Features

- Advanced Trench MOS Technology
- 100% EAS Guaranteed
- Green Device Available

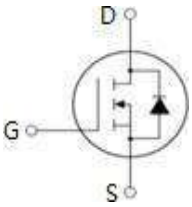
Applications

- DC-DC Converter
- Motor Control
- Secondary Side Synchronous Rectification

Product Summary

RoHs

V_{DS}	60	V
$R_{DS(on),Typ}$@ V_{GS}=10 V	3.4	mΩ
I_D	80	A



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current[1,6]	80	A
I_D@T_C=100℃	Continuous Drain Current[1,6]	50	A
I_{DM}	Pulsed Drain Current[2]	240	A
EAS	Single Pulse Avalanche Energy[3]	101	mJ
I_{AS}	Avalanche Current	45	A
P_D@T_C=25℃	Total Power Dissipation[4]	54.3	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1]	---	55	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	---	2.3	℃/W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V , I_D=20A	---	3.4	4	mΩ
		V_{GS}=4.5V , I_D=15A	---	4.5	5.5	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1.0	1.7	2.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=48V , V_{GS}=0V , T_J=25℃	---	---	1	uA
		V_{DS}=48V , V_{GS}=0V , T_J=55℃	---	---	5	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=5V , I_D=20A	---	65	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	0.7	---	Ω
Q_g	Total Gate Charge (10V)	V_{DS}=30V , V_{GS}=10V , I_D=20A	---	58	---	nC
Q_{gs}	Gate-Source Charge		---	16	---	
Q_{gd}	Gate-Drain Charge		---	4	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=30V , V_{GS}=10V , R_G=3Ω, I_D=20A	---	18	---	ns
T_r	Rise Time		---	8	---	
$T_{d(off)}$	Turn-Off Delay Time		---	50	---	
T_f	Fall Time		---	10.5	---	
C_{iss}	Input Capacitance	V_{DS}=30V , V_{GS}=0V , f=1MHz	---	3530	---	pF
C_{oss}	Output Capacitance		---	1554	---	
C_{rss}	Reverse Transfer Capacitance		---	22	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current[1,5]	V_G=V_D=0V , Force Current	---	---	40	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_S=1A , T_J=25℃	---	---	1.2	V
t_{rr}	Reverse Recovery Time	I_F=20A , dI/dt=100A/μs , T_J=25℃	---	24	---	nS
Q_{rr}	Reverse Recovery Charge		---	85	---	nC

Note :
1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3.The EAS data shows Max. rating . The test condition is V_{DD}=50V,V_{GS}=10V,L=0.1mH,I_{AS}=45A
4.The power dissipation is limited by 150℃ junction temperature
5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.
6.The maximum current rating is package limited.

