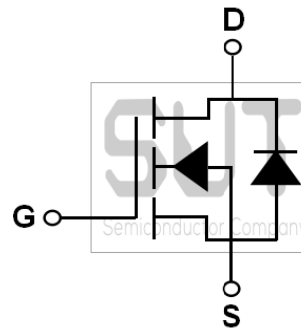
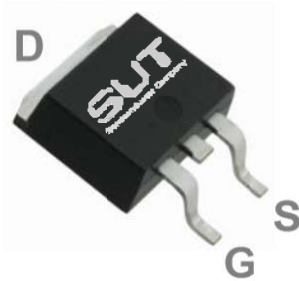


## N-Channel 65-V<sub>(D-S)</sub> SGT MOSFET

PRODUCT SUMMARY		
B <sub>VDSS</sub> (V)	R <sub>DS(on)</sub> (mΩ)(MAX)	I <sub>D</sub> (A)
65	4.5@V <sub>GS</sub> =10V	80

### TO252 Pin Configuration



### ABSOLUTE MAXIMUM RATINGS(T<sub>C</sub>=25°C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V <sub>DS</sub>	65	V
Gate-Source Voltage	V <sub>GS</sub>	+20/-12	V
Drain Current-Continuous (T <sub>C</sub> =25°C)	I <sub>D</sub>	80	A
Drain Current-Continuous (T <sub>C</sub> =100°C)		50.6	A
Drain Current-Pulsed <sup>1</sup>	I <sub>DM</sub>	320	A
Single Pulse Avalanche Energy <sup>2</sup>	EAS	174	mJ
Single Pulse Avalanche Current <sup>2</sup>	IAS	59	A
Power Dissipation (T <sub>C</sub> =25°C)	P <sub>D</sub>	94	W
Power Dissipation-Derate above 25°C		0.75	W/°C
Storage Temperature Range	T <sub>STG</sub>	-50 to 150	°C
Operating Junction Temperature Range	T <sub>J</sub>	-50 to 150	°C

### THERMAL CHARACTERISTICS

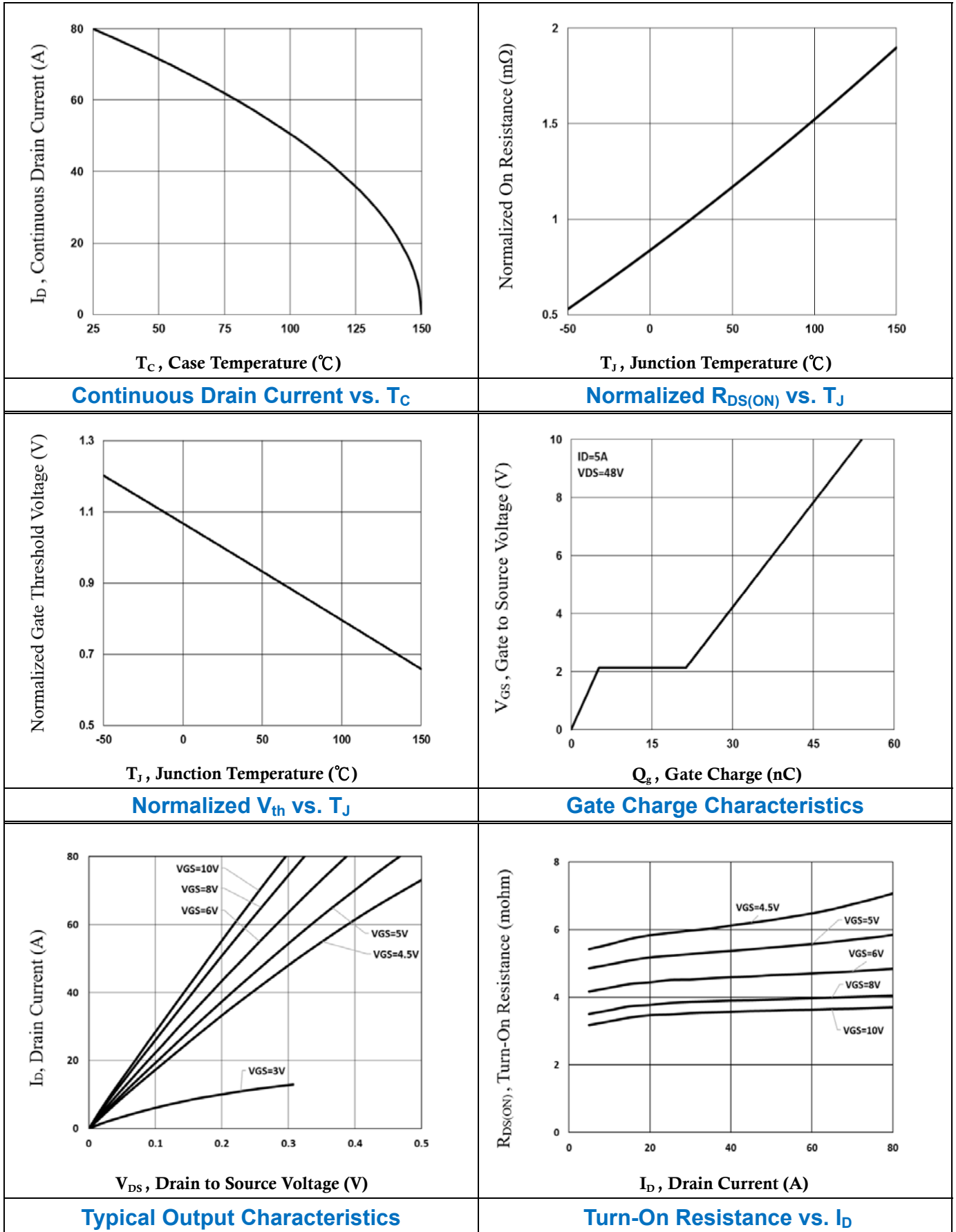
Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to ambient	R <sub>θJA</sub>	---	62	°C/W
Thermal Resistance Junction to Case	R <sub>θJC</sub>	---	1.33	°C/W

