

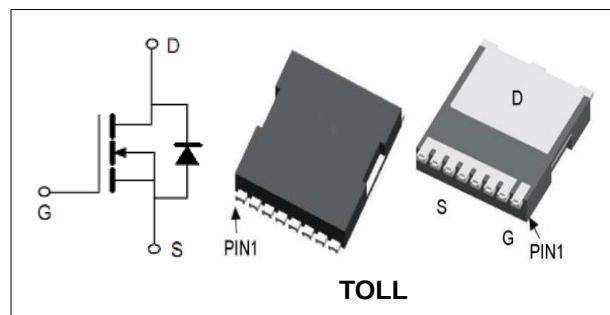
**100V/200A N-Channel Advanced Power MOSFET****Features.**

- Improved dv/dt Capability, High Ruggedness.
- Maximum Junction Temperature Range (175°C)
- 100% Avalanche Tested

V_{DS}	100	V
I_D	200	A
$R_{DS(on), Typ} @ V_{GS}=10V$	2.5	mΩ

Applications

- Battery management
- Uninterruptible Power Supply (UPS)

**Order Information**

Product	Package	Marking	Reel Size	Reel	Carton
PGT10N027	TOLL	PGT10N027	13inch	1500PCS	12000PCS

Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T _C =25°C Unless Otherwise Noted)				
V _{(BR)DSS}	Drain-Source Breakdown Voltage		100	V
V _{GS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		175	°C
T _{STG}	Storage Temperature Range		-55 to 175	°C
I _S	Diode Continuous Forward Current	T _C =25°C	200	A
Mounted on Large Heat Sink				
E _{AS}	Single Pulse Avalanche Energy (Note1)		782	mJ
I _{DM}	Pulse Drain Current Tested (Note2)	T _C =25°C	800	A
I _D	Continuous Drain current	T _C =25°C	200	A
P _D	Maximum Power Dissipation	T _C =25°C	278	W
R _{θJC}	Thermal Resistance Junction-to-Case		0.54	°C/W
R _{θJA}	Thermal Resistance Junction-to-Ambient (Note3)		45	°C/W



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Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T _j = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain- Source Breakdown Voltage	V _{GS} =0V I _D =250μA	100	--	--	V
I _{DSS}	Zero Gate Voltage Drain current	V _{DS} =100V,V _{GS} =0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V,V _{DS} =0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} ,I _D =250μA	2	--	4	V
R _{DS(ON)}	Drain-Source On-State Resistance (Note3)	V _{GS} =10V, I _D =50A	--	2.5	2.8	mΩ
Dynamic Electrical Characteristics @ T _j = 25°C (unless otherwise stated) (Note4)						
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=100kHz	--	7338	--	pF
C _{oss}	Output Capacitance		--	729	--	pF
C _{rss}	Reverse Transfer Capacitance		--	49	--	pF
Q _g	Total Gate Charge	V _{DS} =50V, I _D =20A, V _{GS} =10V	--	109	--	nC
Q _{gs}	Gate-Source Charge		--	34	--	nC
Q _{gd}	Gate-Drain Charge		--	25	--	nC
R _G	Gate Resistance	f=1MHz	--	1.7	--	Ω
Switching Characteristics (Note4)						
t _{d(on)}	Turn-on Delay Time	V _{DS} =50V, I _D =20A, R _G =10Ω, V _{GS} =10V	--	89	--	ns
t _r	Turn-on Rise Time		--	128	--	ns
t _{d(off)}	Turn-off Delay Time		--	167	--	ns
t _f	Turn-off Fall Time		--	76	--	ns
Source- Drain Diode Characteristics@ T _j = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	I _S =50A,V _{GS} =0V	--	--	1.2	V
t _{rr}	Reverse Recovery Time	V _{DS} =50V,I _S =20A, di/dt=100A/μs	--	60	--	ns
Q _{rr}	Reverse Recovery Charge		--	239	--	nC

Note:

- Limited by T_{Jmax} , starting $T_j = 25^\circ\text{C}$, $R_G = 25\Omega$, $V_{DS} = 50V$, $V_{GS} = 10V$. Part not recommended for use above this value.
- Repetitive Rating: Pulse width limited by maximum junction temperature.
- The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$
- Pulse Test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.



