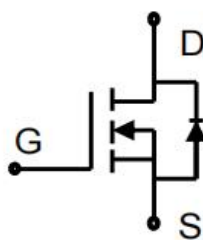


**N-Channel SGT MOSFET 40V/280A**

Parameter	Value	Unit
V <sub>DS</sub>	40	V
V <sub>GS</sub>	±20	V
R <sub>DS(on)</sub>	0.75	mΩ
I <sub>D</sub>	280	A



PDFN5x6

**FEATURES**

- Split gate trench MOSFET technology
- Fast switching
- Low gate charge & R<sub>ds(on)</sub>

**APPLICATIONS**

- PWM application
- Hard switched and high frequency circuit
- Power management

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

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	V <sub>DSS</sub>	40	V
Gate to Source Voltage	V <sub>GSS</sub>	±20	V
Drain Current (DC)	I <sub>D</sub>	280	A
Drain Current (Pulse)	I <sub>DP</sub>	920	A
Single Pulse Avalanche Energy <sup>Note 2</sup>	E <sub>AS</sub>	1089	mJ
Total Power Dissipation	P <sub>D</sub>	300	W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

**Note:** 1.Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

2.The test condition is V<sub>DD</sub>=20V,V<sub>GS</sub>=10V,L=0.5mH,R<sub>G</sub>=25Ω

**THERMAL CHARACTERISTICS**

Parameter	Symbol	Value	Unit
Thermal Resistance,Junction-to-Ambient	R <sub>thJA</sub>	0.41	°C/W

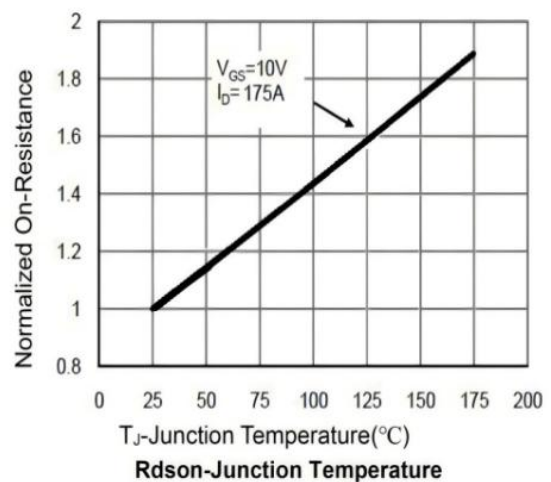
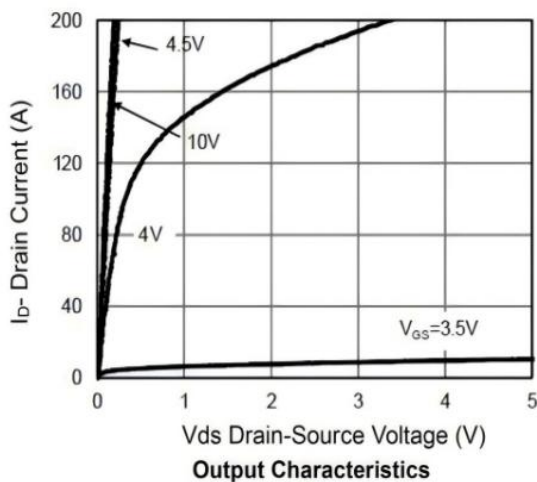
**ELECTRICAL CHARACTERISTICS** (at T<sub>J</sub> = 25°C unless otherwise specified)