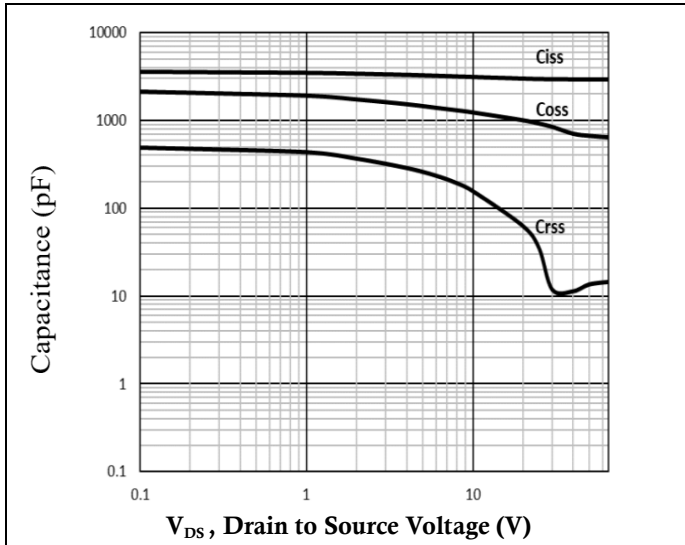
ELECTRICAL CHARACTERISTICS (T <sub>J</sub> =25°C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	65	---	---	V
BV <sub>DSS</sub> Temperature Coefficient	ΔBV <sub>DSS</sub> /ΔT <sub>J</sub>	Reference to 25°C, I <sub>D</sub> =1mA	---	0.02	---	V/°C
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =60V, T <sub>J</sub> =25°C	---	---	1	uA
		V <sub>GS</sub> =0V, V <sub>DS</sub> =48V, T <sub>J</sub> =85°C	---	---	10	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =20V, V <sub>DS</sub> =0V	---	---	100	nA
<b>On Characteristics</b>						
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =30A	---	3.7	4.5	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =20A	---	5.7	7.5	mΩ
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250uA	1.0	1.5	2.5	V
V <sub>GS(th)</sub> Temperature Coefficient	ΔV <sub>GS(th)</sub>		---	-5.1	---	mV/°C
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =3A	---	12	---	S
<b>Dynamic and Switching Characteristics</b>						
Total Gate Charge <sup>3, 4</sup>	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =48V, I <sub>D</sub> =5A	---	54	108	nC
Gate-Source Charge <sup>3, 4</sup>	Q <sub>gs</sub>		---	5.2	10.4	
Gate-Drain Charge <sup>3, 4</sup>	Q <sub>gd</sub>		---	16.1	32.2	
Turn-On Delay Time <sup>3, 4</sup>	T <sub>d(on)</sub>	V <sub>GS</sub> =10V, V <sub>DD</sub> =30V, R <sub>G</sub> =6Ω, I <sub>D</sub> =1A	---	10.6	21	ns
Rise Time <sup>3, 4</sup>	T <sub>r</sub>		---	16.5	33	
Turn-Off Delay Time <sup>3, 4</sup>	T <sub>d(off)</sub>		---	48	96	
Fall Time <sup>3, 4</sup>	T <sub>f</sub>		---	78	150	
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, F=1MHz	---	2940	5900	pF
Output Capacitance	C <sub>oss</sub>		---	850	1700	
Reverse Transfer Capacitance	C <sub>rss</sub>		---	15	30	
Gate resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, F=1MHz	---	1.24	---	Ω
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Continuous Source Current	I <sub>S</sub>	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current	---	---	80	A
Pulsed Source Current	I <sub>SM</sub>		---	---	160	A
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =1A, T <sub>J</sub> =25°C	---	---	1.0	V

