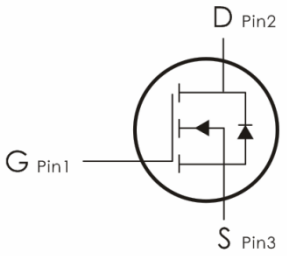
Description：

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}=80V,I_D=280A,$R_{DS(ON)}$<2.6mΩ @V_{GS}=10V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra $R_{DS(ON)}$.
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	80	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current-[1]	280	A
	Pulsed Drain Current[2]	840	
E_{AS}	Single Pulse Avalanche Energy[5]	1000	mJ
P_D	Power Dissipation[3]	375	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\Theta JC}$	Thermal Resistance,Junction to Case	0.33	℃/W
$R_{\Theta JA}$	Thermal Resistance,Junction to Ambient[4]	62.5	

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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	80		---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=60V	---	---	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	2		4	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=10V,I_D=20A	---	2.4	2.6	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance[4]	V_{DS}=50V, V_{GS}=0V, f=1MHz	---	10486.1	---	pF
C_{oss}	Output Capacitance[4]		---	2022.4	---	
C_{rss}	Reverse Transfer Capacitance[4]		---	19.9	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=50V, I_D=25A, R_{GEN}=2.2Ω .V_{GS}=10V	---	39.5		ns
t_r	Rise Time		---	27.5		ns
$t_{d(off)}$	Turn-Off Delay Time		---	73.3		ns
t_f	Fall Time		---	16.1		ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=50V, I_D=25A	---	148.1		nC
Q_{gs}	Gate-Source Charge		---	36.5	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	35.9	---	nC
$V_{plateau}$	Gate plateau voltage			4.6		V
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage	V_{GS}=0V,I_S=20A	---	---	1.3	V
Is	Diode Forward Current	---	---	---	280	A

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I_{SP}	Pulsed source current	$V_{GS}<V_{th}$			840	A
Trr	Reverse Recovery Time	I_S=25 A, di/dt=100 A/μs	---	112	---	NS
Qrr	Reverse Recovery Charge		---	477.5	---	NC
I_{rrm}	Peak reverse recovery current			6.9		A

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 T_a=25 ℃.
5) V_{DD}=50 V, R_G=25 Ω, L=0.3 mH, starting T_j=25 ℃.

