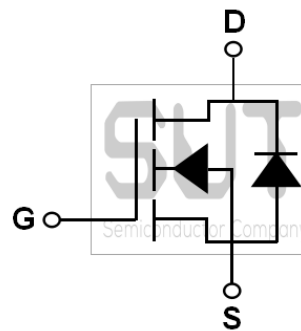
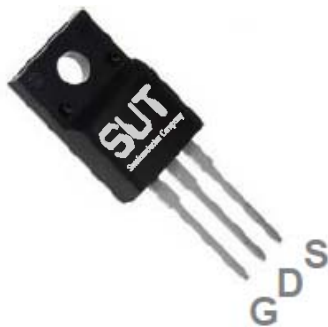


N-Channel 100-V_(D-S) SGT MOSFET

PRODUCT SUMMARY		
B _{VDSS} (V)	R _{DS(on)} (mΩ)(MAX)	I _D (A)
100	8.8@V _{GS} =10V	50

TO220F Pin Configuration



ABSOLUTE MAXIMUM RATINGS(T_C=25°C 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°C)(Chip Limitation)	I _D	50	A
Drain Current-Continuous(T _C =100°C)(Chip Limitation)		30.6	A
Drain Current-Pulsed ¹	I _{DM}	320	A
Single Pulse Avalanche Energy ²	EAS	111	mJ
Single Pulse Avalanche Current ²	IAS	45	A
Power Dissipation (T _C =25°C)	P _D	86	W
Power Dissipation-Derate above 25°C		0.8	W/°C
Storage Temperature Range	T _{STG}	-50 to 150	°C
Operating Junction Temperature Range	T _J	-50 to 150	°C

THERMAL CHARACTERISTICS

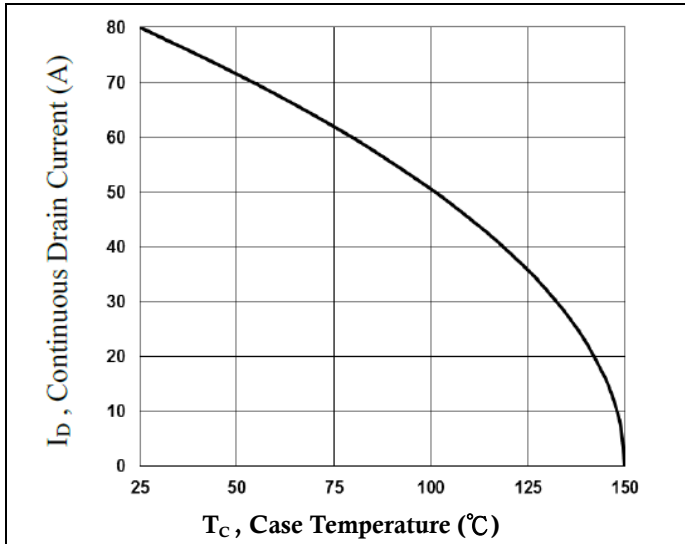
Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to ambient	R _{θJA}	---	42	°C/W
Thermal Resistance Junction to Case	R _{θJC}	---	0.8	°C/W

ELECTRICAL CHARACTERISTICS (T _J =25°C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	100	---	---	V
BV _{DSS} Temperature Coefficient	ΔBV _{DSS} /ΔT _J	Reference to 25°C, I _D =1mA	---	0.054	---	V/°C
Drain-Source Leakage Current	I _{DSS}	V _{GS} =0V, V _{DS} =100V, T _J =25°C	---	---	1	μA
		V _{GS} =0V, V _{DS} =80V, T _J =125°C	---	---	10	μA
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 =15A	---	7.5	8.8	mΩ
		V _{GS} =4.5V, I _D =8A	---	9.8	12	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250μA	1.0	1.6	2.5	V
V _{GS(th)} Temperature Coefficient	ΔV _{GS(th)}		---	-5.5	---	mV/°C
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =3A	---	11	---	S
Dynamic and Switching Characteristics						
Total Gate Charge ^{3, 4}	Q _g	V _{GS} =10V, V _{DS} =80V, I _D =8.5A	---	39.7	80	nC
Gate-Source Charge ^{3, 4}	Q _{gs}		---	5.4	10	
Gate-Drain Charge ^{3, 4}	Q _{gd}		---	11.2	22	
Turn-On Delay Time ^{3, 4}	T _{d(on)}	V _{GS} =10V, V _{DD} =50V, R _G =6Ω, I _D =1A	---	14.6	30	ns
Rise Time ^{3, 4}	T _r		---	21.5	44	
Turn-Off Delay Time ^{3, 4}	T _{d(off)}		---	54	108	
Fall Time ^{3, 4}	T _f		---	84.3	168	
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, F=1MHz	---	2550	5100	pF
Output Capacitance	C _{oss}		---	685	1370	
Reverse Transfer Capacitance	C _{rss}		---	42	84	
Gate resistance	R _g	V _{GS} =0V, V _{DS} =0V, F=1MHz	---	1.43	---	Ω
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I _S	V _G =V _D =0V, Force Current	---	---	50	A
Pulsed Source Current	I _{SM}		---	---	100	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1A, T _J =25°C	---	---	1.0	V

