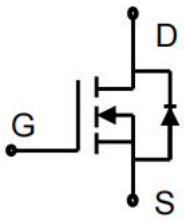
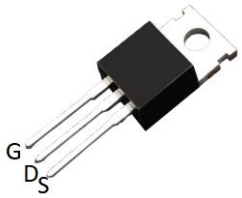
N-Channel SGT MOSFET 85V/150A

Parameter	Value	Unit
V_{DSS}	85	V
$R_{DS(on)}$	3.9	mΩ
I_D	150	A





TO-220

FEATURES
- Ultra-Low RDS(on)
- Low gate charge (typ. Qg=62nC)
- 100% UIS tested

APPLICATIONS
- Motor Driving in Power Tool, E-vehicle, Robotics
- Current Switching in DC/DC & AC/DC (SR) Sub-systems
- Power Management in Telecom., Industrial Automation

MAXIMUM RATED VALUES(at TC=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	85	V
Gate-Source Voltage	VGS	±20	V
Continue Drain Current	ID	150	A
Pulsed Drain Current (Note1)	IDM	515	A
Power Dissipation	PD	192	W
Single Pulse Avalanche Energy (Note1)	EAS	434	mJ
Operating Temperature Range	TJ	150	°C
Storage Temperature Range	TSTG	-55 to +150	°C
Thermal Resistance, Junction to Case	RθJC	0.65	°C/W
Thermal Resistance, Junction to Ambient	RθJA	45	°C/W

Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

ELECTRICAL CHARACTERISTICS (at TJ = 25°C unless otherwise specified)

Parameter	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	VGS=0V,ID=250μA	BV_{DSS}	85	-	-	V
Drain-Source Leakage Current	VDS=80V, VGS=0 V	I_{DSS}	-	-	1	μA
Gate Leakage Current	VGS= ± 20V, VDS=0V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	VDS=VGS , ID=250μA	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	VGS=10V, ID=20A	RDS(on)	-	3.9	5	mΩ

Forward Transconductance	VDS=5V, ID=20A	gFS	-	43	-	S
Input Capacitance	VDS=40V , VGS=0V , f=1MHz	Ciss	-	4083	-	pF
Output Capacitance		Coss	-	1313	-	pF
Reverse Transfer Capacitance		Crss	-	42	-	pF
Turn-on Delay Time(Note2)	VGS=10V, VDS=40V RL=2.0, RGEN=3	td(ON)	-	18.9	-	ns
Rise Time(Note2)		tr	-	28	-	ns
Turn-Off Delay Time(Note2)		td(OFF)	-	38	-	ns
Fall Time(Note2)		tf	-	13.1	-	ns
Total Gate Charge(Note2)	VDS=40V , VGS=10V , ID=20A	QG	-	62	-	nC
Gate to Source Charge(Note2)		QGS	-	21	-	nC
Gate to Drain Charge(Note2)		QGD	-	13.8	-	nC
Drain-Source Breakdown Voltage	VGS=0V,ID=250μA	BVDSS	85	-	-	V

SOURCE-DRAIN DIODE CHARACTERISTICS (at Ta=25°C unless otherwise specified)

Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		IS	-	-	150	A
Maximun Body-Diode Pulsed Current(Note2)		ISM	-	-	515	A
Drain-Source Diode Forward Voltage	VGS=0V , IS=1A , TJ=25℃	VSD	-	-	1	V
Reverse Recovery Time	IS=IF, ISD=20A,VGS=0 V, dI / dt=100 A/μs(Note3)	trr	-	57	-	ns
Reverse Recovery Charge		Qrr	-	85	-	nC

Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

CHARACTERISTICS DIAGRAMS

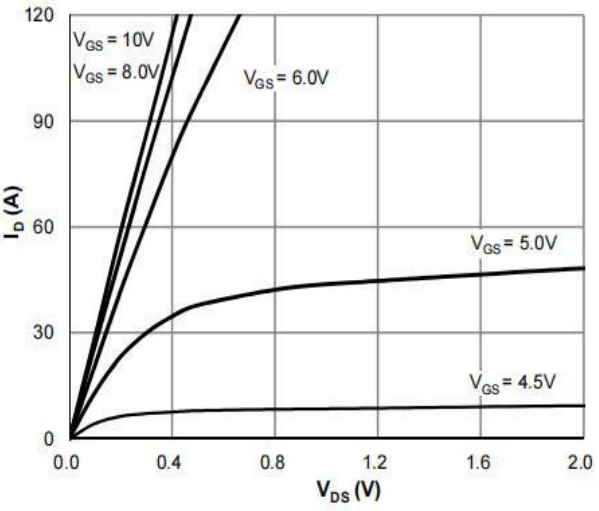


Figure 1: Saturation Characteristics

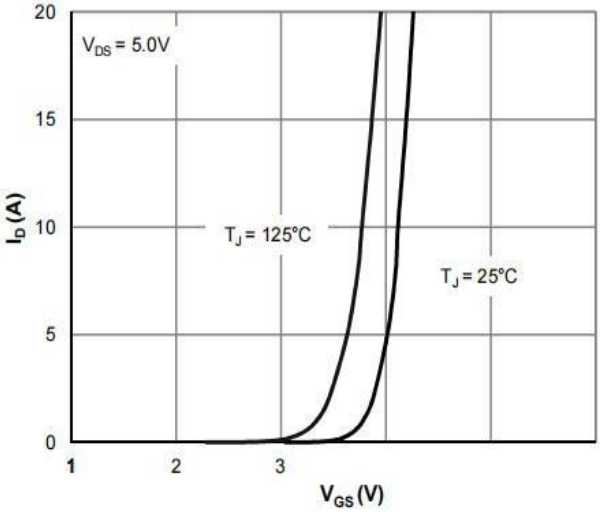


Figure 2: Transfer Characteristics

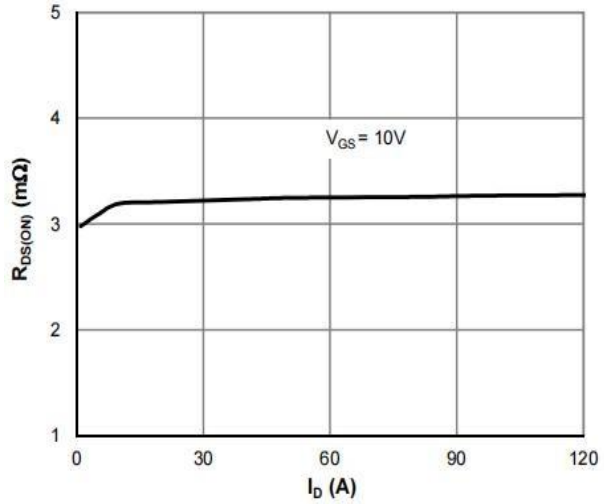


Figure 3: $R_{DS(ON)}$ vs. Drain Current

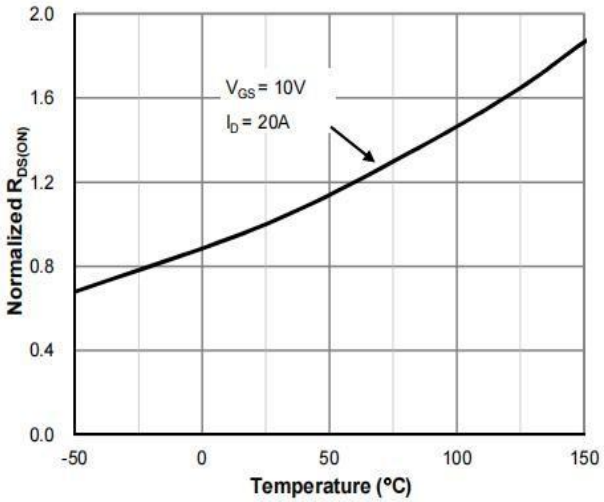


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

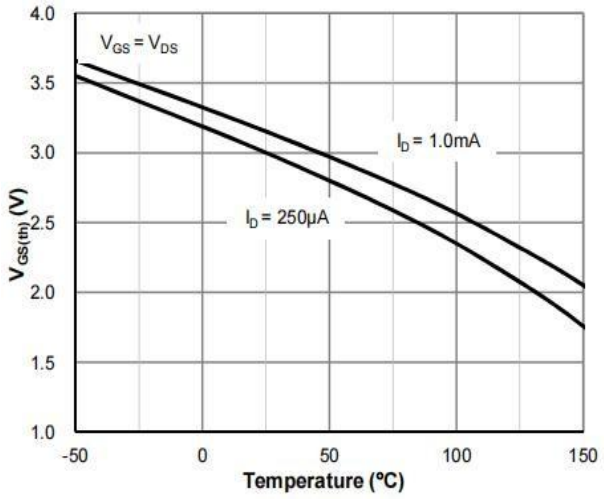


Figure 5: $V_{GS(th)}$ vs. Junction Temperature