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Typical Performance Characteristics

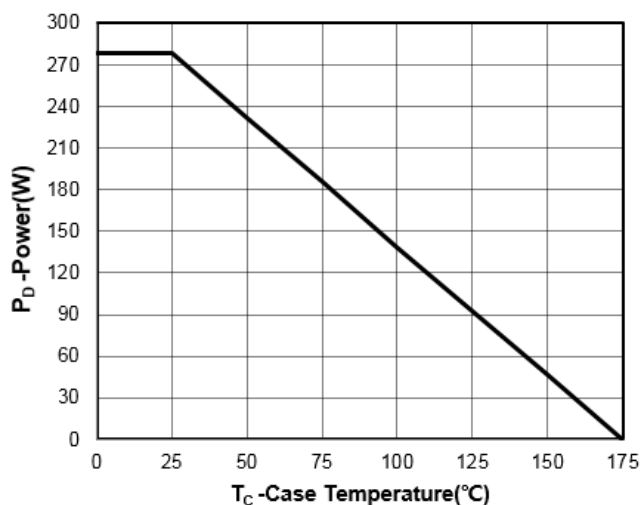


Figure1: Power De-rating

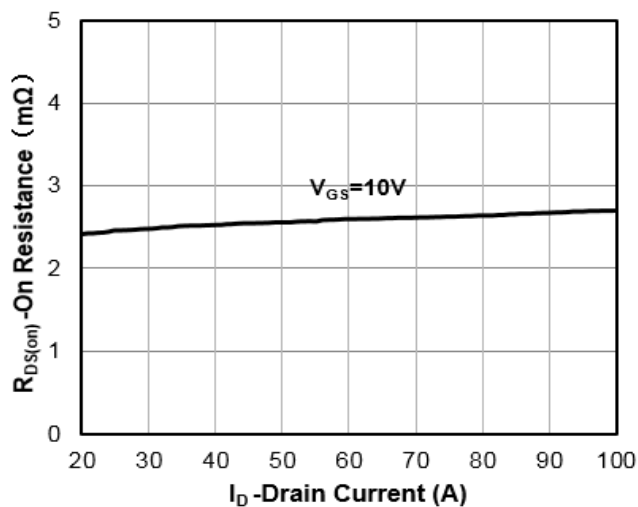
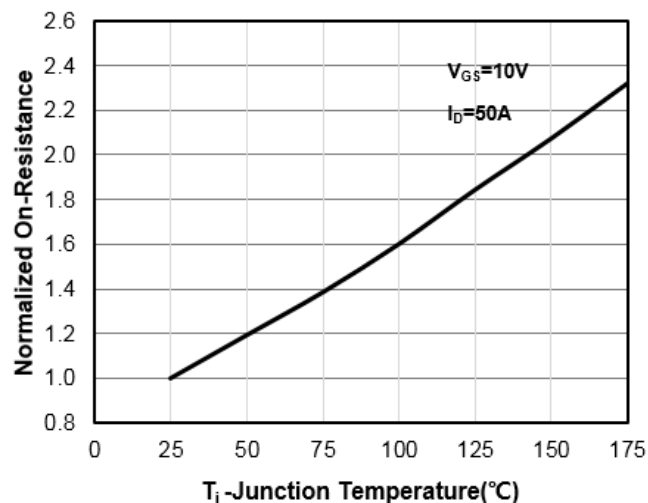
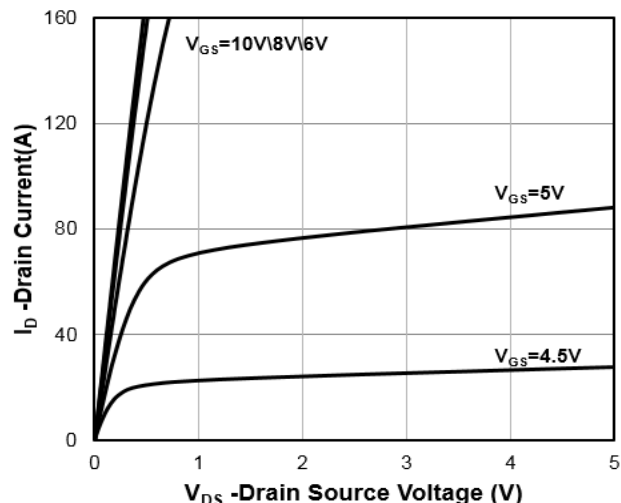
Figure2: $R_{DS(on)}$ -Drain CurrentFigure3: $R_{DS(on)}$ -Junction Temperature