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

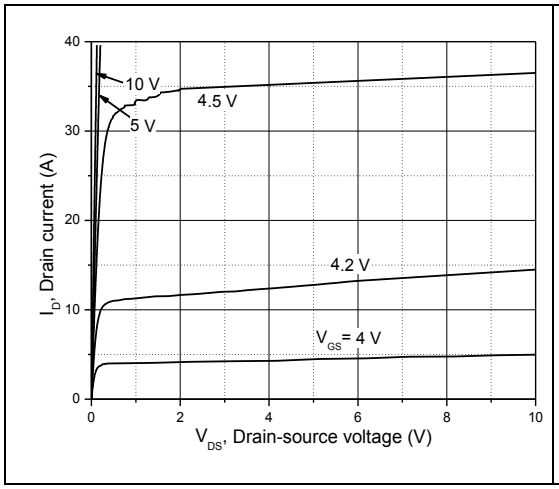

Figure 1, Typ. output characteristics

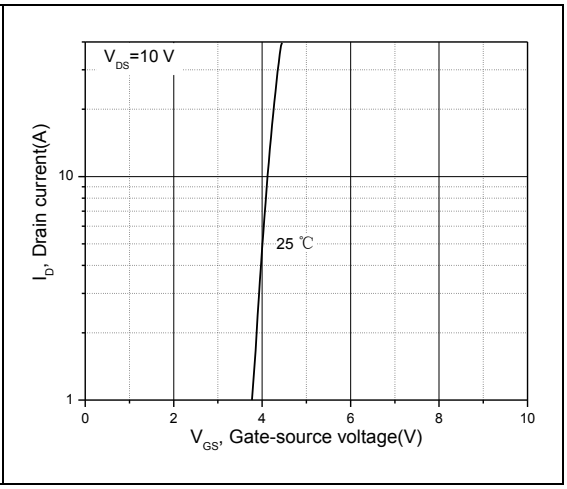

Figure 2, Typ. transfer characteristics

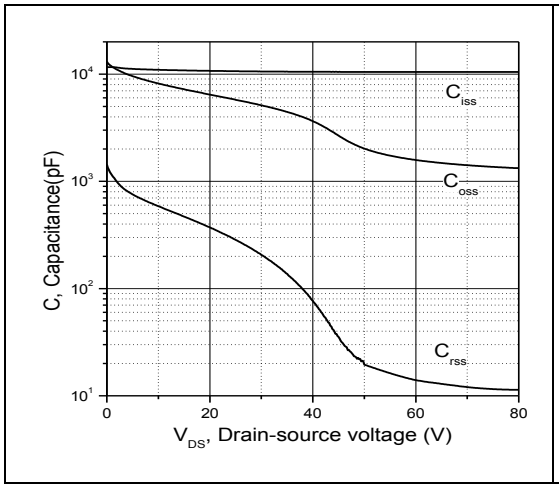

Figure 3, Typ. capacitances

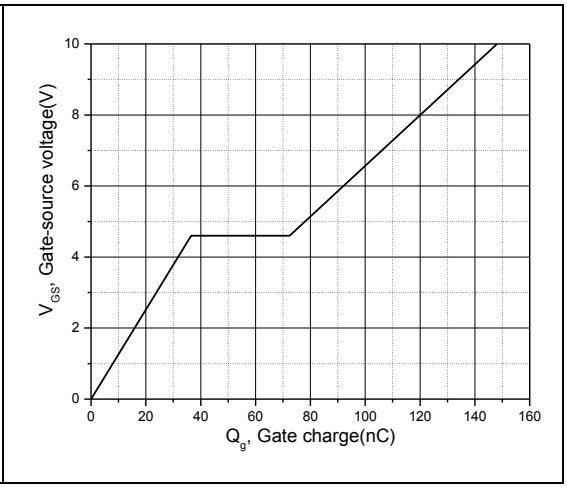

Figure 4, Typ. gate charge

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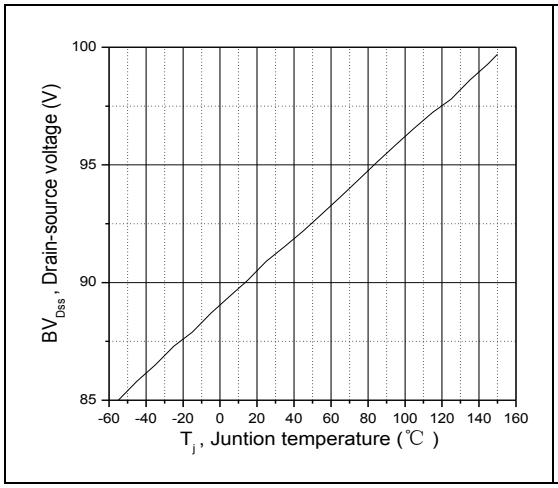

Figure 5, Drain-source breakdown voltage

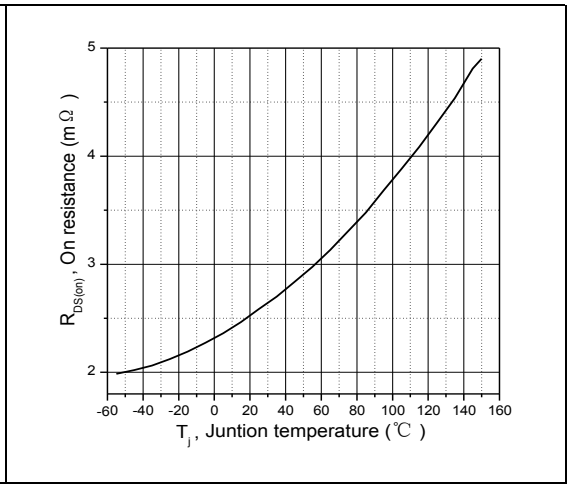

Figure 6, Drain-source on-state resistance

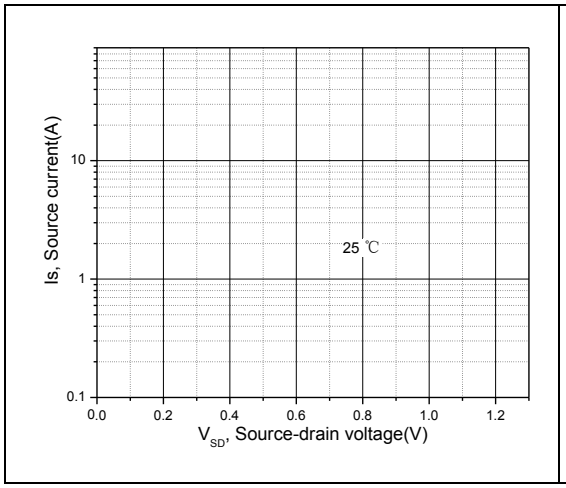

Figure 7, Forward characteristic of body diode

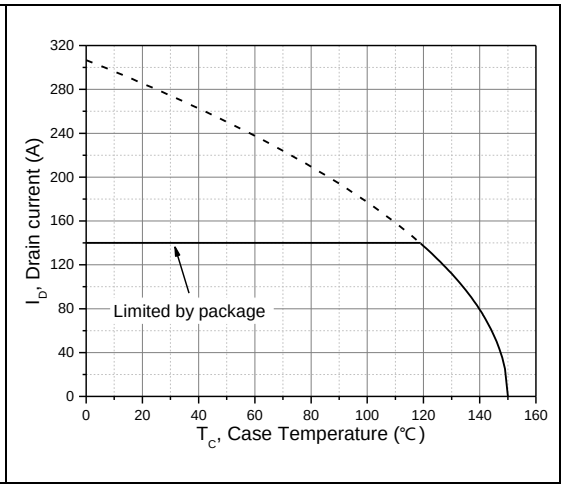

Figure 8, Drain current

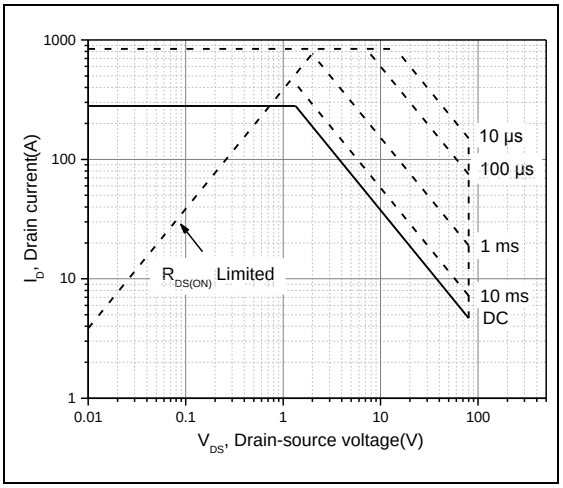

Figure 9, Safe operation area T_C=25 ℃

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