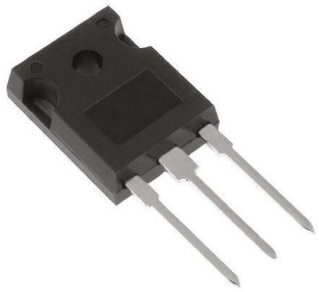
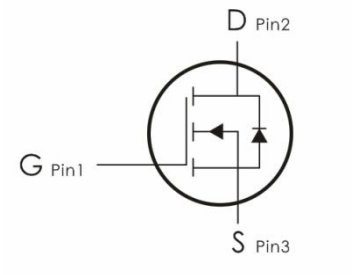
Description：

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=300A,$R_{DS(ON)}$<2.1mΩ @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- T_C=25℃	300	A
	Continuous Drain Current-T_C=100℃	240	
I_{DM}[1]	Drain Current (Pulsed)	1000	A
E_{AS}	Single Pulse Avalanche Energy(note1)	2900	mJ
P_D	Power Dissipation	500	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JC}$[2]	Thermal Resistance,Junction to Case	0.25	℃/W
$R_{\theta JA}$[2]	Thermal Resistance,Junction-to-Ambient	40	

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	110	---	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	2	---	4	V
$R_{DS(ON)}$	Drain-Source On Resistance [4]	V_{GS}=10V,I_D=50A	---	1.8	2.1	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance [5]	V_{DS}=50V, V_{GS}=0V, f=1MHz	---	11258	---	pF
C_{oss}	Output Capacitance [5]		---	1714	---	
C_{rss}	Reverse Transfer Capacitance [5]		---	327	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time [5]	V_{DD}=50V,,I_D=50A,V_{GEN} = 10 V, R_G=4.5Ω , R_L = 1 Ω,	---	34	---	ns
t_r	Rise Time [5]		---	26	---	ns
$t_{d(off)}$	Turn-Off Delay Time [5]		---	78	---	ns
t_f	Fall Time [5]		---	29	---	ns
Q_g	Total Gate Charge [5]	V_{GS}=10V, V_{DS}=50V, I_D=50A	---	223	---	nC
Q_{gs}	Gate-Source Charge [5]		---	175	---	nC
Q_{gd}	Gate-Drain “Miller” Charge [5]		---	35	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage [4]	I_S=50A,V_{GS}=0V	---	---	1.2	V
I_S	Diode Forward Current	VG=VD=0V	---	---	300	A

I_{SM}	Pulsed Source Current	VG=VD=0V	---	---	1000	A
Trr	Reverse Recovery Time	I_S=50A; V_{GS}=0V,	---	100	---	NS
Qrr	Reverse Recovery Charge	dI/dt = 100 A/μs	---	280	---	μ c

Notes:

1. Pulse width ≤ 300 μs, duty cycle ≤ 2 %
2. Surface Mounted on minimum footprint pad area.
3. Limited by bonding wire
4. Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2%
5. Guaranteed by design, not subject to production testing