Figure4: Output Characteristics

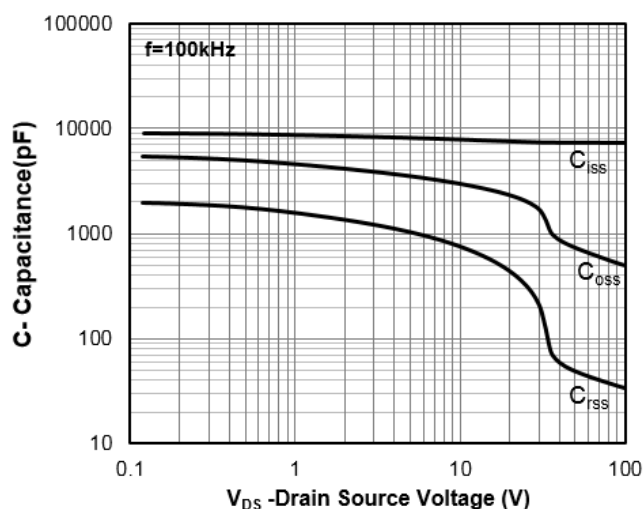
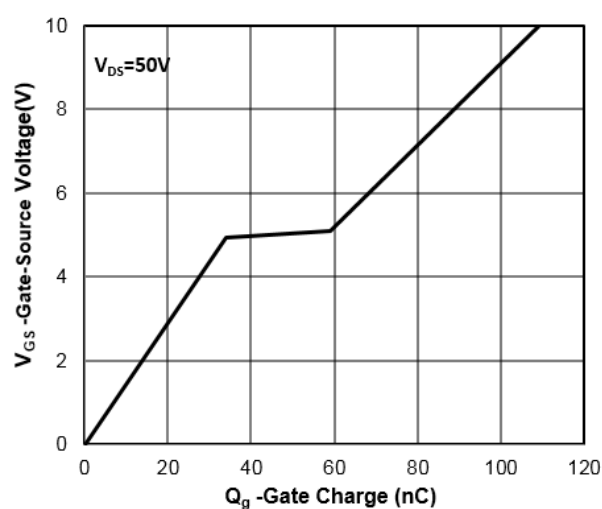
Figure5: Capacitance - V_{DS} 

