



100V/80A N-Channel Advanced Power MOSFET

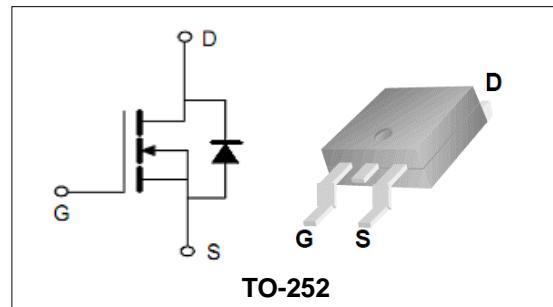
Features

- Fast switching
- Low RDS(on) & FOM
- Low Gate Charge

BVDSS	100	V
ID	80	A
RDSON@VGS=10V	5.9	mΩ
RDSON@VGS=4.5V	8.2	mΩ

Applications

- High Frequency Switching
- Synchronous Rectification

**Order Information**

Product	Package	Marking	Reel Size	Reel	Carton
PGD10N080	TO-252	PGD10N080	13inch	2500PCS	50000PCS

Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit	
Common Ratings (TC=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	150	°C	
T _{STG}	Storage Temperature Range	-55 to 150	°C	
I _S	Diode Continuous Forward Current	TC =25°C	80	A
Mounted on Large Heat Sink				
E _{AS}	Single Pulse Avalanche Energy (Note1)	210	mJ	
I _{DM}	Pulse Drain Current Tested (Silicon Limit) (Note2)	TC =25°C	240	A
I _D	Continuous Drain current	TC =25°C	80	A
P _D	Maximum Power Dissipation	TC =25°C	110	W
R _{θJC}	Thermal Resistance Junction-to-Case (Note3)		1.14 °C/W	

