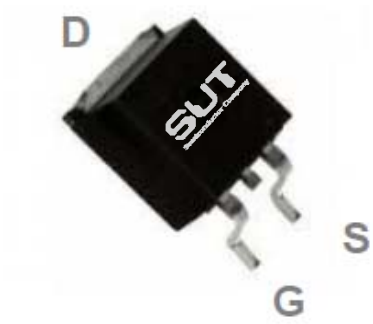
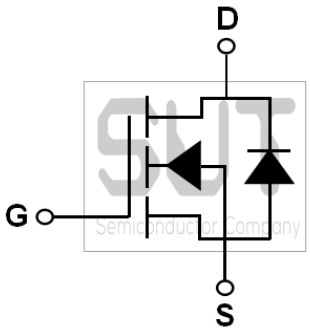
Version 1.0 Date 2019.03.27 Datasheet

N-Channel 100-$V_{(D-S)}$ SGT MOSFET

PRODUCT SUMMARY		
B_{VDSS}(V)	$R_{DS(on)}$ (mΩ)(MAX)	I_D(A)
100	4.2@V_{GS}=10V	150

TO263 Pin Configuration





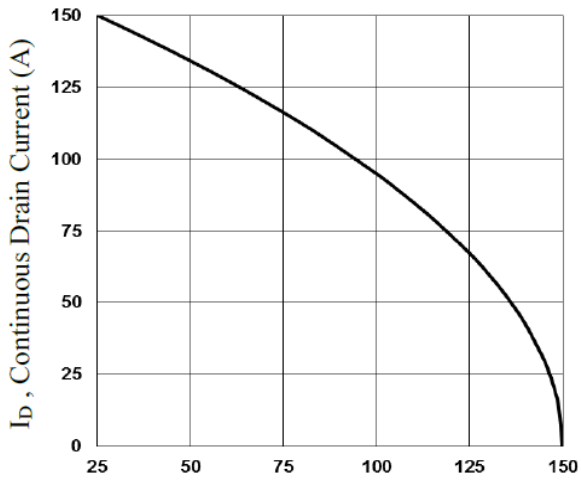
ABSOLUTE MAXIMUM RATINGS(T_C=25℃ UNLESS OTHERWISE NOTED)			
Parameter	**Symbol**	**Rating**	**Units**
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	+20/-12	V
Drain Current-Continuous (T_C=25℃)	I_D	150	A
Drain Current-Continuous (T_C=100℃)		95	A
Drain Current-Pulsed[1]	I_{DM}	600	A
Single Pulse Avalanche Energy[2]	EAS	378	mJ
Single Pulse Avalanche Current[2]	IAS	87	A
Power Dissipation (T_C=25℃)	P_D	275	W
Power Dissipation-Derate above 25℃		2.22	W/℃
Storage Temperature Range	T_{STG}	-50 to 150	℃
Operating Junction Temperature Range	T_J	-50 to 150	℃

THERMAL CHARACTERISTICS				
Parameter	**Symbol**	**Typ.**	**Max.**	**Unit**
Thermal Resistance Junction to ambient	$R_{\theta JA}$	---	62	℃/W
Thermal Resistance Junction to Case	$R_{\theta JC}$	---	0.45	℃/W