Figure6: Gate Charge



100V/200A N-Channel Advanced Power MOSFET

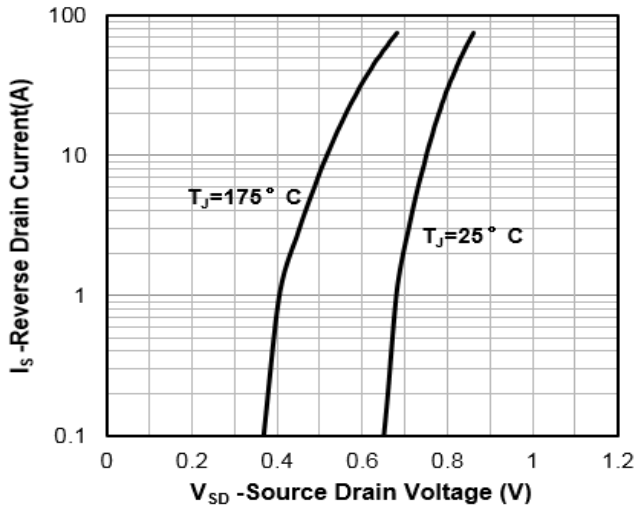


Figure7: Typical Source-Drain Diode Forward Voltage

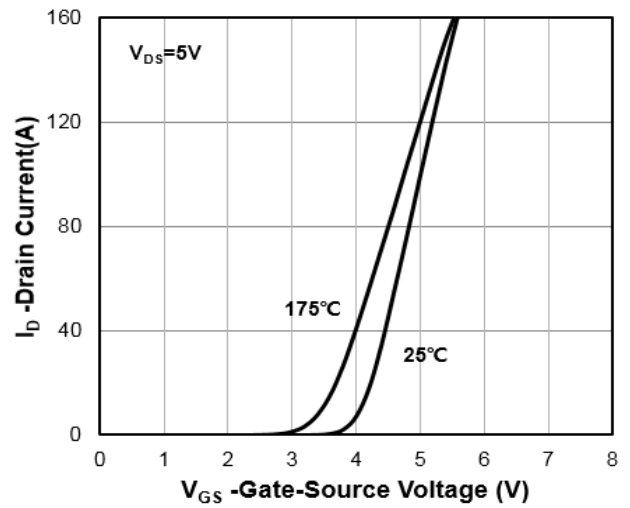


Figure8: Transfer Characteristics

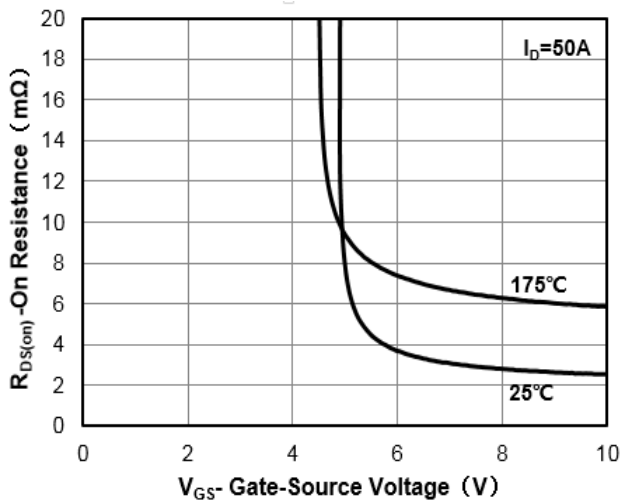
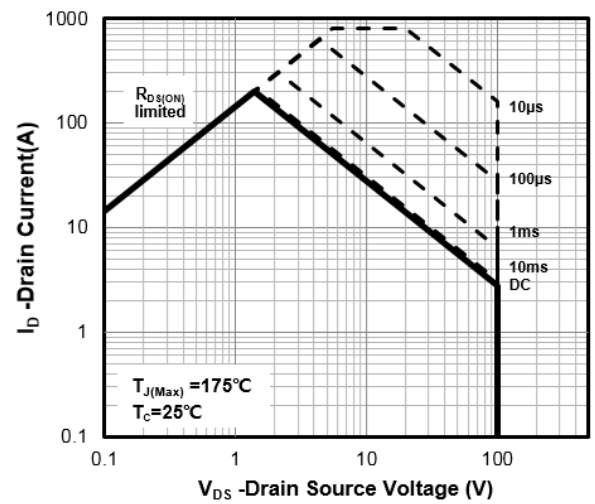
Figure9: $R_{DS(on)}$ - V_{GS} 