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

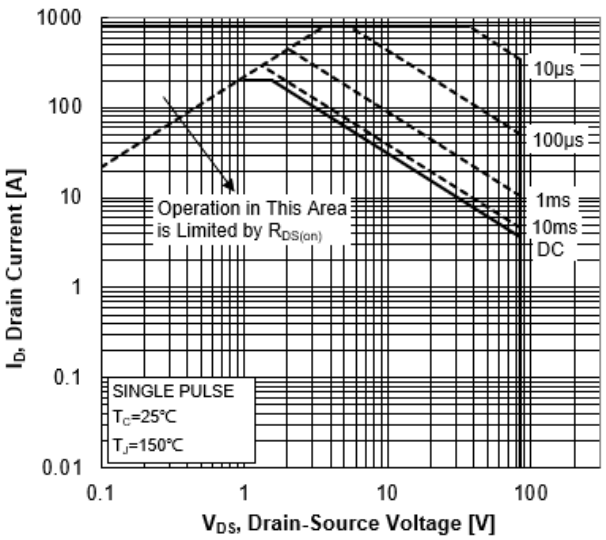


Fig1. **Safe Operating Area**

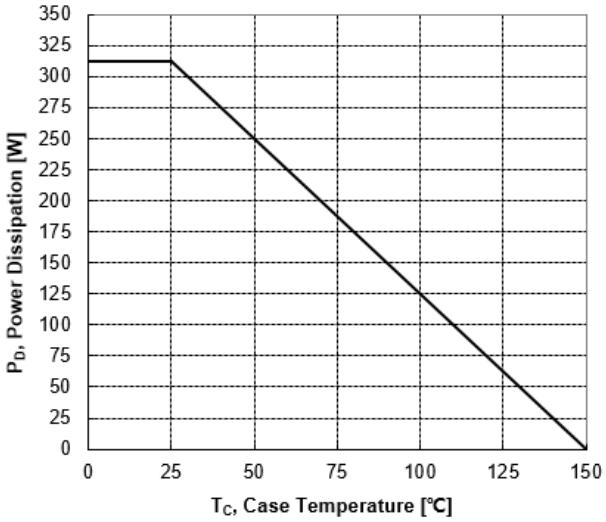


Fig2. **Maximum Power Dissipation vs Case Temperature**

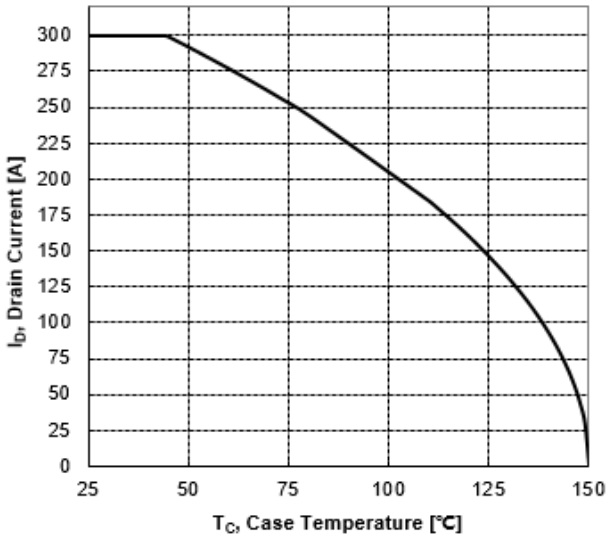


Fig3. **Maximum Continuous Drain Current vs Case Temperature**

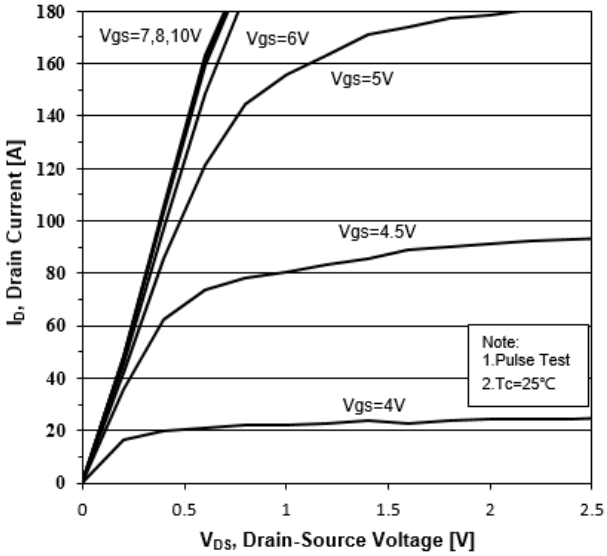


