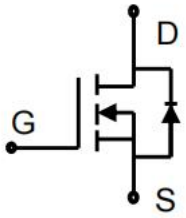
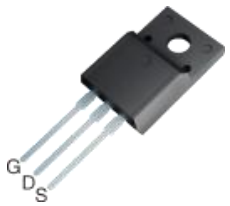
N-Channel Super Junction MOSFET 800V/6A

Parameter	Value	Unit
V_{DS}	800	V
$R_{DS(on)}$	0.79	Ω
I_D	6	A





TO-220F

FEATURES

- Very low FOM RDS(on)xQg
- 100% avalanche tested
- Easy to use/drive
- RoHS compliant

APPLICATIONS

- Switch Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)
- Low Power Chargers and Adapters

KEY PERFORMANCE PARAMETERS

Parameter	Value	Unit
V_{DS}@Tj,max	850	V
$R_{DS(on)}$,max	0.9	Ω
Qg.typ	13	nC
I_D	6	A
I_D.pulse	18	A
Eoss@400V	1.29	μJ
Body Diode di_F-/dt	500	A/μs

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

Parameter		Symbol	Value	Unit
Continuous Drain Current	Tc=25℃	ID	6	A
	Tc=100℃		3.6	
Pulsed Drain Current (note1)		ID.,pulse	18	A
Gate-Source Voltage		VGSS	±30V	V
Single Pulse Avalanche Energy (note2)		EAS	62	mJ
Repetitive Avalanche Energy (note2)		EAR	0.21	mJ
Avalanche Current		IAR	1.3	A
MOSFET dv/dt Ruggedness,V_{DS}=0...480V		dv/dt	50	V/ns
Power Dissipation		PD	28	W
Continuous Diode Forward Current		IS	5.1	A
Diode Pulsed Current (note1)		IS.pulse	18	
Reverse Diode dv/dt (note3)		dv/dt	15	V/ns
Maximum Diode Commutation Speed (note3)		dif/dt	500	Aμs

Operating Junction and Storage Temperature Range	Tj,Tstg	-55~+150	℃

THERMAL CHARACTERISTICS

Parameter	Symbol	Value	Unit
Thermal Resistance,Junction-to-Case	RthJC	4.5	℃W
Thermal Resistance,Junction-to-Ambient	RthJA	80	

ELECTRICAL CHARACTERISTICS(Tc = 25° C unless otherwise noted)

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Characteristics						
Drain-Source Breakdown Voltage	VDSS	VGS=OV,ID=250μA	800	--	--	V
Zero Gate Voltage Drain Current	IDSS	VDS=800V,VGS=0V,TJ=25℃	--	--	1	μA
		VDS=800V,VGS=0V,TJ=150℃	-	---	100	
Gate-Source Leakage Current	IGSS	VGS=±30V	-	--	±100	nA
Gate-Source Threshold Voltage	VGS(th)	VDS=VGS,Ib=250μA	2.5	--	4.5	V
Drain-SourceOn-State-Resistance	RDS(on)	VGS=10V,Ib=3A	--	0.79	0.9	Ω
Gate Resistance	RG	f=1.0MHz open drain	-	7.8	--	Ω
Dynamic Characteristics						
Input Capacitance	Ciss	VGS=0V, VDS=100V f=1.0MHz	--	528.6	--	pF
Output Capacitance	Coss		--	16	--	
Reverse Transfer Capacitance	Crss		--	0.31	--	
Total Gate Charge	Qg	VDD=640V, ID=6A, VGS=10V	--	14.1	--	nC
Gate-Source Charge	Qgs		--	3.05	--	
Gate-Drain Charge	Qgd		--	7.06	--	
Turn-on Delay Time	td(on)	VDD=400V ID=6A RG=25Ω	--	41	--	ns
Turn-on Rise Time	tr		--	11	--	
Turn-off Delay Time	td(off)		--	75	--	
Turn-off Fall Time	tf		--	37	--	
Drain-Source Body Diode Characteristics						
Body Diode Forward Voltage	VSD	TJ=25℃,ISD=3A,VGS=0V	-	0.9	1.2	V
Reverse Recovery Time	trr	VR=400V IF=6A di-/dt =100Aμs	--	345	--	ns
Reverse Recovery Charge	Qr		--	2.5	--	μC
Peak Reverse Recovery Current	Imm		-	11.7	--	A

Note :

1.Repetitive Rating: Pulse width limited by maximum junction temperature;
2.IAS=3.5A, VDD= 50V,RG= 25Ω, Starting TJ= 25°C;
3.Identical low side and high side switch with identical RG

