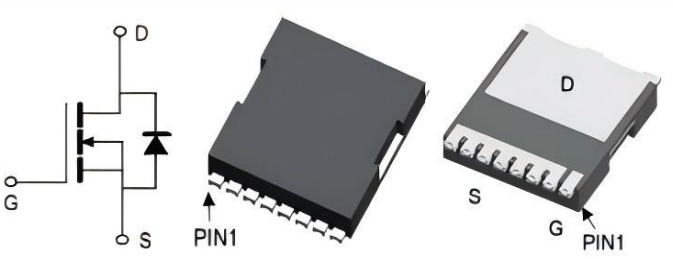
N-Channel Power MOSFET 60V/420A

Parameter	Value	Unit
BVDSS	60	V
ID	420	A
RDS(on)	0.67	mΩ



TOLL

FEATURES

- Low on-resistance and low conduction losses
- Ultra Low Gate Charge cause lower driving requirements
- 100%Avalanche Tested

APPLICATIONS

- DC/DC Converter
- Motor control and drives
- Battery management

MAXIMUM RATED VALUES

Symbol	Parameter		Rating	Unit
Common Ratings (TC=25°C Unless Otherwise noted)				
V(BR)DSS	Drain-Source Breakdown Voltage		60	V
VGS	Gate-Source Voltage		±20	V
TJ	Maximum Junction Temperature		150	°C
TSTG	Storage Temperature Range		-55 to 150	°C
Is	Diode Continuous Forward Current	TC =25°C	420	A
Mounted on Large Heat Sink				
EAS	Single Pulse Avalanche Energy (Note1)		2043	mJ
IDM	Pulse Drain Current Tested (Silicon Limit) (Note2)	TC =25°C	900	A
Io	Continuous Drain current	TC =25°C	420	A
PD	Maximum Power Dissipation	TC =25°C	284	W
RJC	Thermal Resistance Junction-to-Case (Note3)		0.44	°C/W

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

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
V(BR)SS	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	60	–	–	V
IDS	Zero Gate Voltage Drain current	VDS=60V,VGS=0V	--	–	1	μA

IGSS	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	–	±100	nA
VGS(TH)	Gate Threshold Voltage	VDS=VGS,ID=250μA	2	2.4	4	V
RDS(ON)	Drain-Source On-State Resistance (Note4)	VGS=10V,ID=80A	--	0.67	0.9	mΩ
		VGS=6V,ID=56A	--	0.92	1.4	mΩ
Dynamic Electrical Characteristics @ T_j = 25°C (unless otherwise stated) (Note5)						
Ciss	Input Capacitance	VDS=30V,VGS=0V,F=10kHz	--	9950	--	pF
Coss	Output Capacitance		--	3100	--	pF
Crss	Reverse Transfer Capacitance		--	160	--	pF
Qg	Total Gate Charge	VDS=30V,ID=80A,VGS=10V	--	123	--	nC
Qgs	Gate-Source Charge		--	28	--	nC
Qgd	Gate-Drain Charge		--	27	--	nC
RG	Gate resistance	F=1MHz	--	0.7	--	Ω
Switching Characteristics (Note5)						
td(on)	Turn-on Delay Time	VDD=30V,ID=80A,RL=6Ω,VGS=10V	--	28	--	nS
tr	Turn-on Rise Time		--	46	--	nS
td(off)	Turn-off Delay Time		--	97	--	nS
tf	Turn-off Fall Time		--	83	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
VSD	Forward on voltage	ISD=80A,VGS=0V	--	--	1.2	V
trr	Reverse Recovery Time	IS=56A,VGS=0V di/dt=100A/μs	--	120	--	nS
Qrr	Reverse Recovery Charge		--	322	--	nC

Notes:

1. Limited by TJmax, starting TJ = 25°C, RG = 250, VD =40V, 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, ts 10 sec.
4. Pulse Test: Pulse width ≤300 us, duty cycle ≤ 2%
5. 5.Guaranteed by design, not subject to production testing.