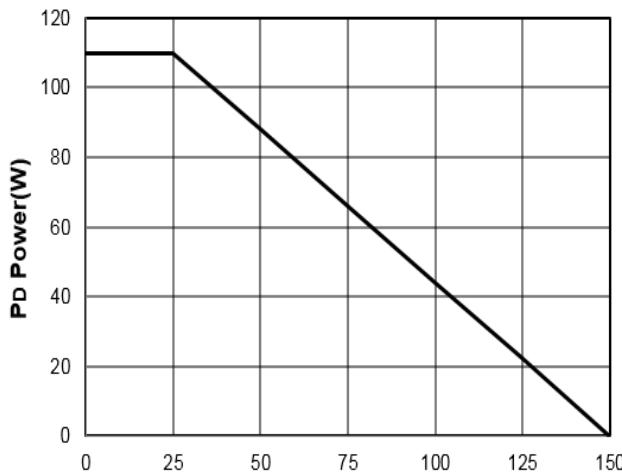
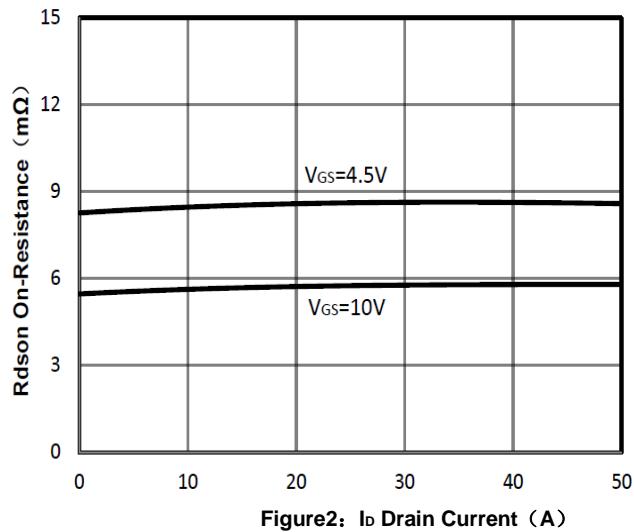
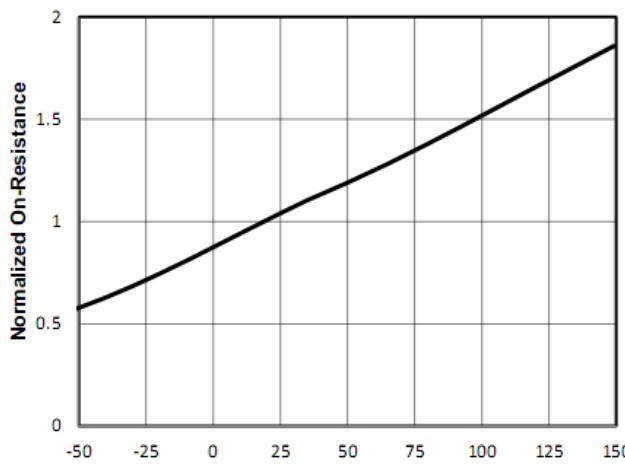
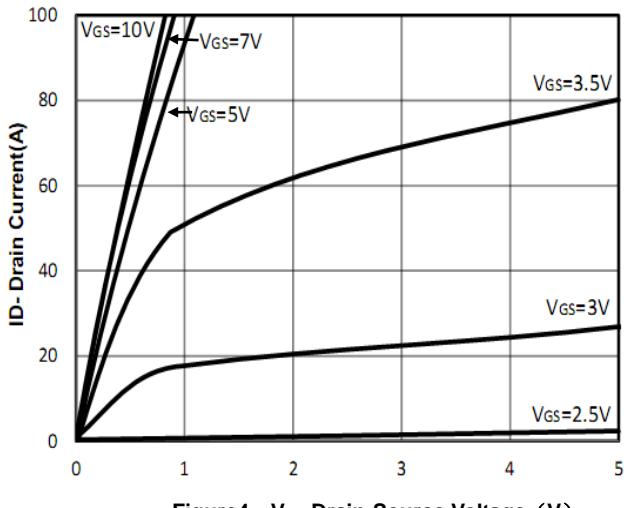
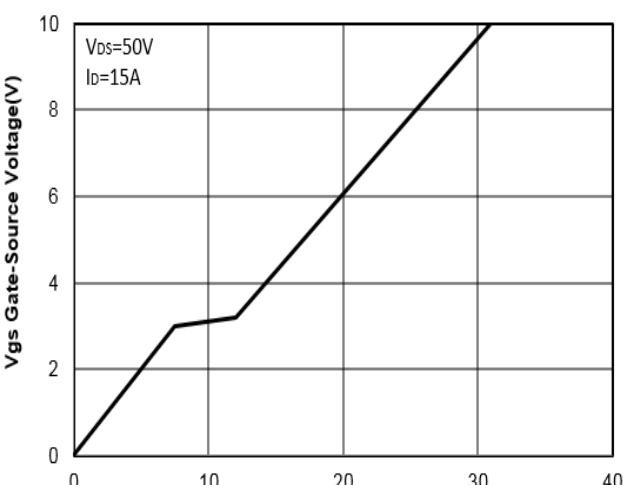
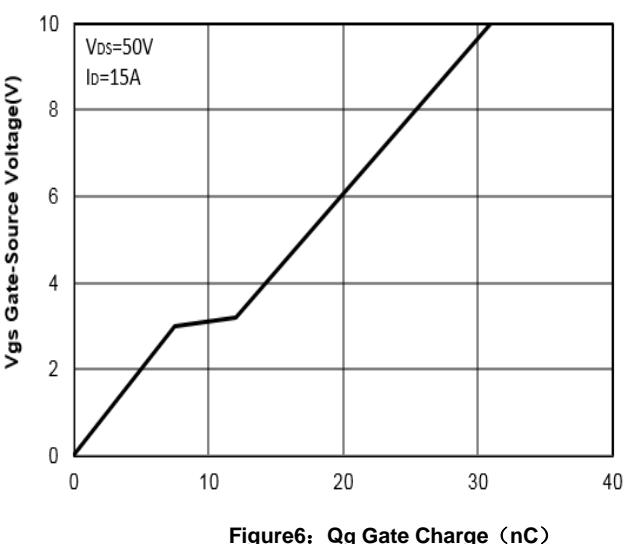