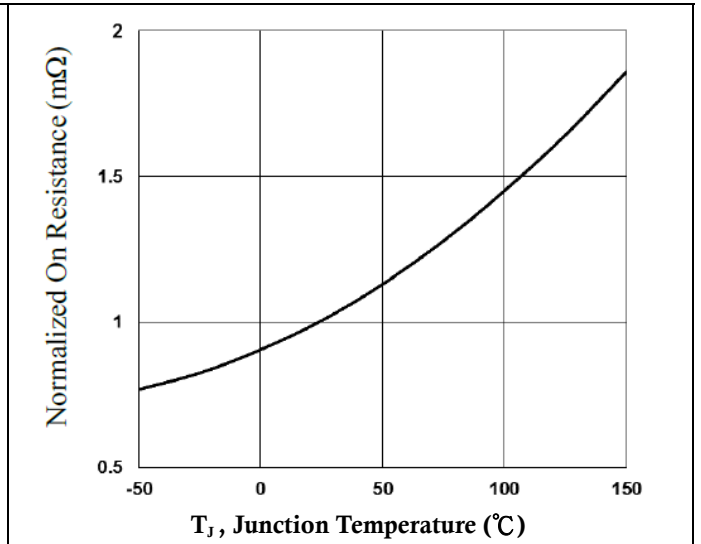
Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{GS}=10V, V_{DD}=50V, L=0.1mH, I_{AS}=65A, R_G=25Ω, Starting T_J=25°C.
3. The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.
4. Essentially independent of operating temperature.