Typical Characteristics

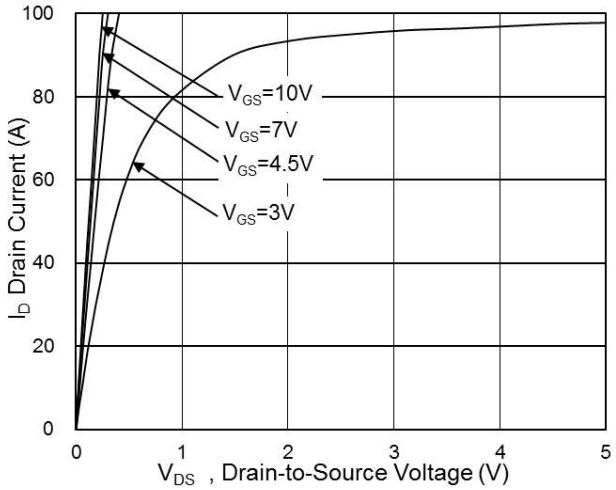


Fig.1 Typical Output Characteristics

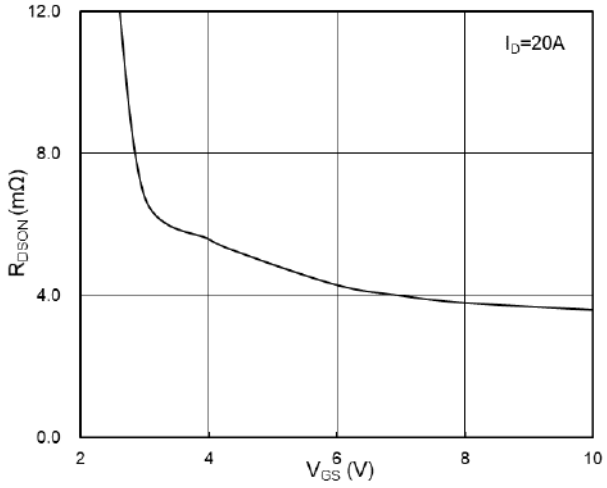


Fig.2 On-Resistance vs G-S Voltage

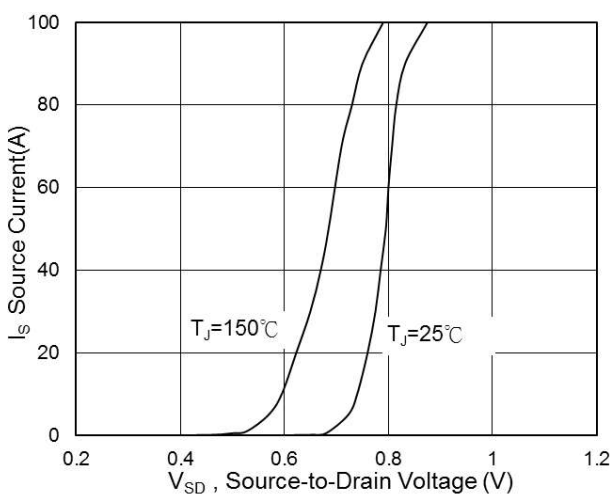


Fig.3 Diode Forward Voltage vs. Current

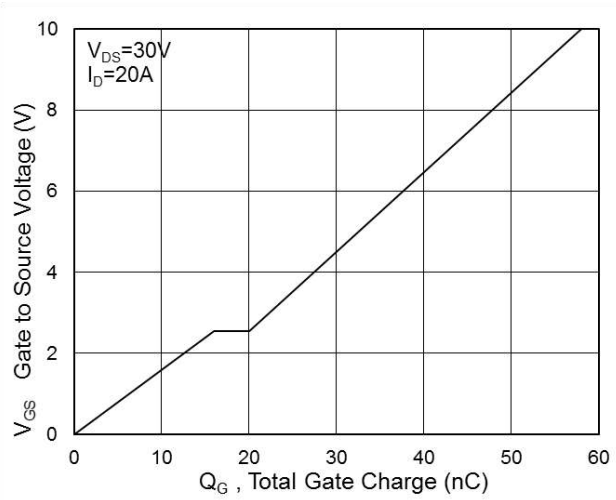