Fig4.**Typical Output Characteristics**

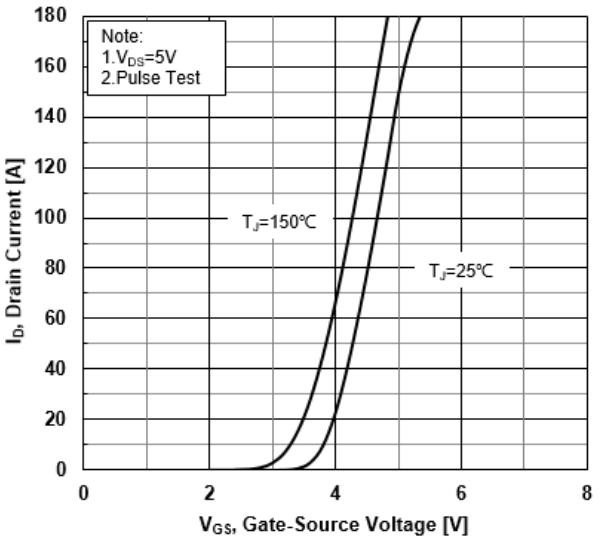


Fig5. **Typical Transfer Characteristics**

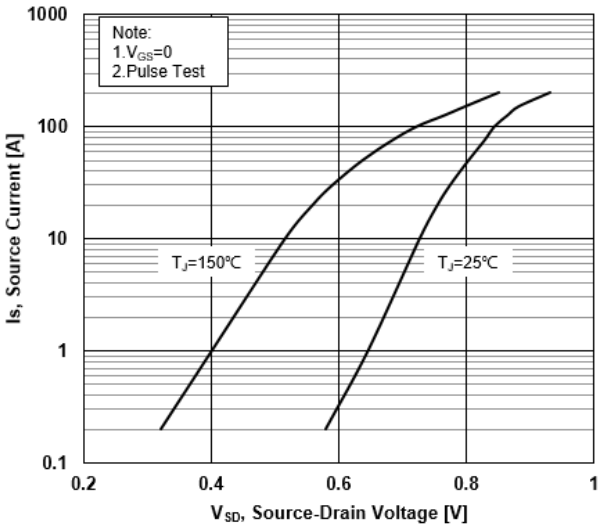


Fig6. **Source-Drain Diode Forward Characteristics**

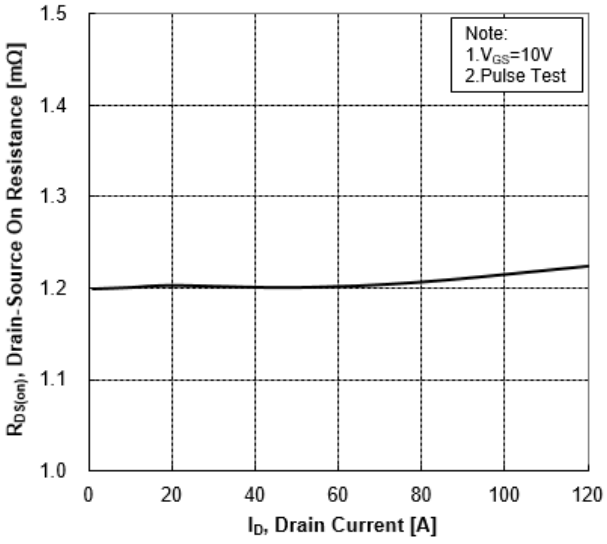


Fig7. **Drain-Source On-Resistance vs Drain Current**

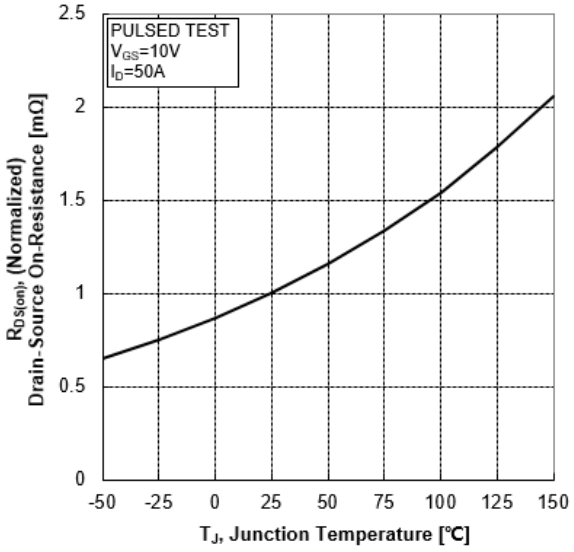


Fig8. **Normalized On-Resistance vs Junction Temperature**