Figure10: Safe Operation Area

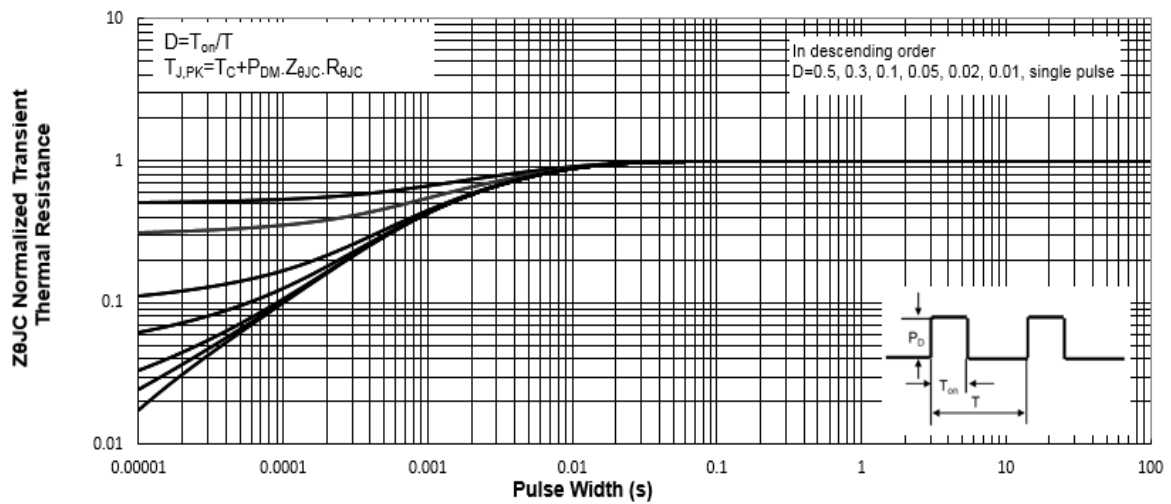
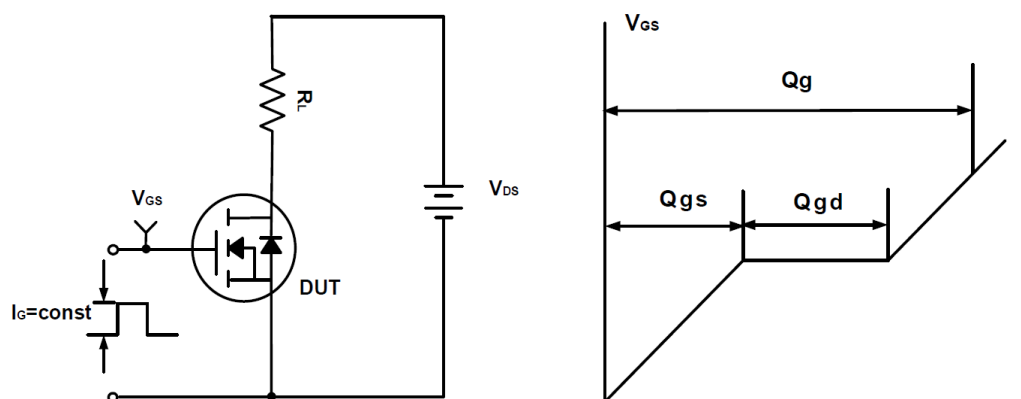
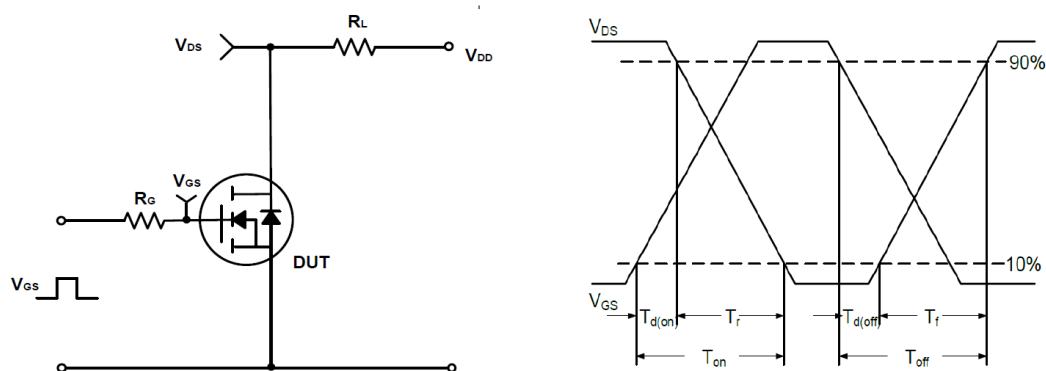
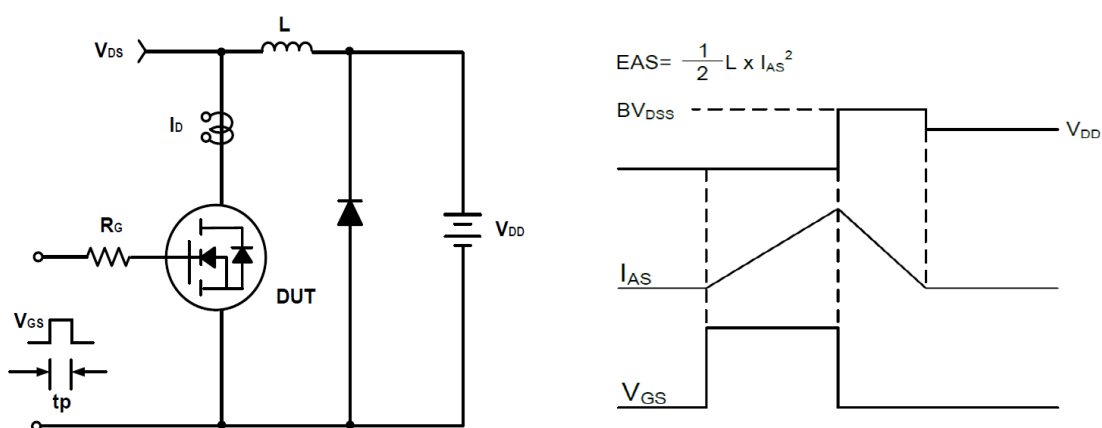
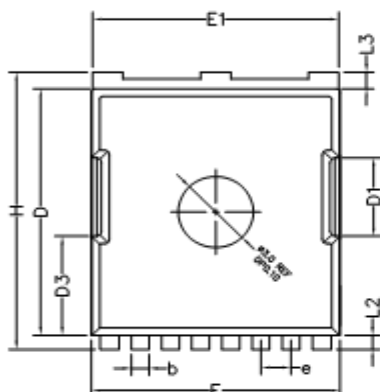
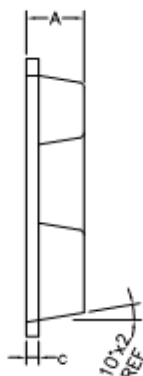
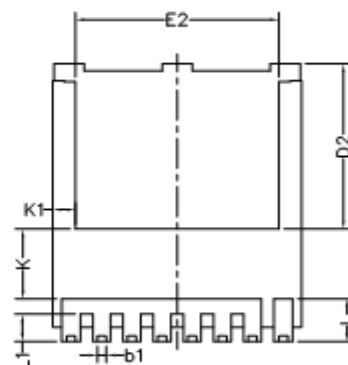


Figure11: Normalized Maximum Transient Thermal Impedance

100V/200A N-Channel Advanced Power MOSFET
Test Circuit and Waveform:

Figure A Gate Charge Test Circuit & Waveforms

Figure B Switching Test Circuit & Waveforms

Figure C Unclamped Inductive Switching Circuit & Waveforms

**100V/200A N-Channel Advanced Power MOSFET****TOLL Package Outline Dimensions (Units: mm)****TOP VIEW****SIDE VIEW****BOTTEM VIEW****SIDE VIEW**

COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	2.200	2.300	2.400
b	0.600	0.700	0.900
b1	0.300	—	0.500
c	0.400	0.500	0.600
D	10.280	10.380	10.480
D1	3.200	3.300	3.400
D2	6.850	6.950	7.050
D3	4.18REF		
E	9.800	9.900	10.000
E1	9.700	9.800	9.900
E2	8.000	8.100	8.200
e	1.200BSC		
H	11.480	11.680	11.880
L	1.600	1.800	2.100
L1	1.000	1.150	1.300
L2	0.600 TYPE		
L3	0.600 TYPE		
K	2.900 TYPE		
K1	0.900 TYPE		