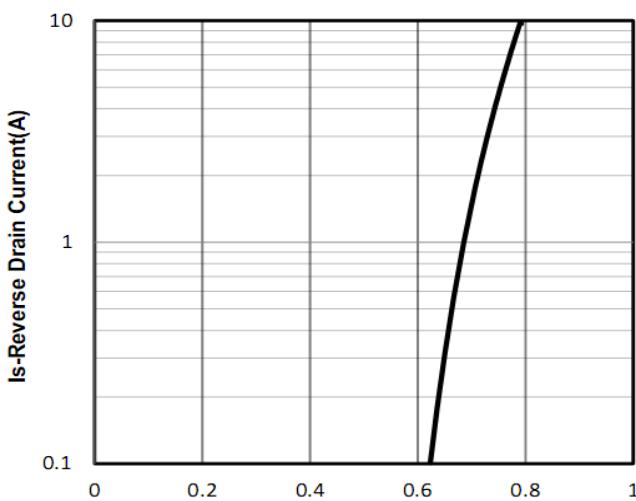
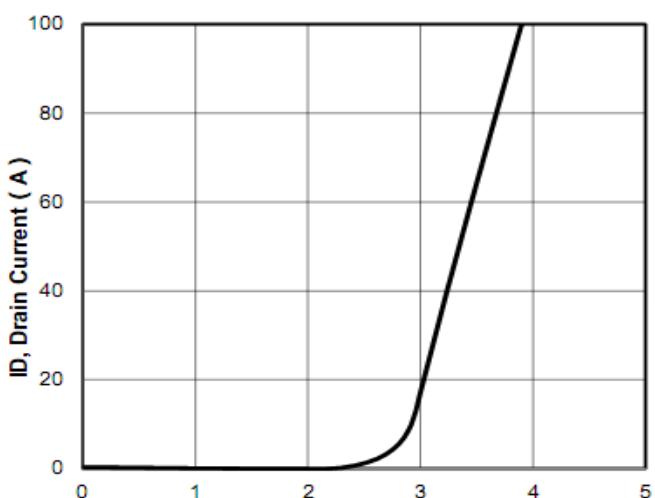
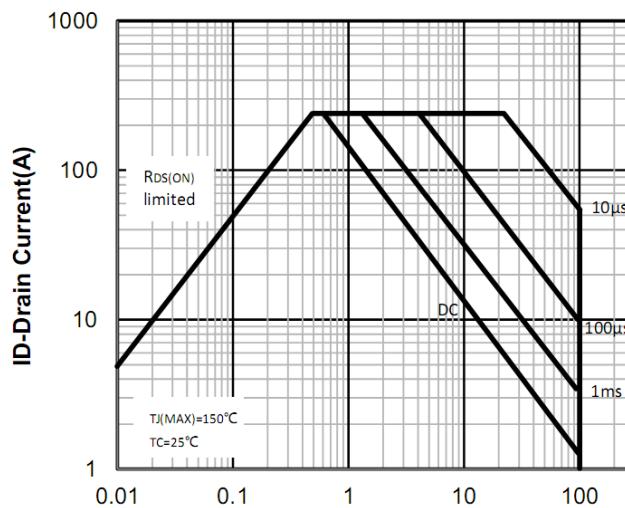
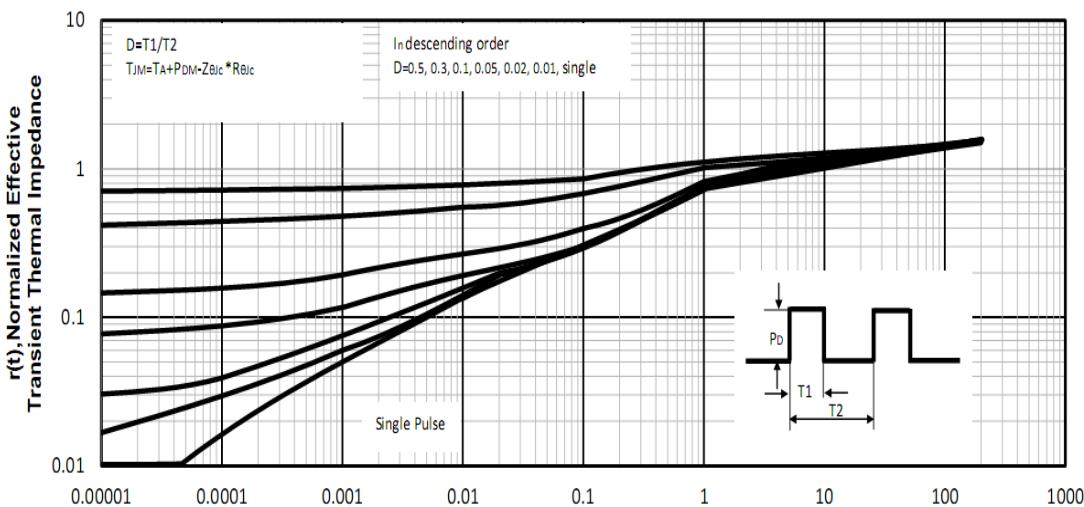
100V/80A N-Channel Advanced Power MOSFET