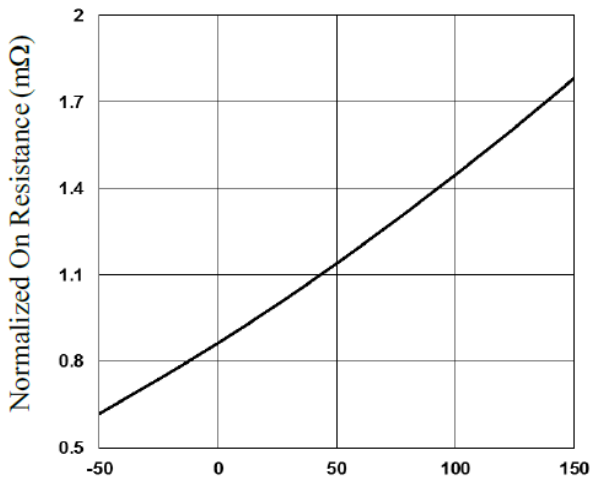
ELECTRICAL CHARACTERISTICS (T_J=25℃ UNLESS OTHERWISE NOTED)						
Parameter	**Symbol**	**Test Condition**	**Min.**	**Typ.**	**Max.**	**Unit**
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V , I_D=250uA	100	---	---	V
Drain-Source Leakage Current	I_{DSS}	V_{GS}=0V,V_{DS}=100V,T_J=25℃	---	---	1	uA
		V_{GS}=0V,V_{DS}=80V,T_J=85℃	---	---	10	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=20V , V_{DS}=0V	---	---	100	nA
On Characteristics						
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V , I_D=20A	---	3.5	4.2	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS} , I_D=250uA	2.0	---	4.0	V
Forward Transconductance	gfs	V_{DS}=10V , I_D=3A	---	20	---	S
Dynamic and Switching Characteristics						
Total Gate Charge[3 , 4]	Q_g	V_{GS}=10V , V_{DS}=80V , I_D=10A	---	110	165	nC
Gate-Source Charge[3 , 4]	Q_{gs}		---	11.5	18	
Gate-Drain Charge[3 , 4]	Q_{gd}		---	28	42	
Turn-On Delay Time[3 , 4]	$T_{d(on)}$	V_{GS}=10V , V_{DD}=50V , R_G=6Ω , I_D=1A	---	23	46	ns
Rise Time[3 , 4]	T_r		---	32	64	
Turn-Off Delay Time[3 , 4]	$T_{d(off)}$		---	157	320	
Fall Time[3 , 4]	T_f		---	115	230	
Input Capacitance	C_{iss}	V_{GS}=0V , V_{DS}=25V , F=1MHz	---	6680	13300	pF
Output Capacitance	C_{oss}		---	1690	3380	
Reverse Transfer Capacitance	C_{rss}		---	78	156	
Gate resistance	R_g	V_{GS}=0V,V_{DS}=0V,F=1MHz	---	1.9	---	Ω
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I_S	V_G=V_D=0V,Force Current	---	---	150	A
Pulsed Source Current	I_{SM}		---	---	300	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V , I_S=1A , T_J=25℃	---	---	1.0	V

Note :

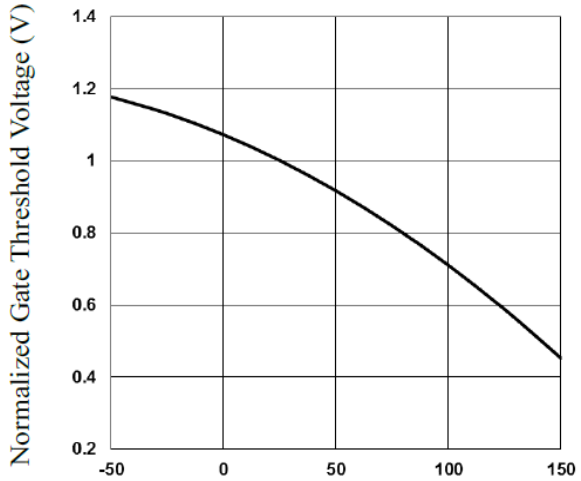
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{GS}=10V , V_{DD}=25V , L=0.1mH , I_{AS}=87A , R_G=25Ω , Starting T_J=25℃.
3. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.
4. Essentially independent of operating temperature.