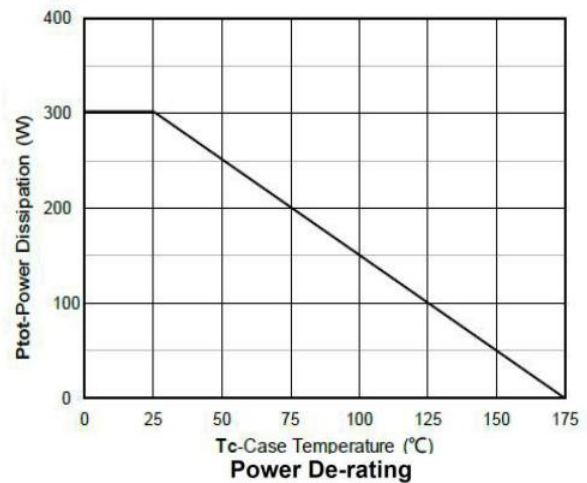
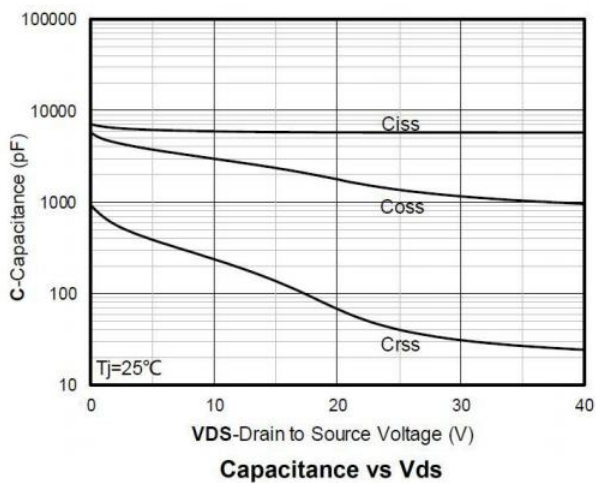
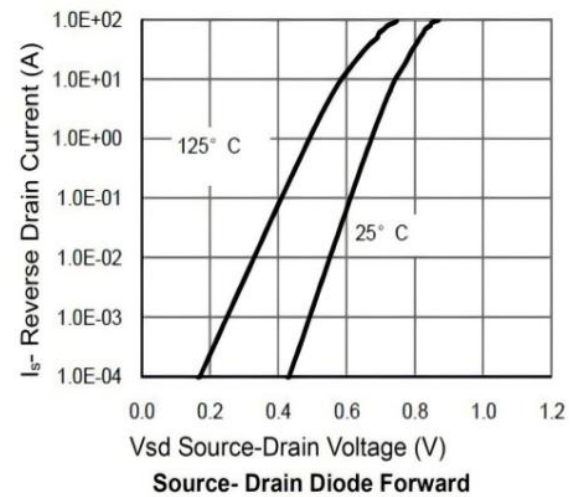
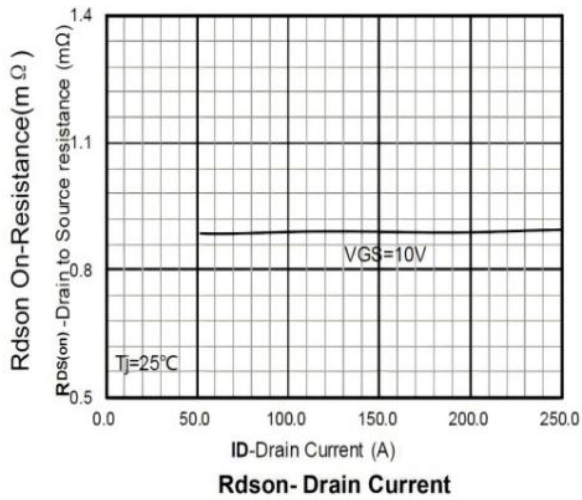
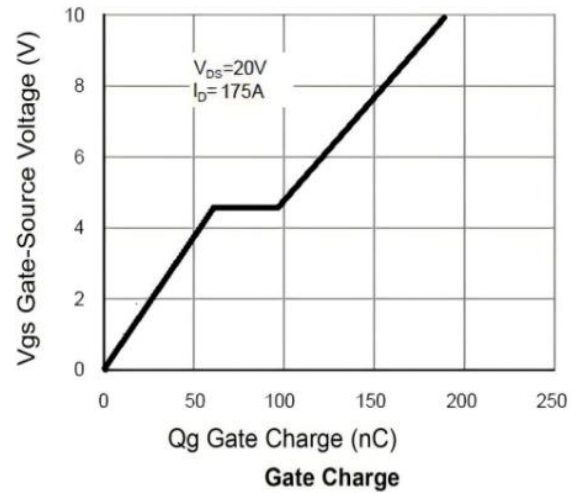
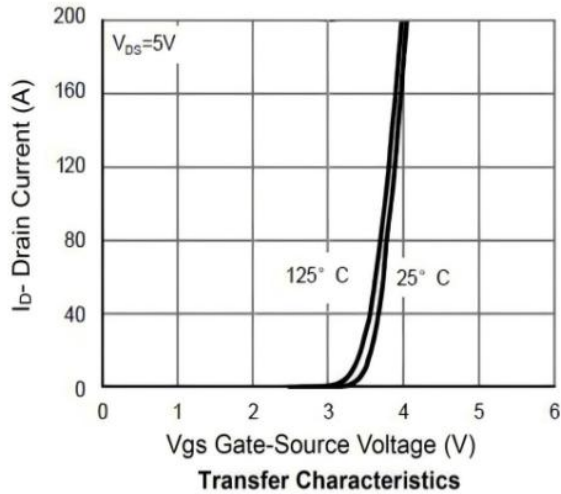
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =250 μA, V <sub>GS</sub> =0V	40	47	-	V
Continuous Drain Current	I <sub>D(Device Ref)</sub>	T <sub>J</sub> =25°C	-	-	280	A