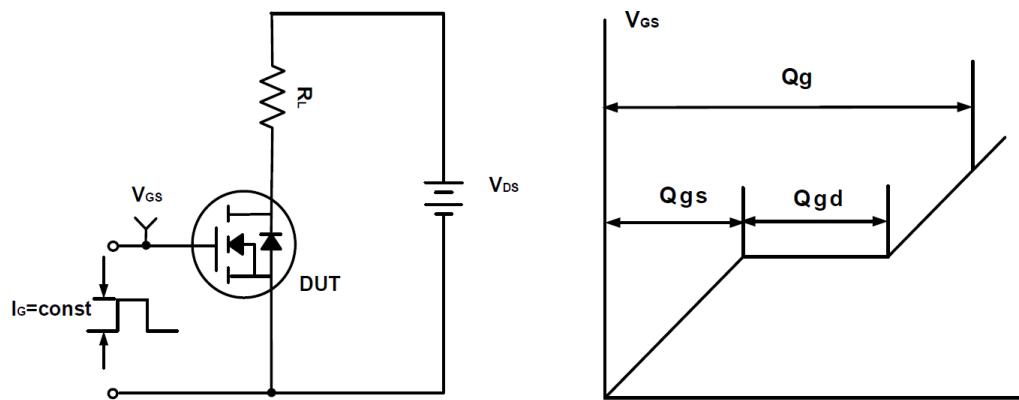
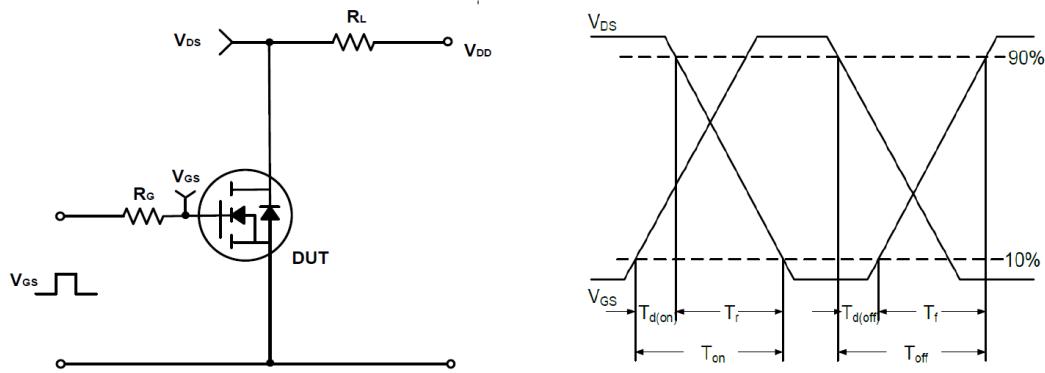
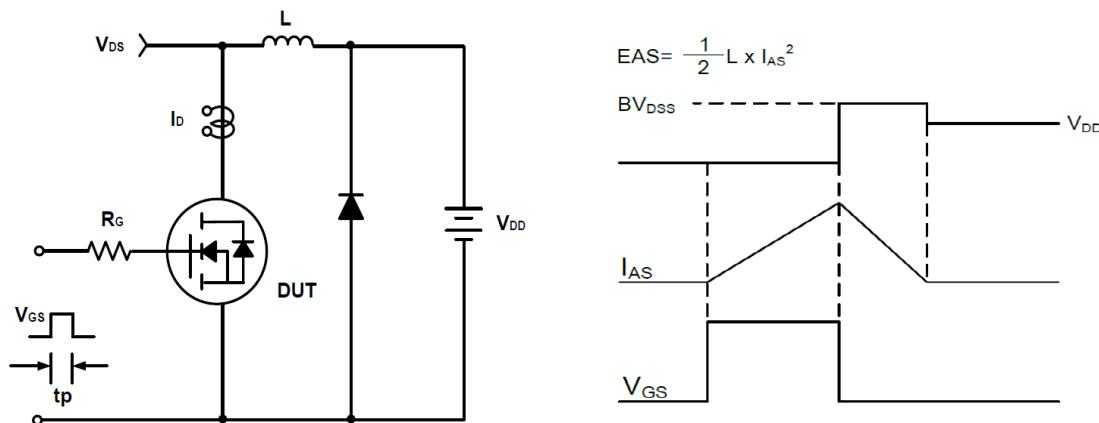
Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
$V_{(BR)DSS}$	Drain- Source Breakdown Voltage	$VGS=0V$ $ID=250\mu A$	100	--	--	V
I_{DSS}	Zero Gate Voltage Drain current	$VDS=80V$, $VGS=0V$	--	--	1	μA
I_{GSS}	Gate-Body Leakage Current	$VGS=\pm 20V$, $VDS=0V$	--	--	± 100	nA
$V_{GS(TH)}$	Gate Threshold Voltage	$VDS=VGS$, $ID=250\mu A$	1	2	2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance (Note4)	$VGS=10V$, $ID=30A$	--	5.9	7.7	$m\Omega$
		$VGS=4.5V$, $ID=20A$	--	8.2	11.2	$m\Omega$
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated) (Note5)						
C_{iss}	Input Capacitance	$VDS=50V$, $VGS=0V$, $F=1MHz$	--	2760	--	pF
C_{oss}	Output Capacitance		--	679	--	pF
C_{rss}	Reverse Transfer Capacitance		--	30.5	--	pF
Q_g	Total Gate Charge	$VDS=50V$, $ID=15A$, $VGS=10V$	--	40.1	--	nC
Q_{gs}	Gate-Source Charge		--	6.7	--	nC
Q_{gd}	Gate-Drain Charge		--	8.5	--	nC
Switching Characteristics (Note5)						
$t_{d(on)}$	Turn-on Delay Time	$VDS=50V$, $ID=15A$, $RG=6\Omega$, $VGS=10V$	--	14.3	--	nS
t_r	Turn-on Rise Time		--	28.7	--	nS
$t_{d(off)}$	Turn-off Delay Time		--	47.2	--	nS
t_f	Turn-off Fall Time		--	41.9	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	$IS=20A$, $VGS=0V$	--	--	1.2	V

