allowable junction temperature.
)3) Repetitive rating; pulse width limited by max. junction temperature.
4)5 Pd is based on max. junction temperature, using junction-case thermal resistance.
) 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 T_a=25 °C.
V_{DD}=50 V,V_{GS}=10 V, L=0.3 mH, starting T_j=25 °C.

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

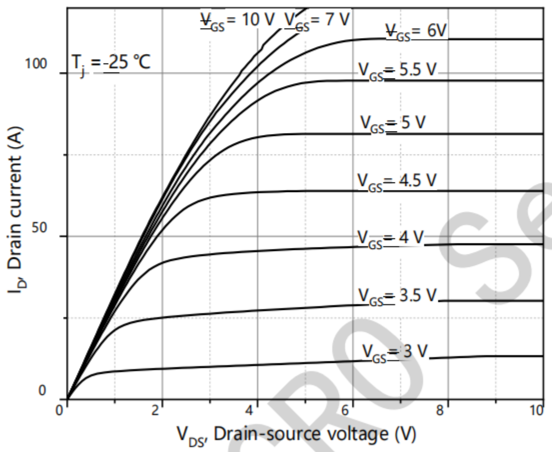


Figure 1. Typ. output characteristics

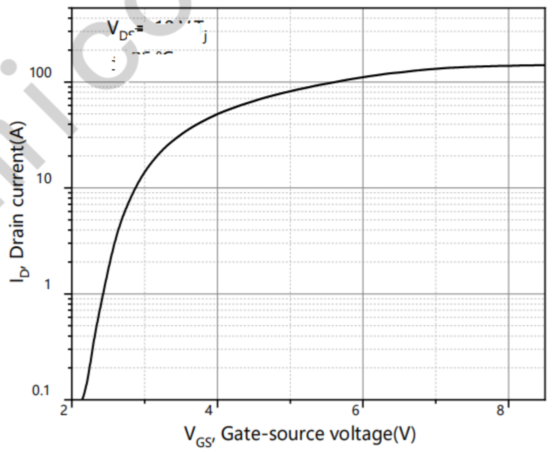


Figure 2. Typ. transfer characteristics

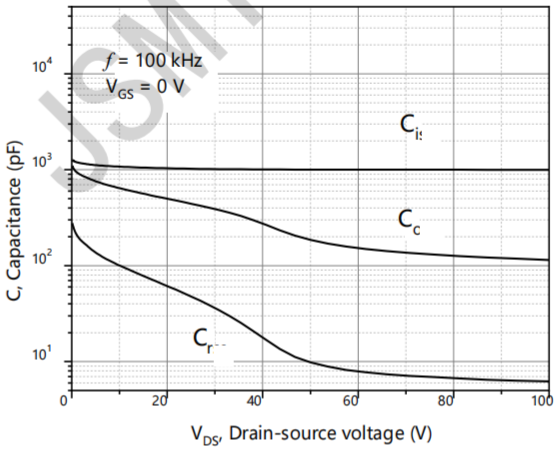


Figure 3. Typ. capacitances

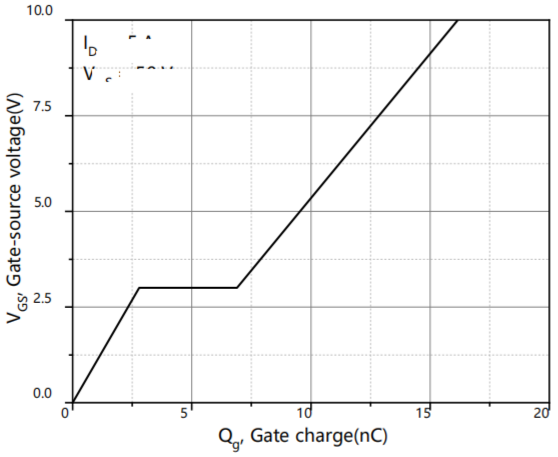


Figure 4. Typ. gate charge

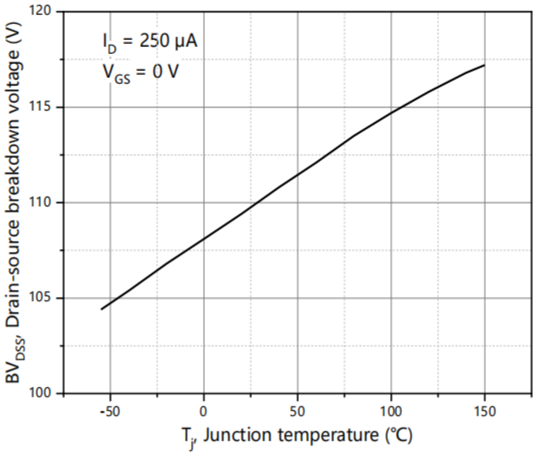


Figure 5. Drain-source breakdown voltage

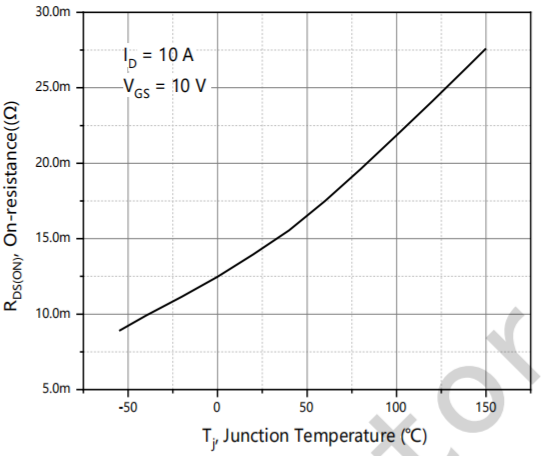


Figure 6. Drain-source on-state resistance