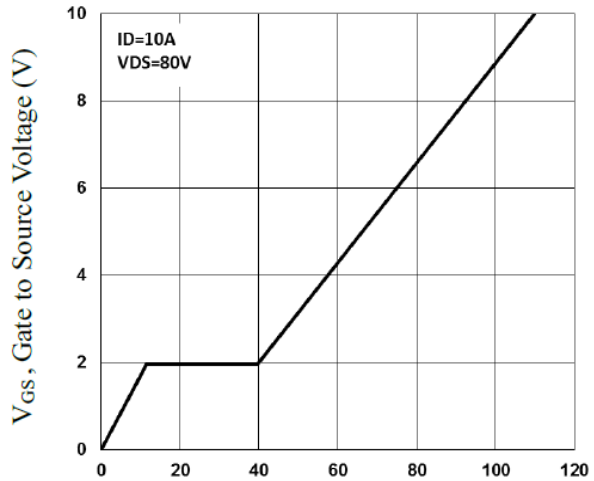
Continuous Drain Current vs. T_C



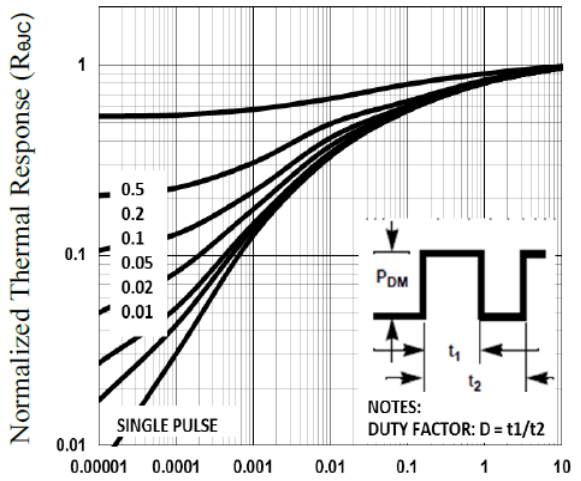
Normalized $R_{DS(ON)}$ vs. T_J



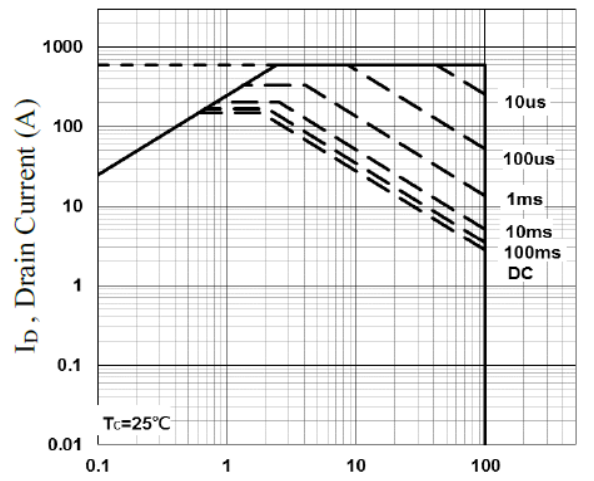
Normalized V_{th} vs. T_J



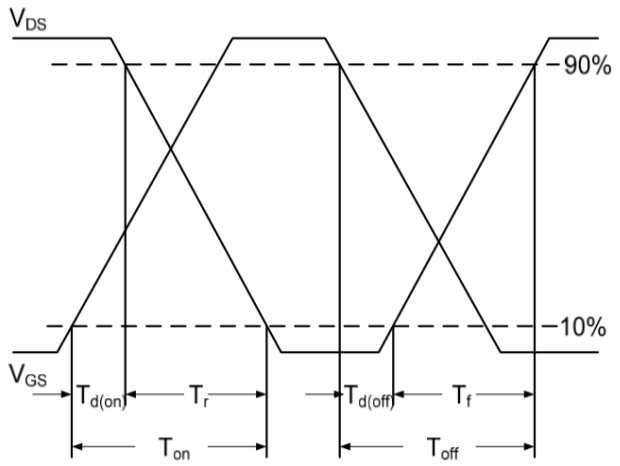
Gate Charge Characteristics



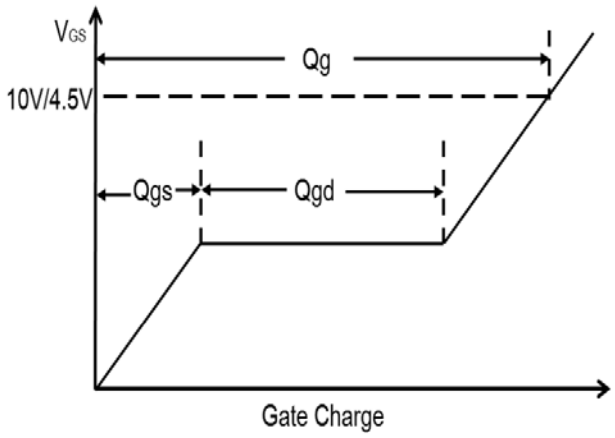
Normalized Transient Impedance



Maximum Safe Operation Area



Switching Time Waveform



Gate Charge Waveform

TO263 PACKAGE INFORMATION