Fig.4 Gate-Charge Characteristics

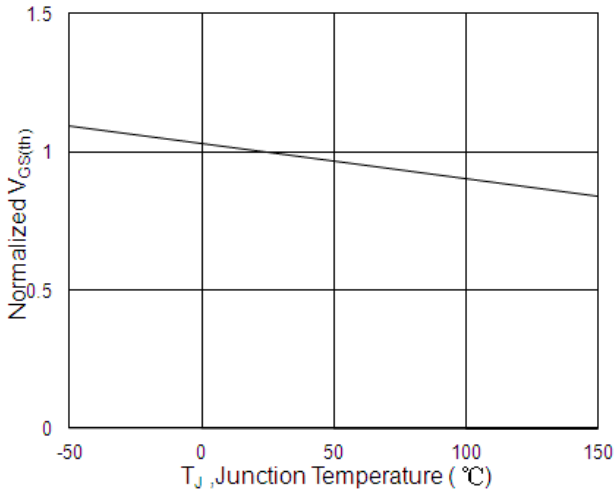


Fig.5 Normalized $V_{GS(th)}$ vs T_J

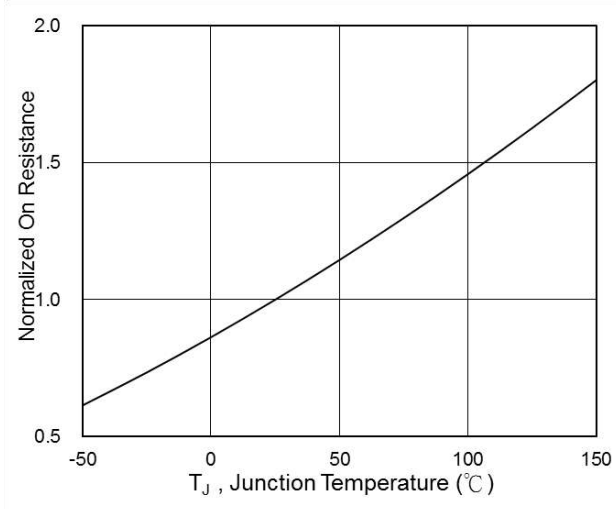


Fig.6 Normalized R_{DSON} vs T_J

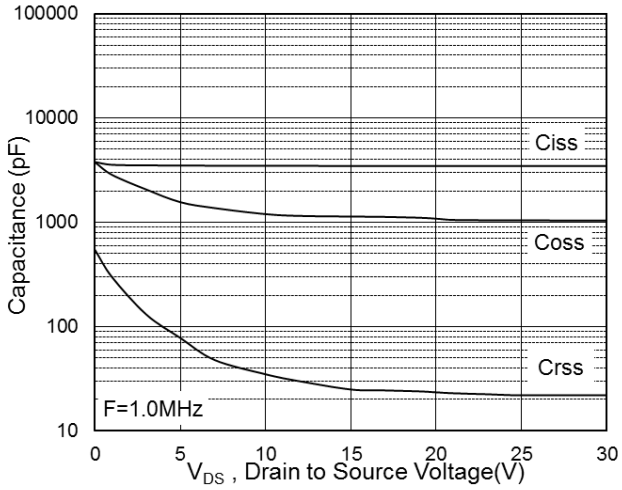


Fig.7 Capacitance

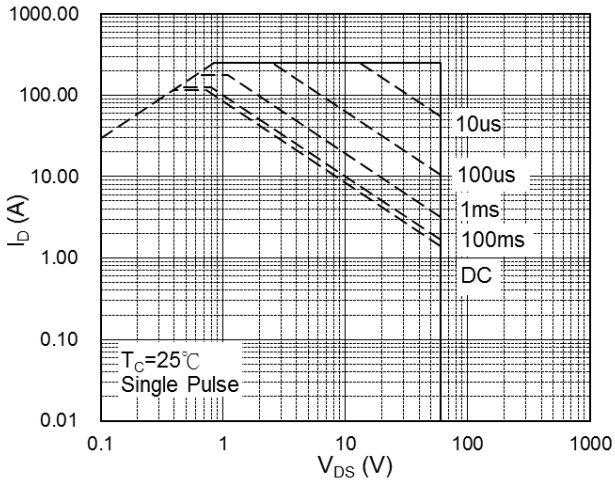