CHARACTERISTICS DIAGRAMS

Figure1.Output Characteristics

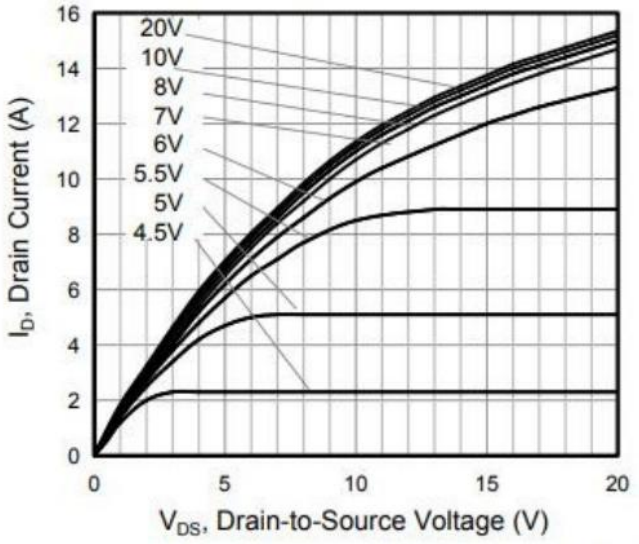


Figure2.Transfer Characteristics

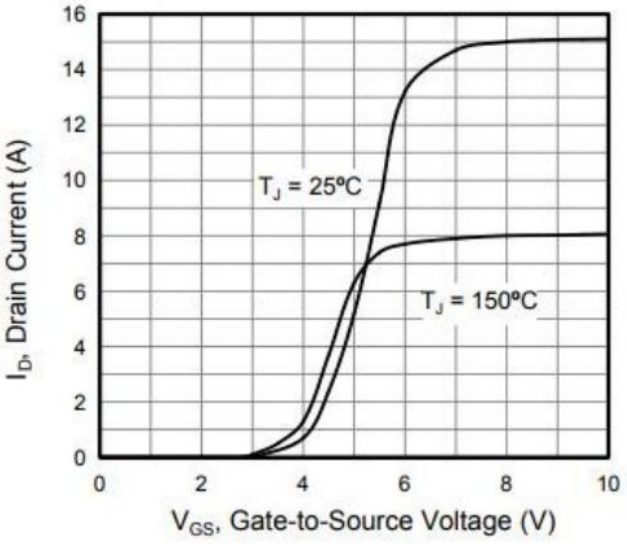


Figure 3.On-Resistance vs.Drain Current

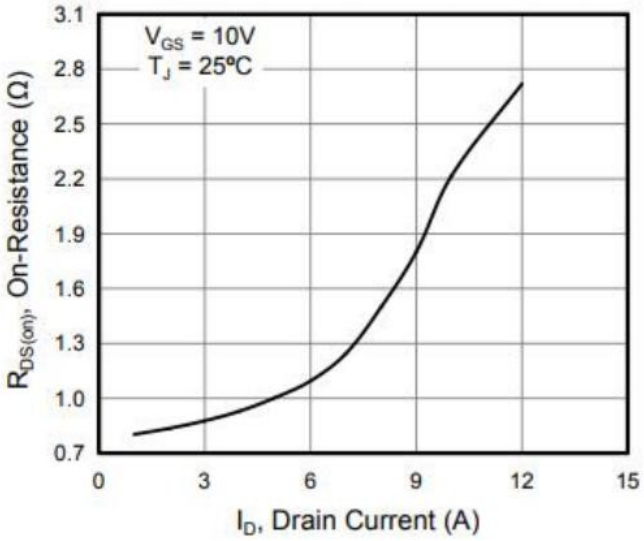


Figure 4.Capacitiance

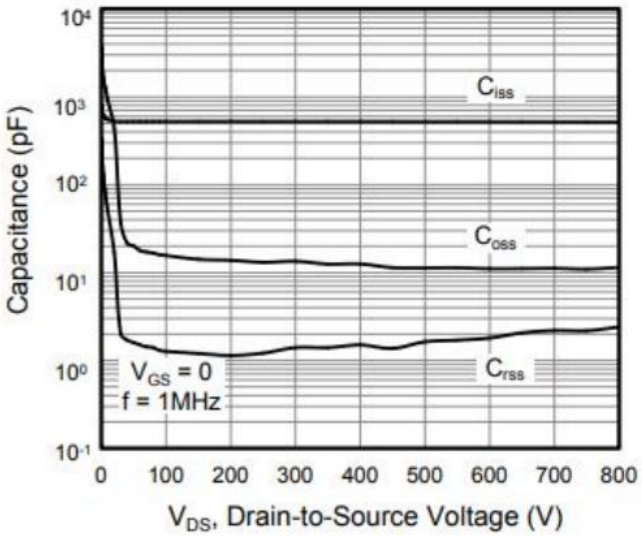


Figure 5.Gate Charge