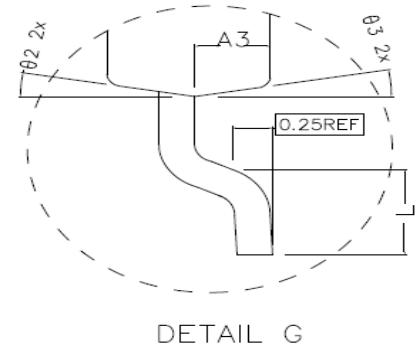
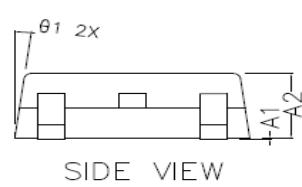
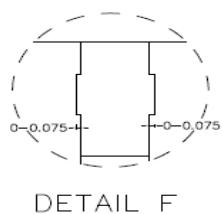
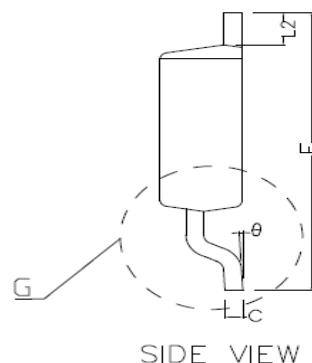
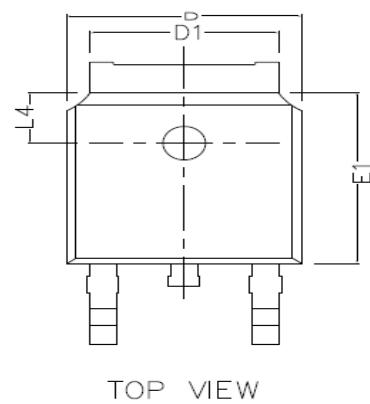
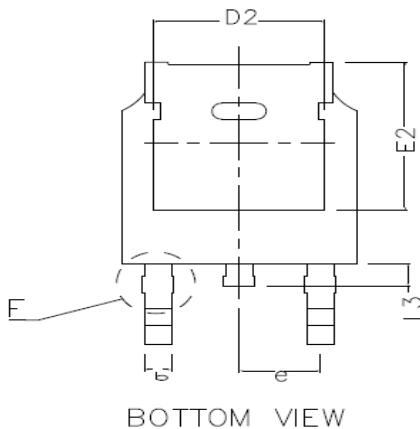
Note:

1. Limited by TJmax, starting TJ = 25° C, RG = 25Ω, VD = 30V, VGS = 10V. Part not recommended for use above this value.
2. Repetitive Rating: Pulse width limited by maximum junction temperature.
3. Surface Mounted on FR4 Board, t ≤ 10 sec.
4. Pulse Test: pulse width ≤ 300 us, duty cycle ≤ 2%.
5. Guaranteed by design, not subject to production testing.

100V/80A N-Channel Advanced Power MOSFET
Typical Characteristics

Figure1: TJ Junction Temperature (°C)

Figure2: I_D Drain Current (A)

Figure3: TJ Junction Temperature (°C)

Figure4: V_{DS} Drain-Source Voltage (V)

Figure5: V_{DS} Drain-Source Voltage (V)

Figure6: Q_g Gate Charge (nC)

100V/80A N-Channel Advanced Power MOSFET

Figure7: Vsd Source-Drain Voltage (V)

Figure8: Vgs Gate-Source Voltage (V)

Figure9: Vds Drain -Source Voltage (V)

Figure10: Square Wave Pulse Duration (sec)

100V/80A 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/80A N-Channel Advanced Power MOSFET
TO-252 Package Outline Dimensions (Units: mm)


COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A1	0.000	0.100	0.150
A2	2.200	2.300	2.400
A3	1.020	1.070	1.120
b	0.710	0.760	0.810
c	0.460	0.508	0.550
D	6.500	6.600	6.700
D1	5.330REF		
D2	4.830REF		
E	9.900	10.100	10.300
E1	6.000	6.100	6.200
E2	5.600REF		
e	2.286TYPE		
L	1.400	1.550	1.700
L2	1.10REF		
L3	0.80REF		
L4	1.80REF		
θ	0~8°		
θ1	7° TYPE		
θ2	10° TYPE		
θ3	10° TYPE		