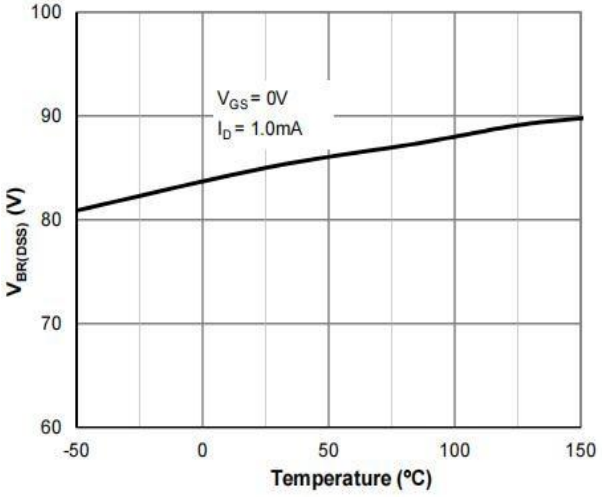


Figure 6: $V_{BR(DSS)}$ vs. Junction Temperature

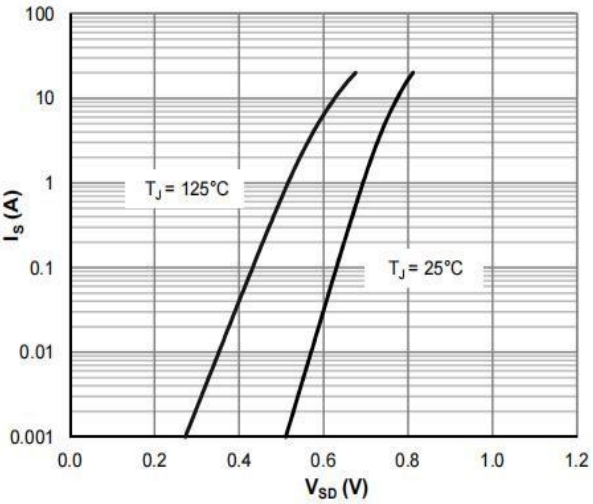


Figure 7: Body-Diode Characteristics

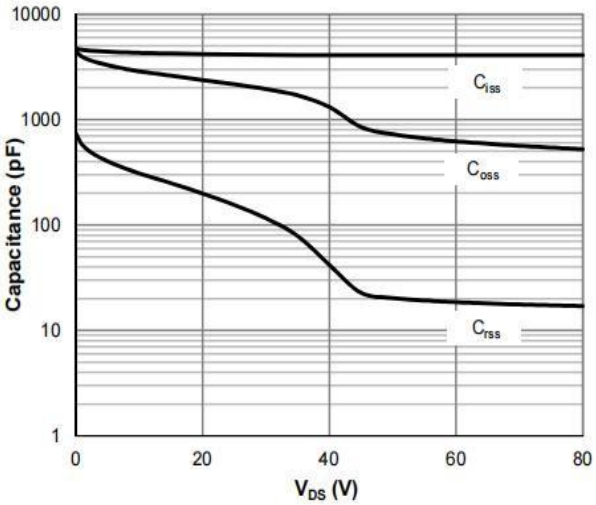


Figure 8: Capacitance Characteristics

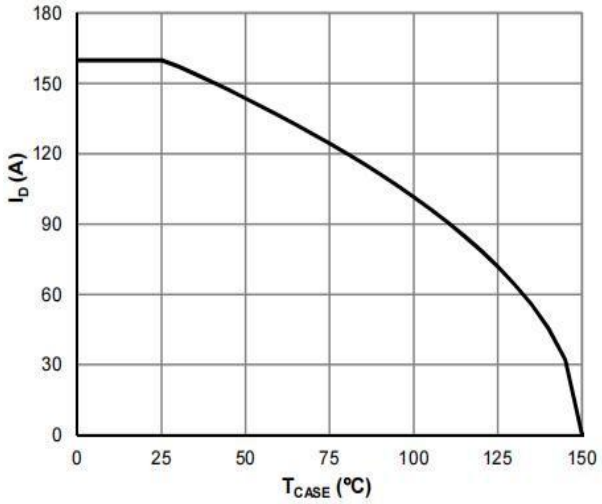


Figure 9: Current De-rating

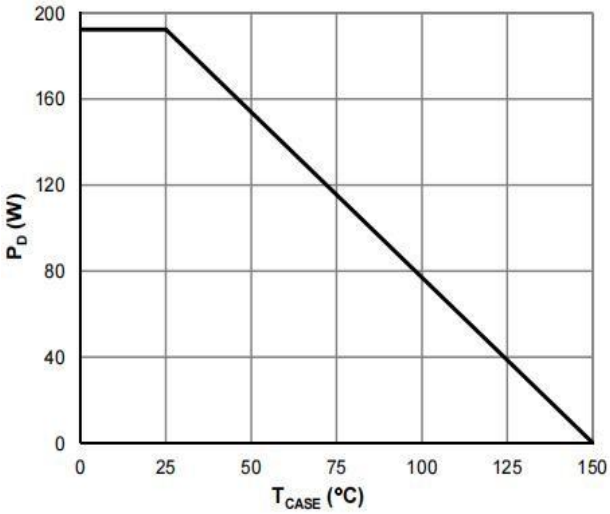


Figure 10: Power De-rating

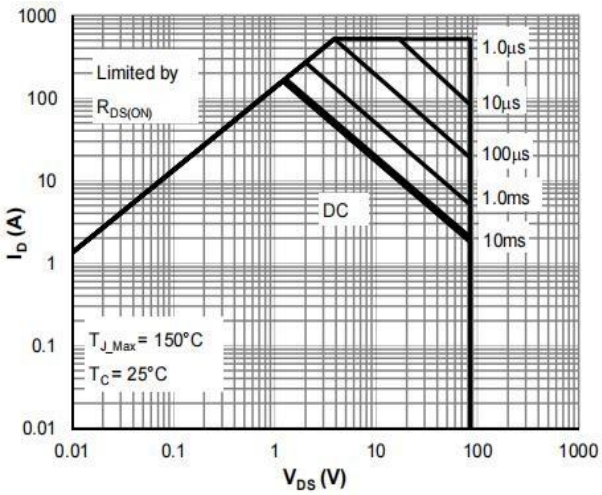


Figure 11: Maximum Safe Operating Area