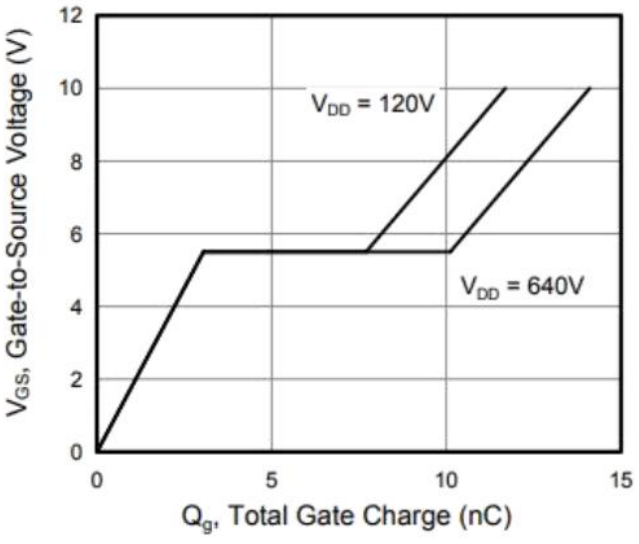


Figure 6.Body Diode Forward Voltage

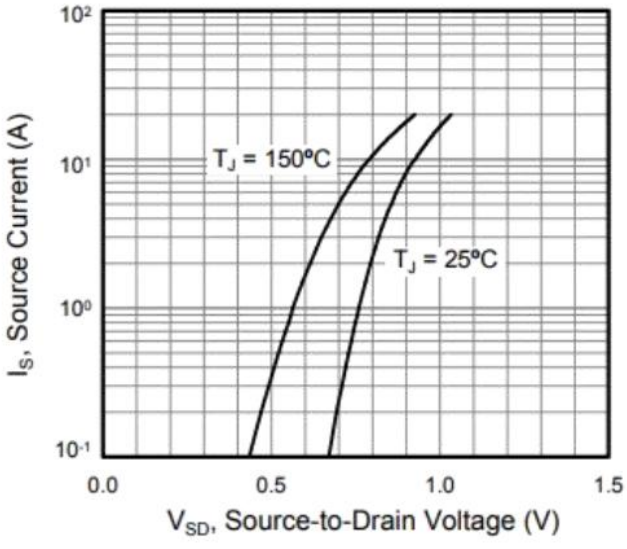


Figure 7.On-Resistance vs Temperature

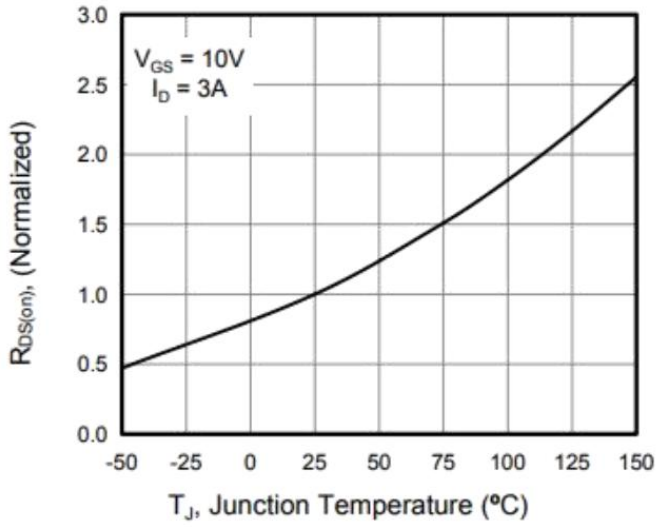


Figure 8.Breakdown Voltage vs.Junction Temperature

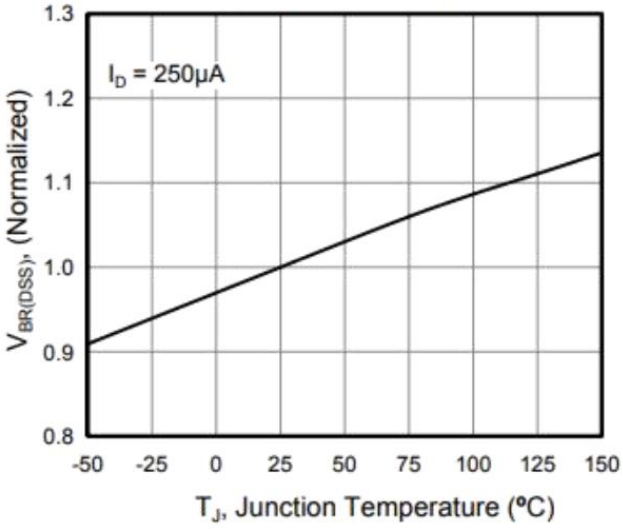


Figure 9.Transient Thermal Impedance