Note :

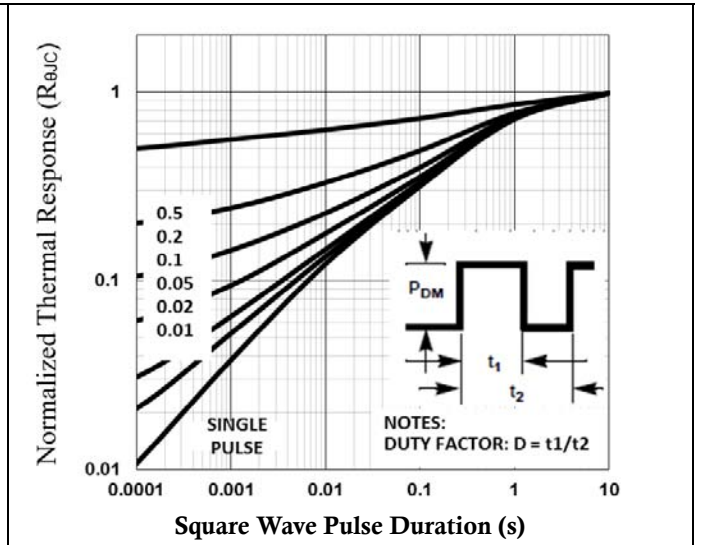
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V<sub>GS</sub>=10V, V<sub>DD</sub>=25V, L=0.1mH, I<sub>AS</sub>=59A, R<sub>G</sub>=25Ω, Starting T<sub>J</sub>=25°C.
3. The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.
4. Essentially independent of operating temperature.