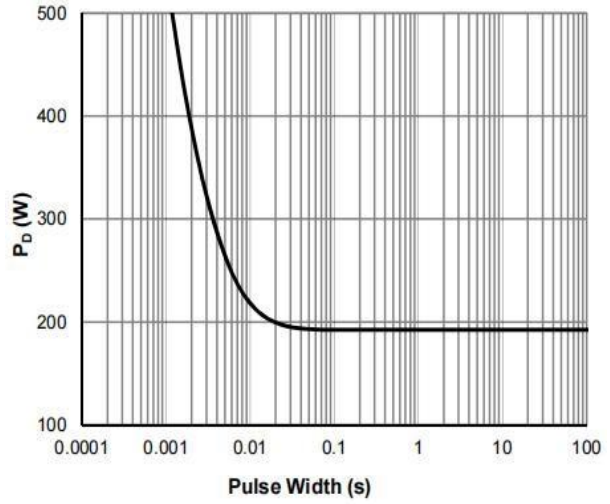
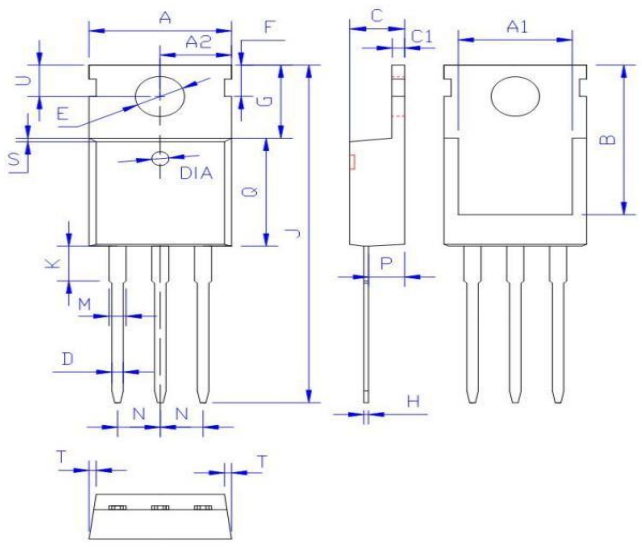


Figure 12: Single Pulse Power Rating, Junction-to-Case

PACKAGE OUTLINE



Dim.	Min.	Max.
A	9.8	10.2
A1	7.8	8.2
A2	4.8	5.2
B	13	13.4
C	4.35	4.65
C1	1.15	1.45
D	0.65	0.95
E	3.45	3.75
F	2.85	3.15
G	6.4	6.8
H	0.35	0.65
J	28.68	29.08
K	2.8	3.2
M	1.15	1.45
N	Typ2.54	
P	2.2	2.6

	Q	9	9.4
	S	0.15	0.35
	T	0.15	0.35
	U	2.65	2.95
	DIA	1.5±0.1	Deep MAX0.5
	All Dimensions in millimeter		

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