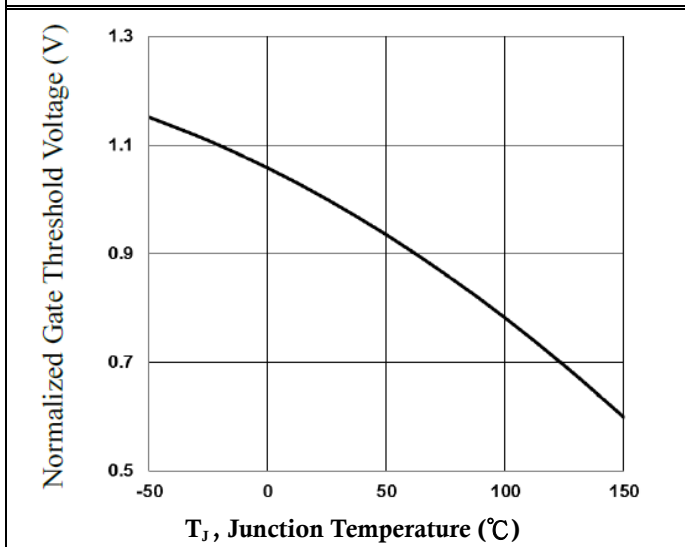
100V N-Channel MOSFETs



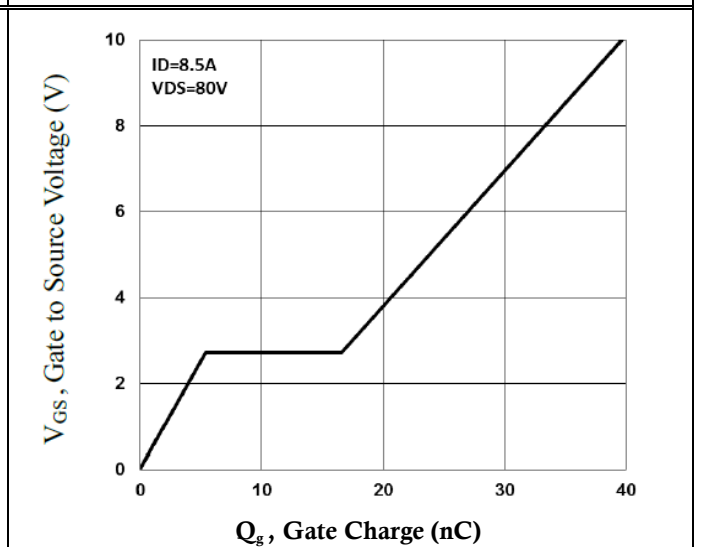
Continuous Drain Current vs. T_C



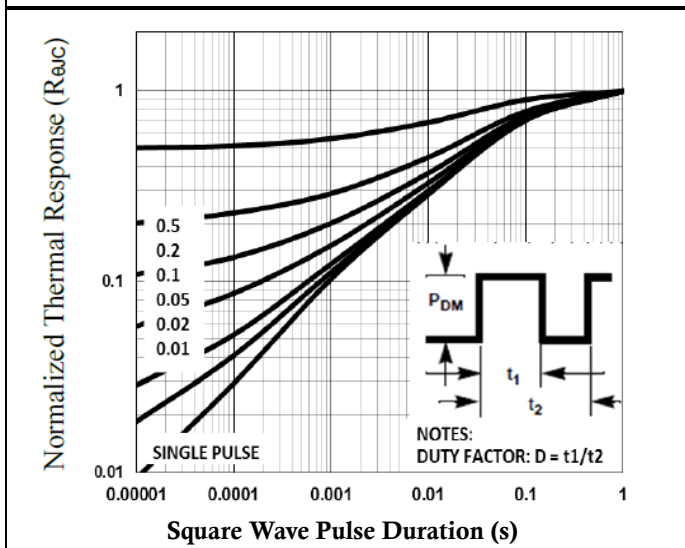
Normalized $R_{DS(ON)}$ vs. T_J



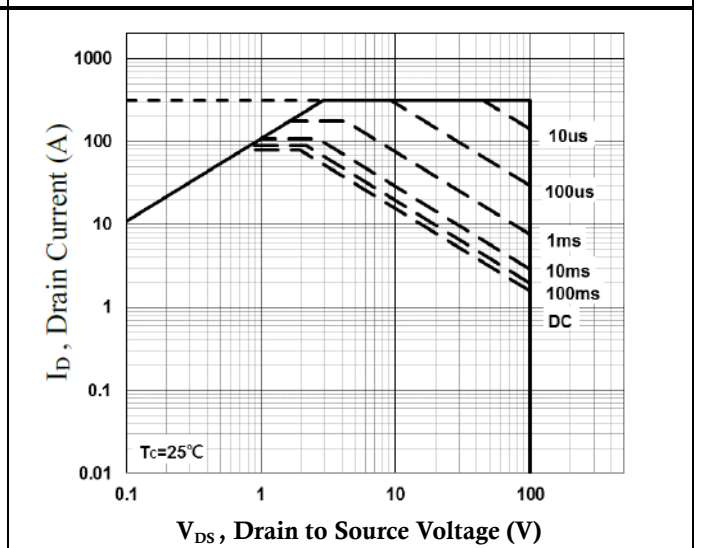
Normalized V_{th} vs. T_J



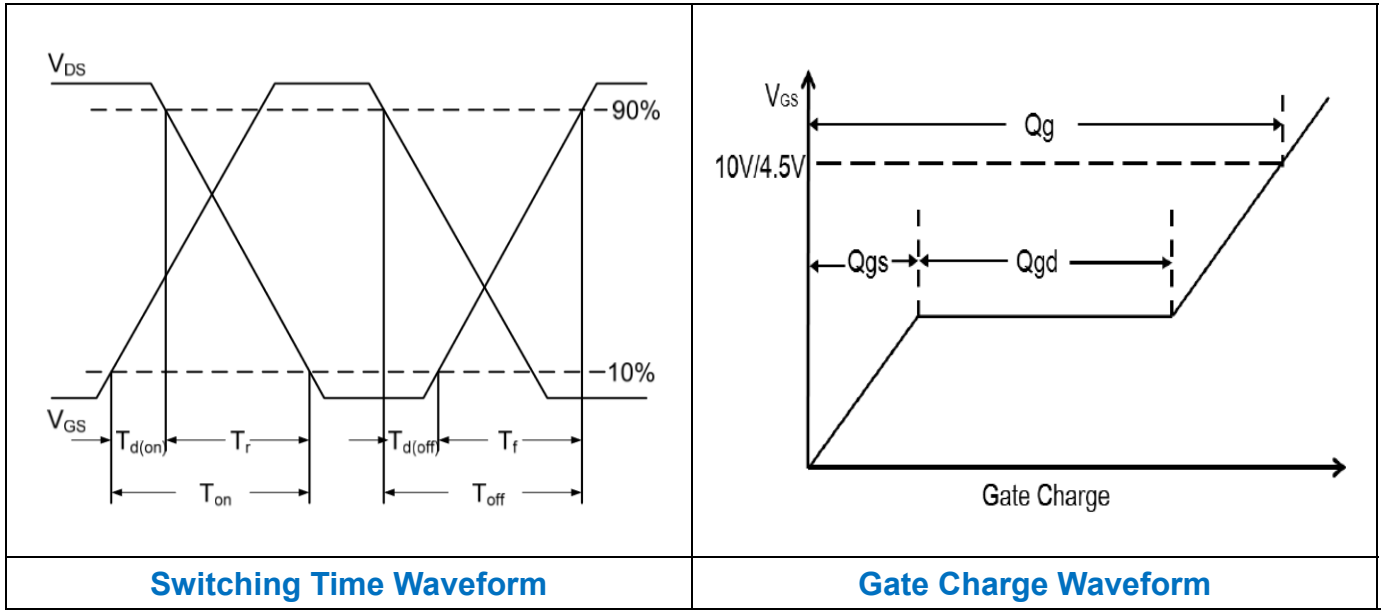
Gate Charge Characteristics



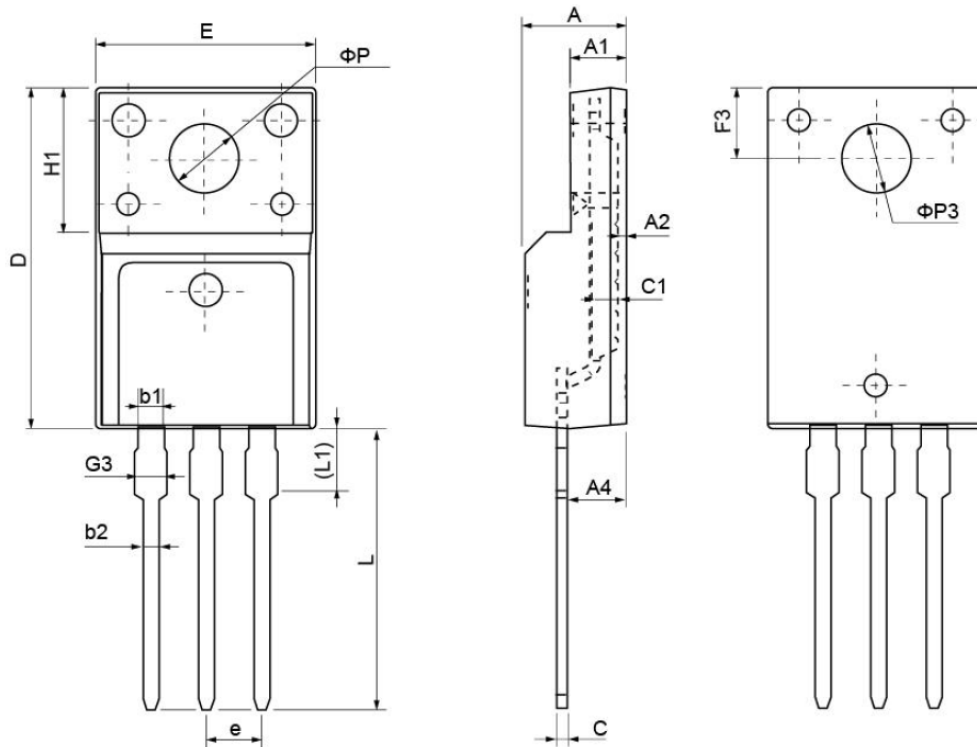
Normalized Transient Impedance



Maximum Safe Operation Area



TO220F PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		
	MAX	NOM	MIN
E	10.360	10.160	9.960
A	4.900	4.700	4.500
A1	2.740	2.540	2.340
A2	0.600	0.450	0.300
A4	2.960	2.760	2.560
C	0.650	0.500	0.400
C1	1.350	1.300	1.200
D	16.170	15.870	15.570
H1	6.700(REF)		
e	2.540(BSC)		
L	13.280	12.980	12.680
L1	3.130	3.030	2.930
ØP	3.380	3.180	3.030
ØP3	3.650	3.450	3.150
F3	3.450	3.300	3.150
G3	1.550	1.350	1.250
b1	1.430	1.280	1.180
b2	0.950	0.800	0.700