## 65V N-Channel MOSFETs

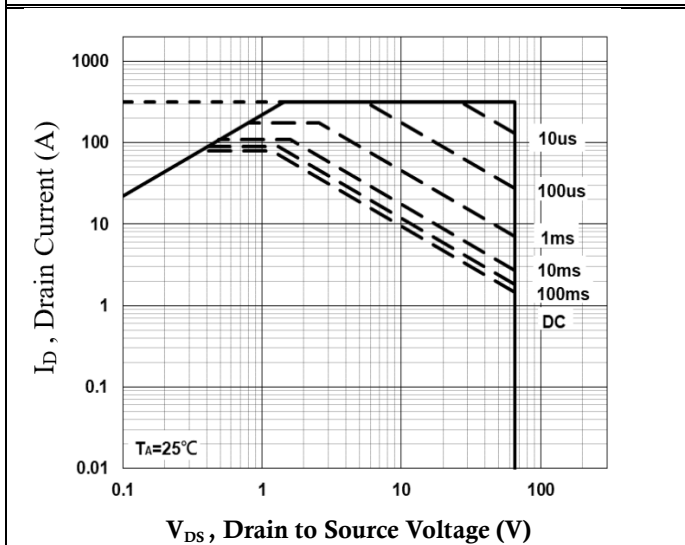




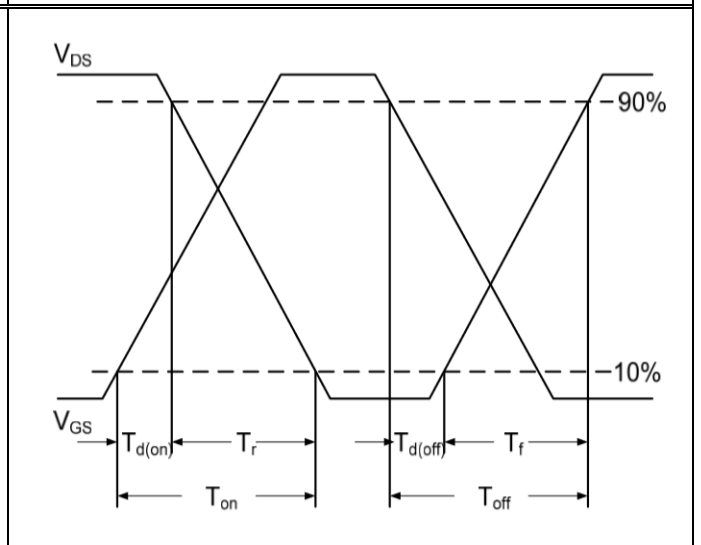
Capacitance Characteristics



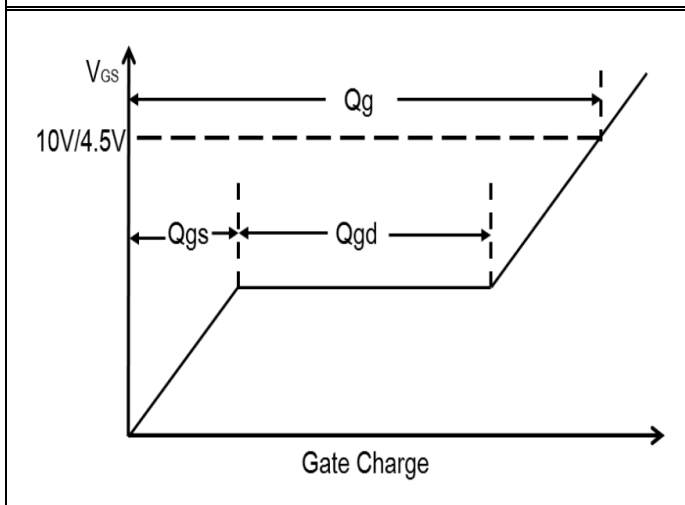
Normalized Transient Impedance



Maximum Safe Operation Area

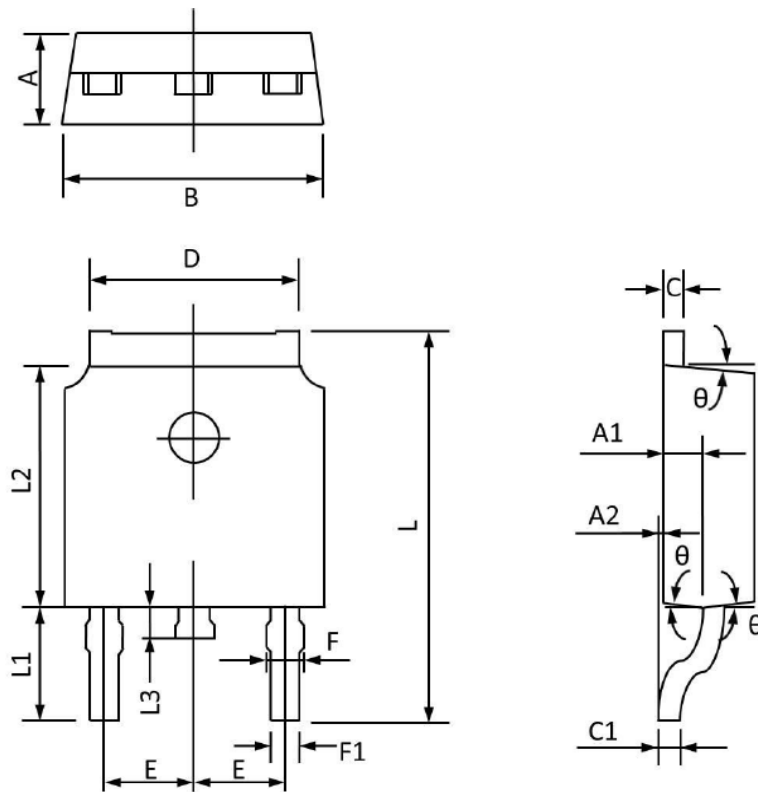


Switching Time Waveform



Gate Charge Waveform

TO252 PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	2.400	2.200	0.094	0.087
A1	1.110	0.910	0.044	0.036
A2	0.150	0.000	0.006	0.000
B	6.800	6.400	0.268	0.252
C	0.580	0.450	0.023	0.018
C1	0.580	0.460	0.023	0.018
D	5.500	5.100	0.217	0.201
E	2.386	2.186	0.094	0.086
F	0.940	0.600	0.037	0.024
F1	0.860	0.500	0.034	0.020
L	10.400	9.400	0.409	0.370
L1	3.000	2.400	0.118	0.094
L2	6.200	5.400	0.244	0.213
L3	1.200	0.600	0.047	0.024
θ	9°	3°	9°	3°