CHARACTERISTICS DIAGRAMS

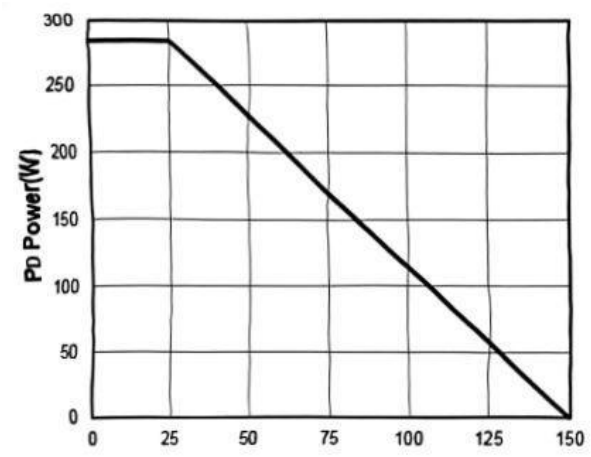


Figure1：TJ Junction Temperature（°C）

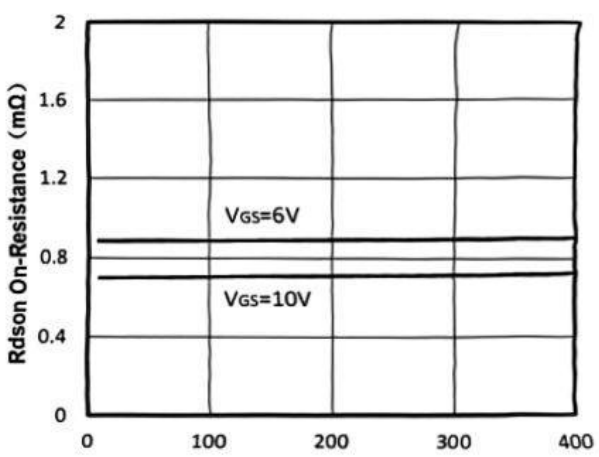


Figure2：ID Drain Current（A）

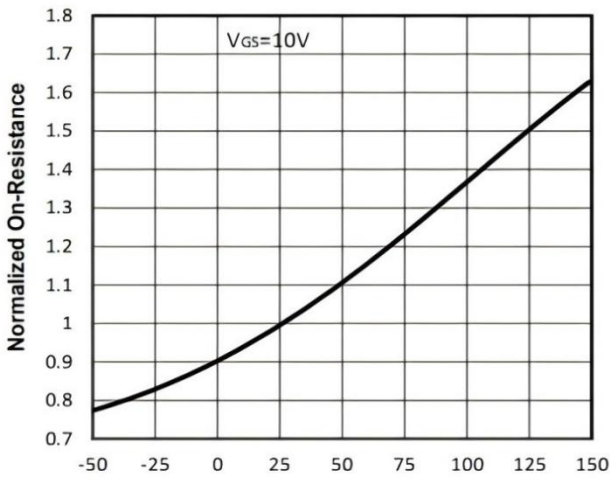


Figure3：TJ Junction Temperature（°C）

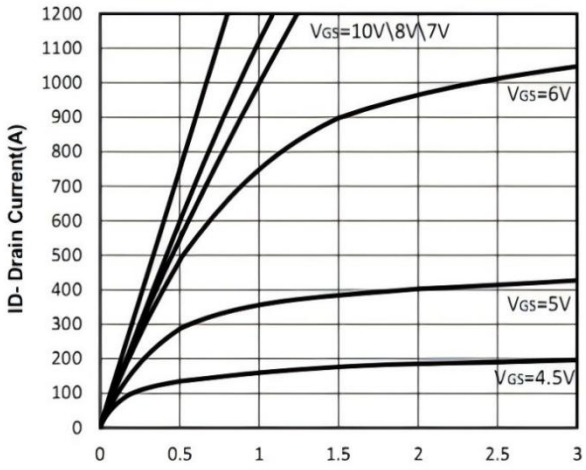


Figure4：VDS Drain-Source Voltage（V）

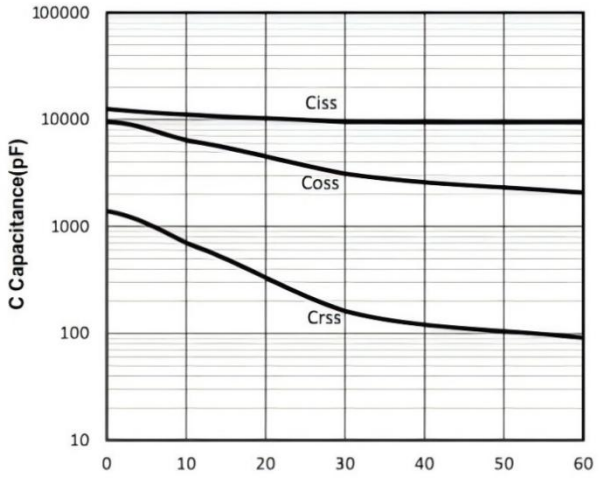