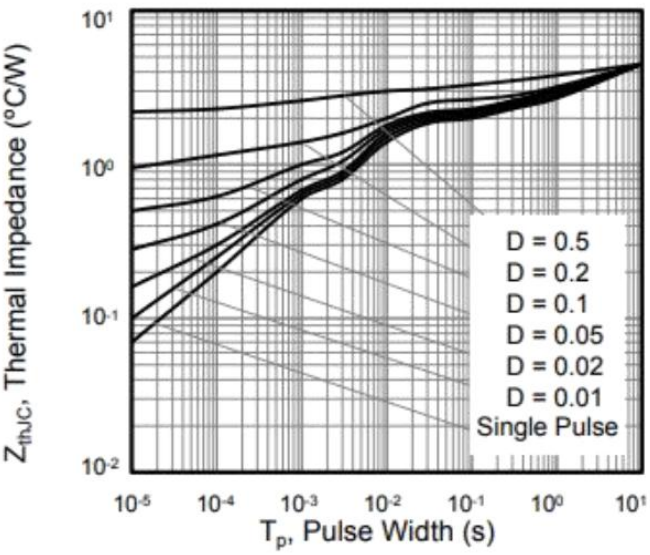


Figure 10.Safe Operation Area

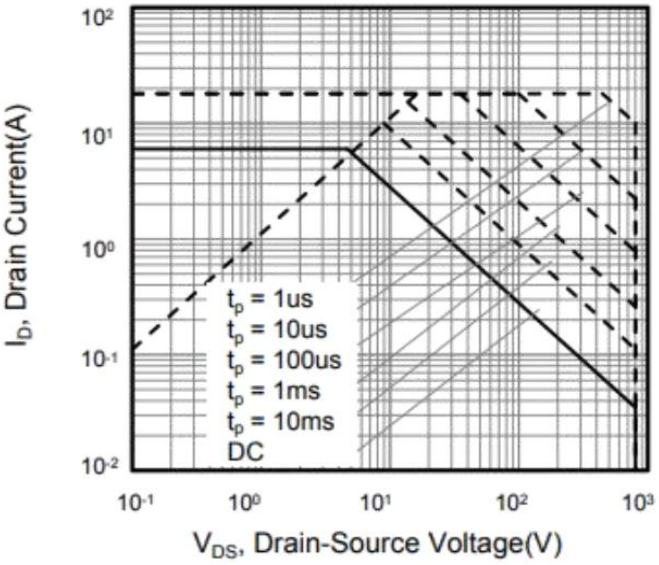
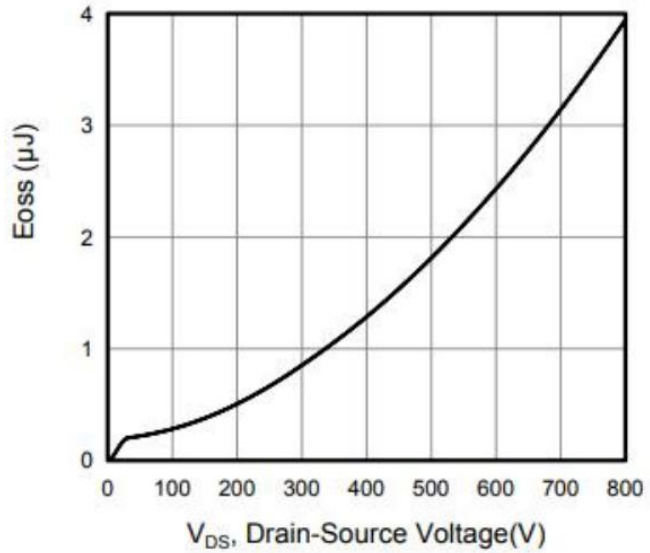
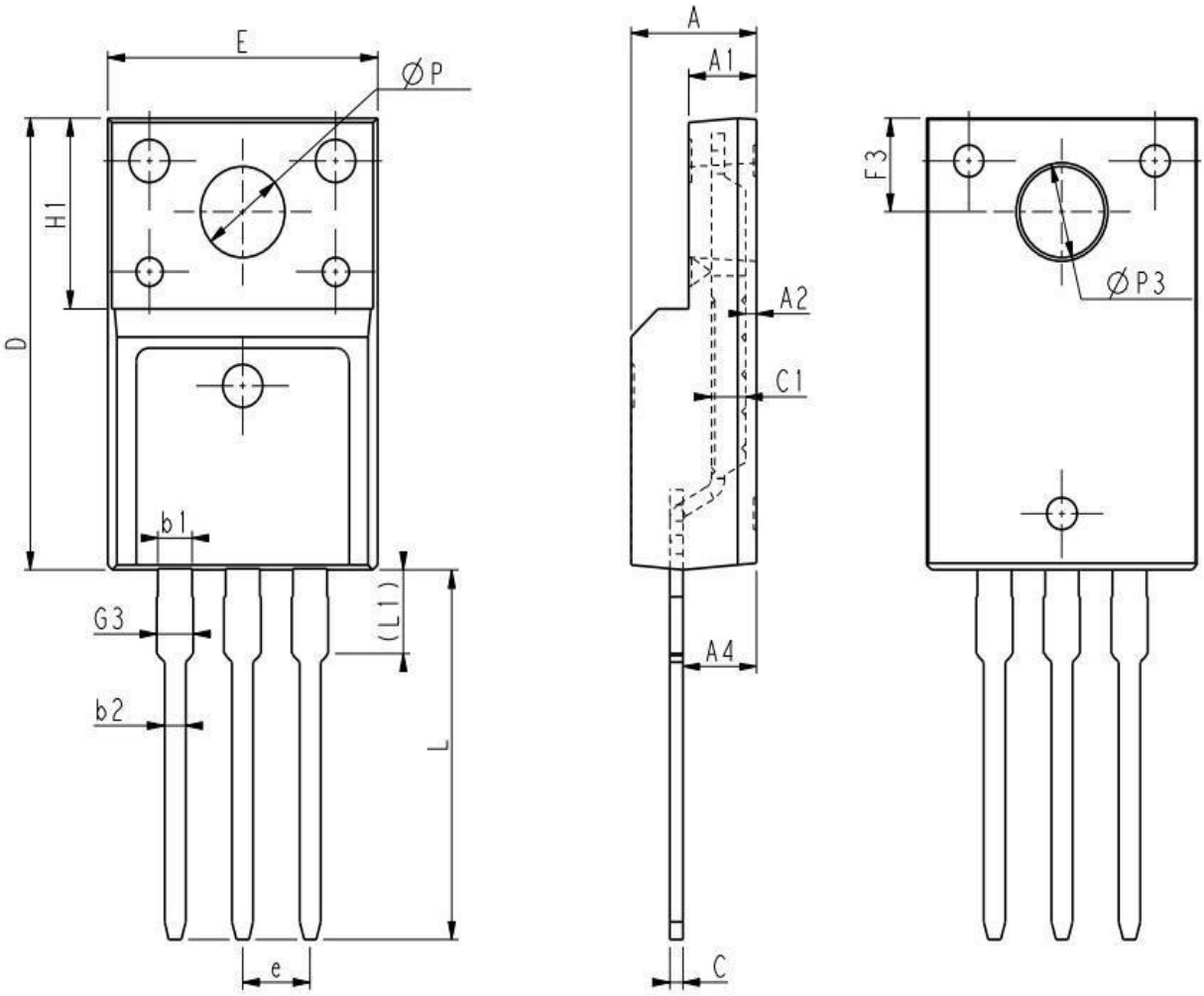


Figure 11.Typ.Coss Stored Energy



PACKAGE OUTLINE



Unit:mm			
Symbol	Min.	Nom	Max.
E	9.96	10.16	10.36
A	4.50	4.70	4.90
A1	2.34	2.54	2.74
A2	0.30	0.45	0.60
A4	2.56	2.76	2.96
C	0.40	0.50	0.65
c1	1.20	1.30	1.35
D	15.57	15.87	16.17
H1	6.70REF		

Unit:mm			
Symbol	Min.	Nom	Max.
e	2.54BSC		
L	12.68	12.98	13.28
L1	2.93	3.03	3.13
ΦP	3.03	3.18	3.38
ΦP3	3.15	3.45	3.65
F3	3.15	3.30	3.45
G3	1.25	1.35	1.55
b1	1.18	1.28	1.43
b2	0.70	0.80	0.95

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