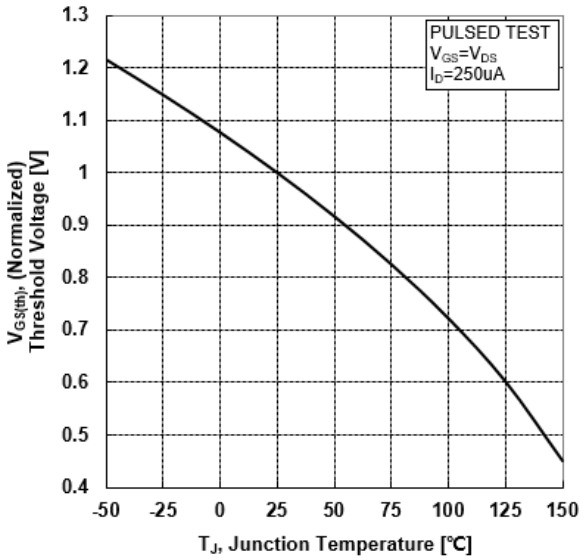


Fig9.**Normalized Threshold Voltage vs Junction Temperature**

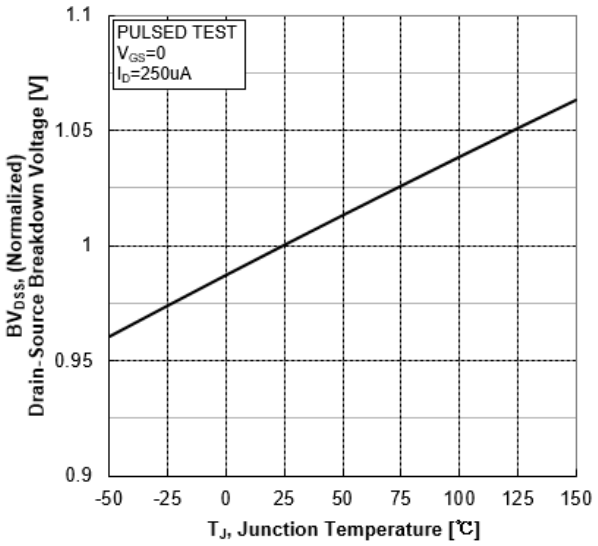


Fig10.**Normalized Breakdown Voltage vs Junction Temperature**

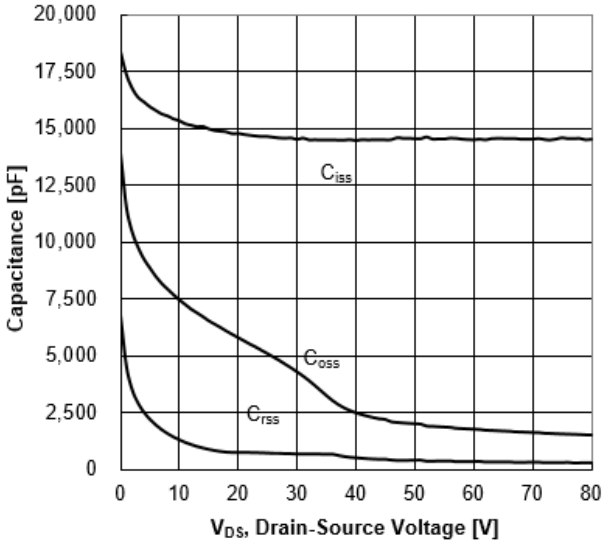


Fig11.**Capacitance Characteristics**

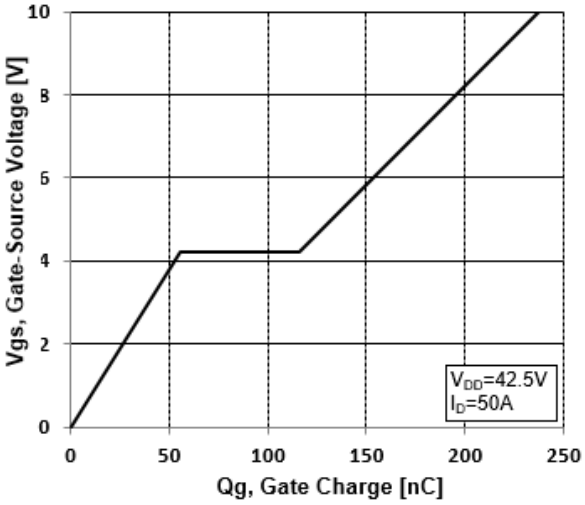


Fig12.**Typical Gate Charge vs Gate-Source Voltage**