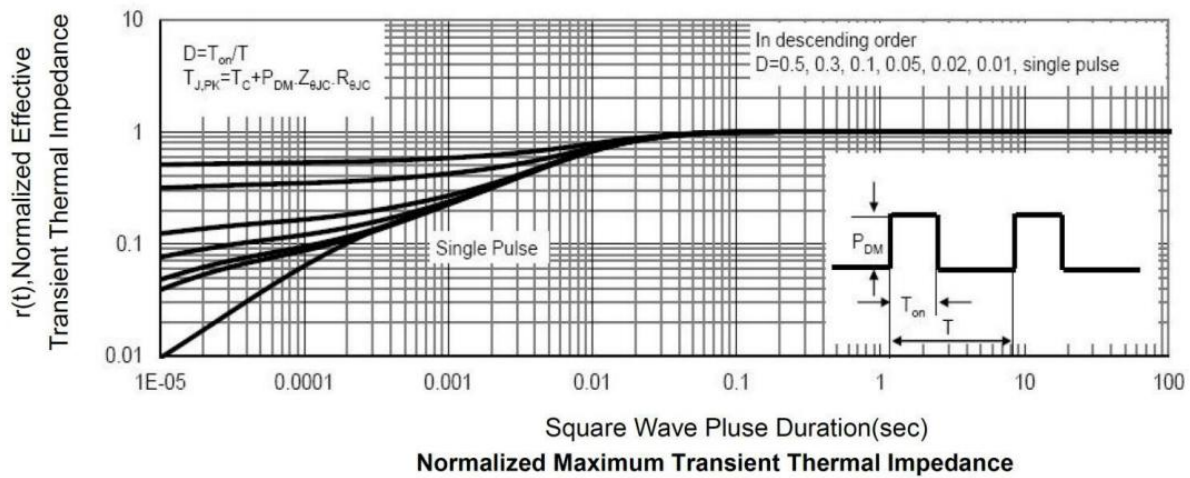
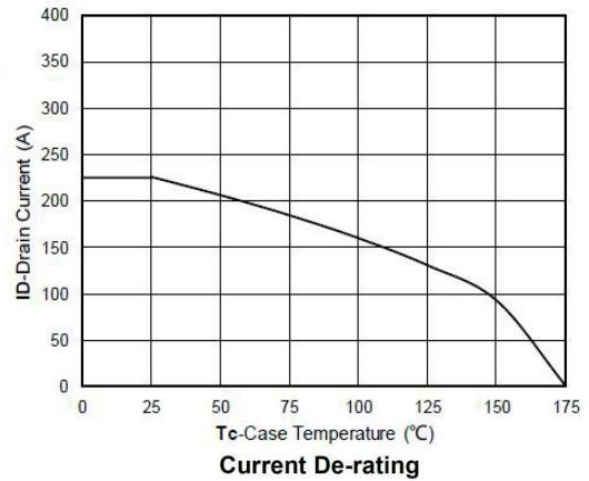
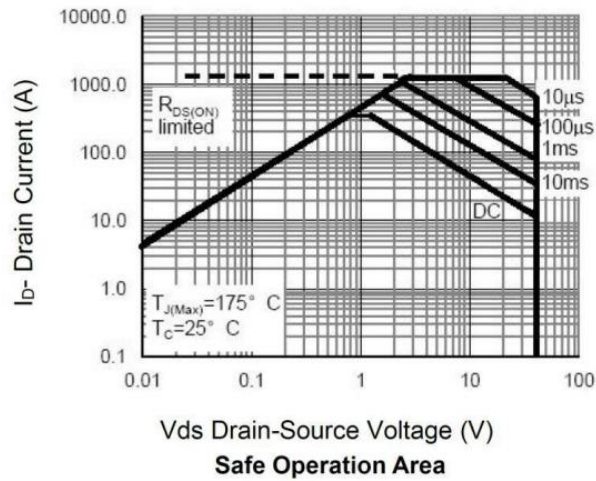
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=40V, V_{GS}=0V$	-	-	1	$\mu A$
Gate to Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.6	2.5	V
Static Drain to Source On-State Resistance	$R_{DS(on)} (FT)$	$I_D=20A, V_{GS}=10V$	-	0.75	0.9	m $\Omega$
		$I_D=20A, V_{GS}=4.5V$	-	1.15	1.3	m $\Omega$
Input Capacitance	$C_{iss}$	$V_{GS}=0V, V_{DS}=20V, \text{Frequency}=1.0MHz$	-	5500	-	pF
Output Capacitance	$C_{oss}$		-	1850	-	pF
Reverse Transfer Capacitance	$C_{rss}$		-	65	-	pF
Turn-ON Delay Time	$t_{d(on)}$	$V_{DS}=20V, I_D=85A, V_{GS}=10V, R_G=1.6\Omega$	-	13.5	-	ns
Rise Time	$t_r$		-	8.8	-	ns
Turn-OFF Delay Time	$t_{d(off)}$		-	52	-	ns
Fall Time	$t_f$		-	9.6	-	ns
Total Gate Charge	$Q_g$	$V_{DS}=20V, V_{GS}=10V, I_D=85A$	-	128	-	nC
	$Q_{gs}$		-	19	-	nC
	$Q_{gd}$		-	12	-	nC
Diode Forward Voltage	$V_{FSD}$	$I_S=1A, V_{GS}=0, T_J=25^\circ C$	-	-	1.2	V
Reverse Recovery Time	$T_{rr}$	$I_S=50A, di/dt=100A/\mu s, T_J=25^\circ C$	-	55	-	ns
Reverse Recovery Charge	$Q_{rr}$		-	53	-	nC