Figure5：VDS Drain Source Voltage（V）

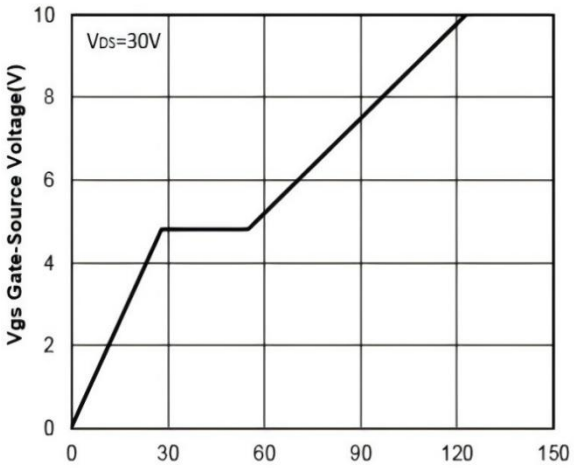


Figure6：Qg Gate Charge（nC）

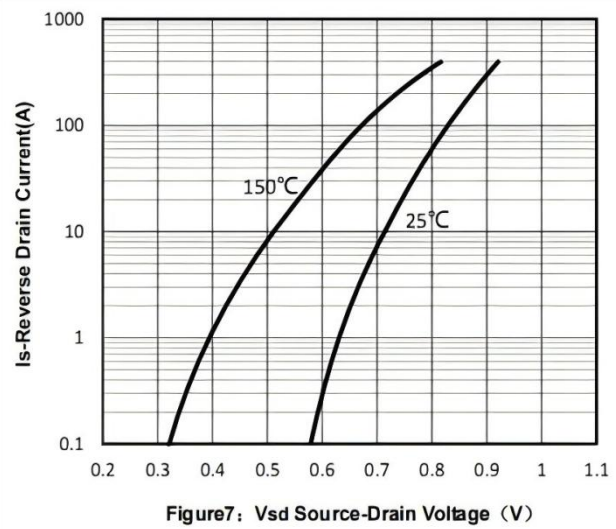


Figure7：Vsd Source-Drain Voltage（V）

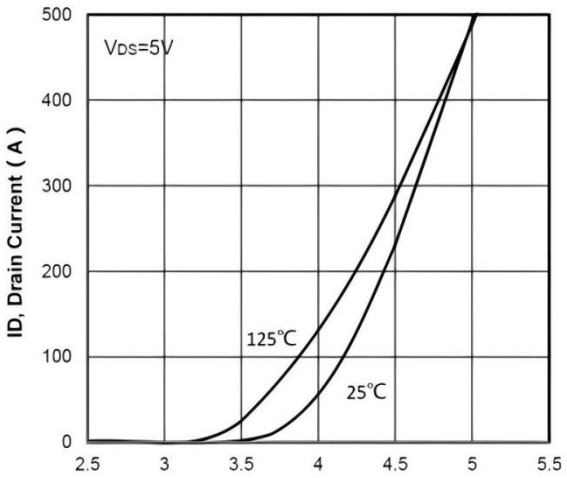


Figure8：Vgs Gate-Source Voltage（V）

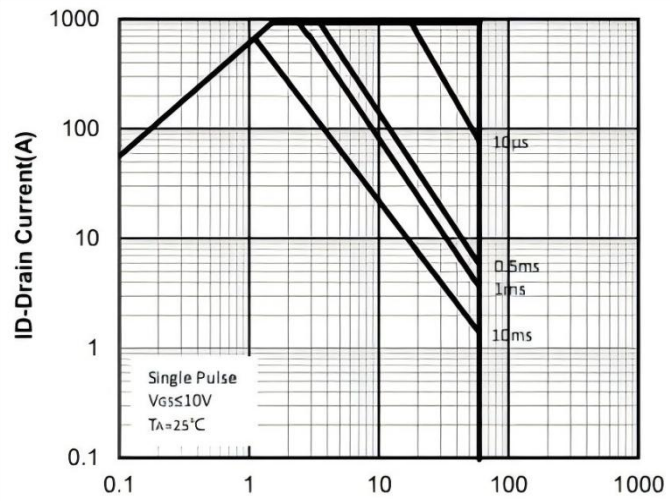


Figure9：Vds Drain -Source Voltage（V）

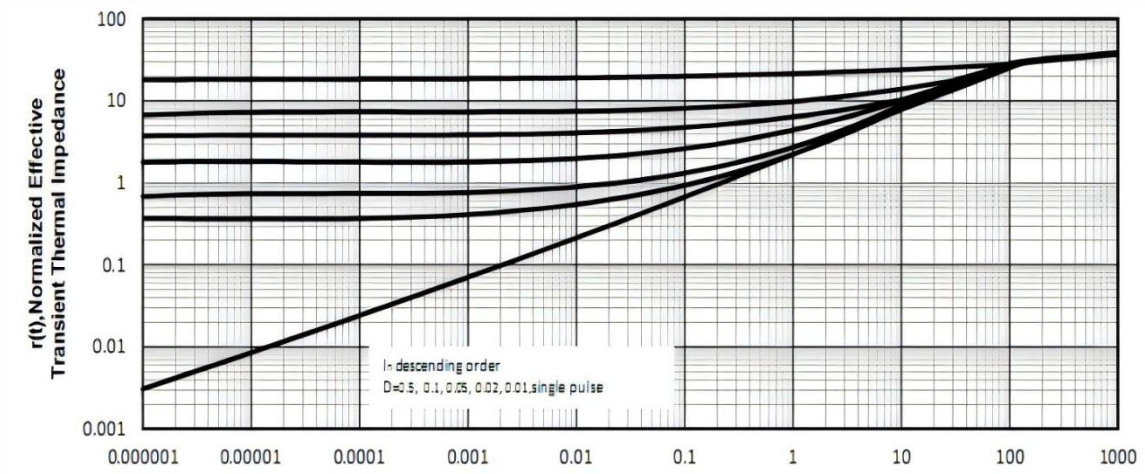
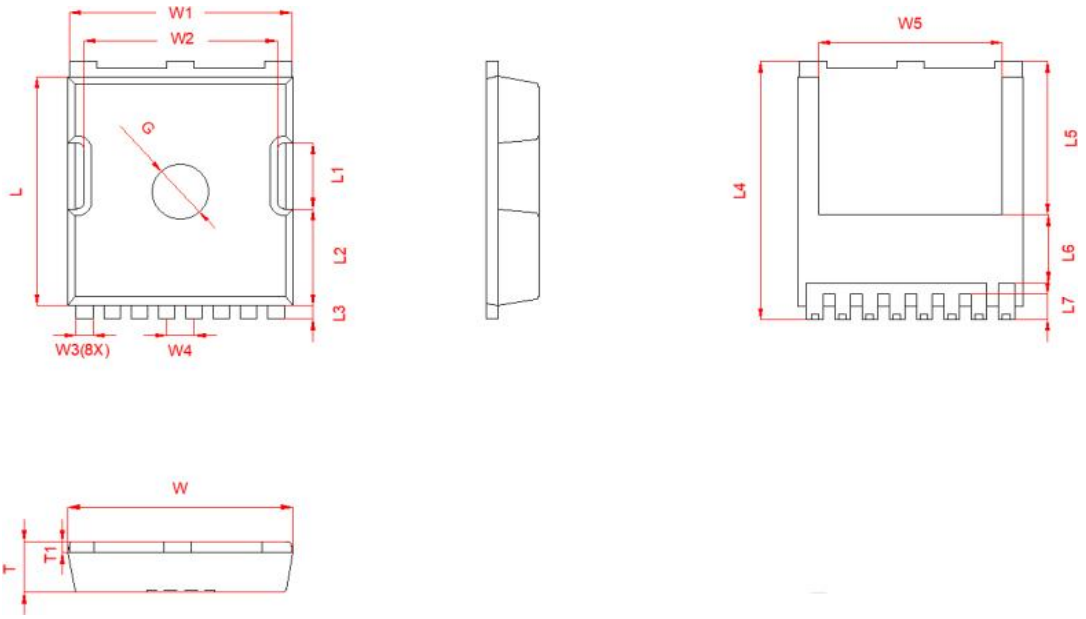


Figure10：Square Wave Pulse Duration（sec）

PACKAGE OUTLINES



Symbol	Size		Symbol	Size		Symbol	Size	
	Min	Max		Min	Max		Min	Max
W	9.7	10.1	L	10.28	10.58	L6	(3.1)	
W1	9.7	9.9	L1	(3.0)		L7	1.1	1.3
W2	(8.5)		L2	4.2	4.6	T	2.2	2.4
W3	0.6	0.85	L3	0.5	0.7	T1	0.4	0.6
W4	1.1	1.3	L4	11.48	11.88	G(Φ)	(2.5)	
W5	(8.1)		L5	(6.9)				

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