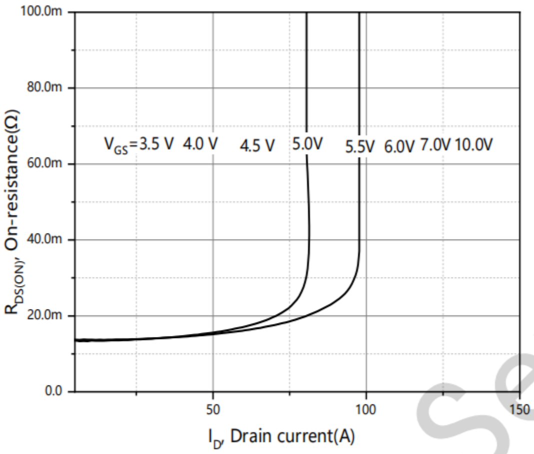


Figure 7. Drain-source on-state resistance

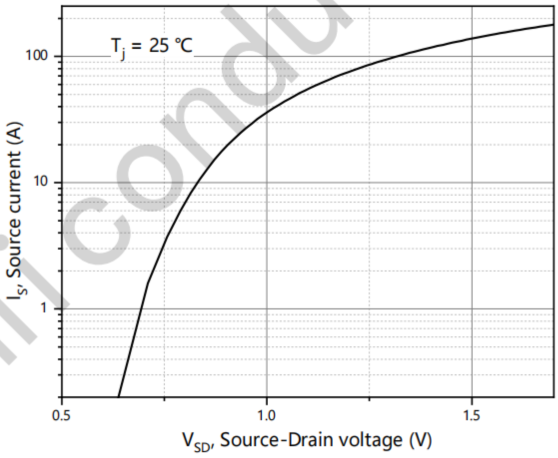


Figure 8. Forward characteristic of body diode

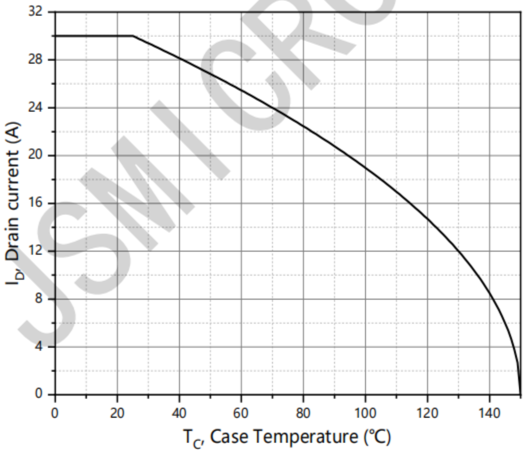


Figure 9. Drain current

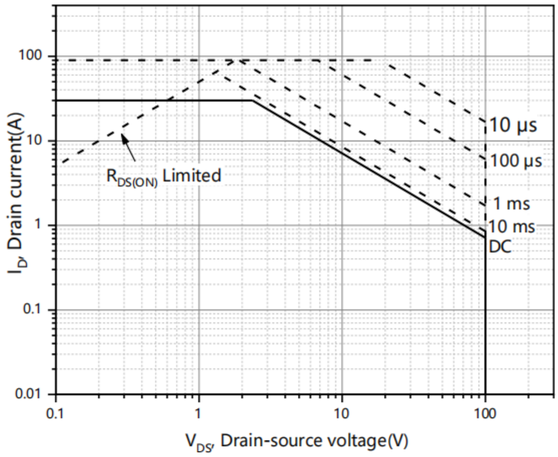
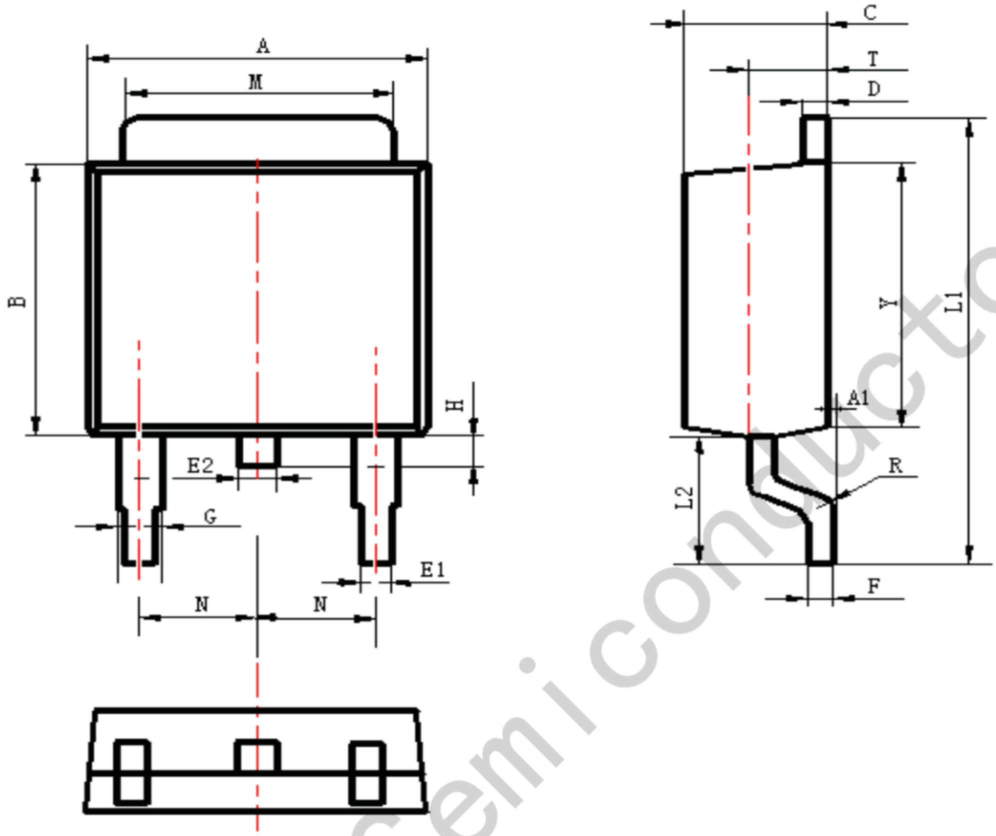


Figure 10. Safe operation area T_C=25 °C

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