**Note:** Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

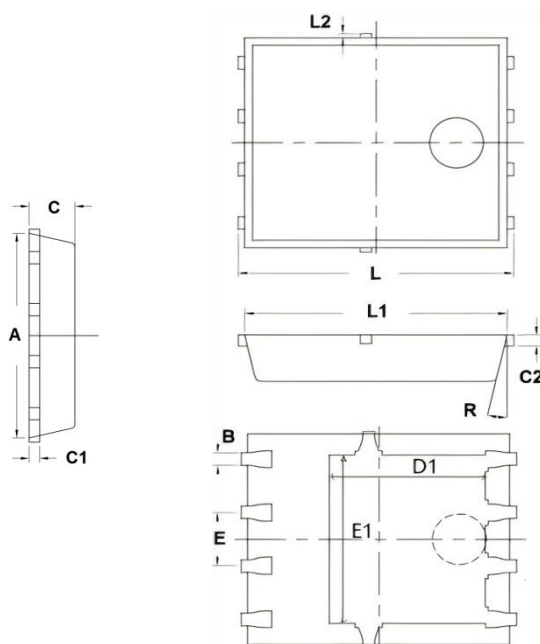
## CHARACTERISTICS DIAGRAMS







### PACKAGE OUTLINE



Dim.	Min.	Max.
A	4.8	5.2
B	0.25	0.35
C	1	1.2
C1	Typ0.254	
C2	Typ0.254	
D1	3.35	3.81
E	Typ1.27	
E1	3.9	4.18
L	6	6.3
L1	5.7	6
L2	MAX 0.2	
R	Typ 13°	
All Dimensions in millimeter		

**\*Important Usage Information and Disclaimer**

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