Fig.8 Safe Operating Area

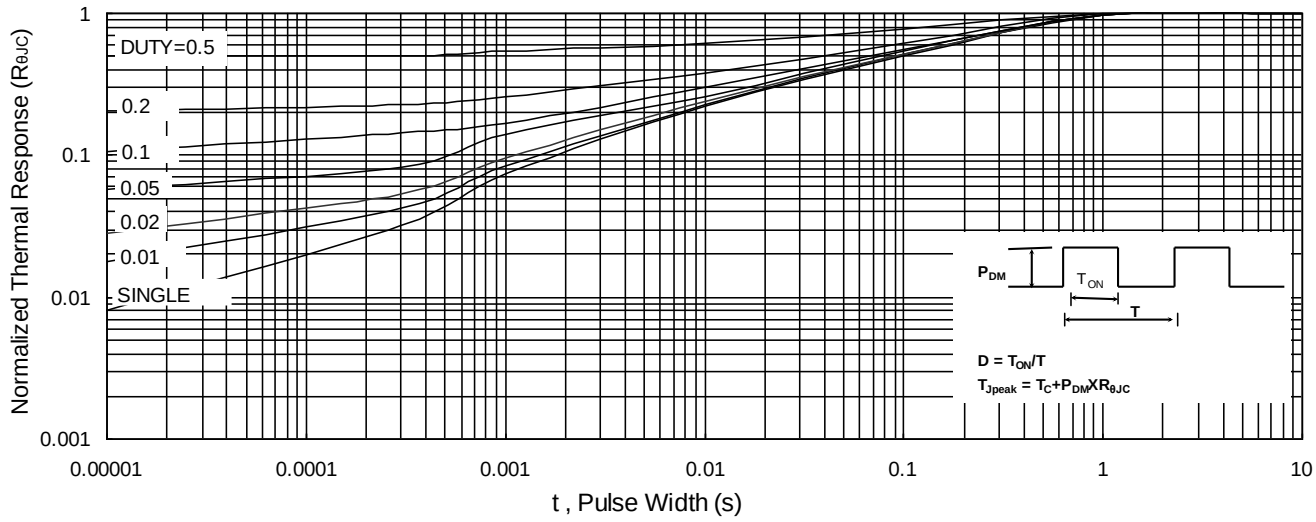


Fig.9 Normalized Maximum Transient Thermal Impedance

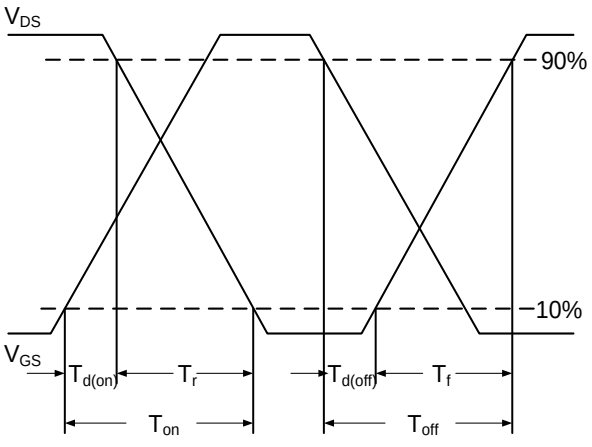


Fig.10 Switching Time Waveform

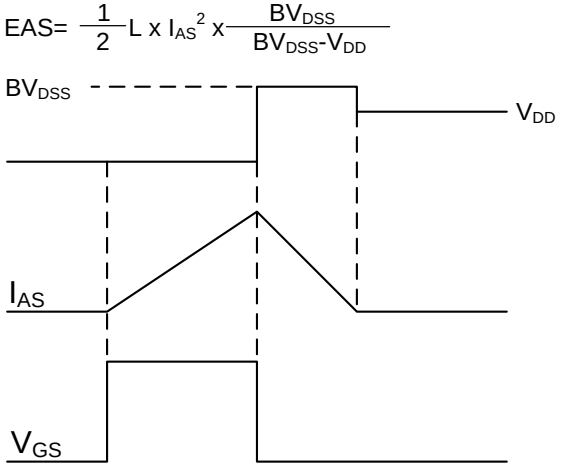
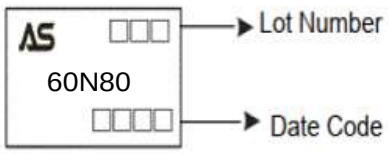


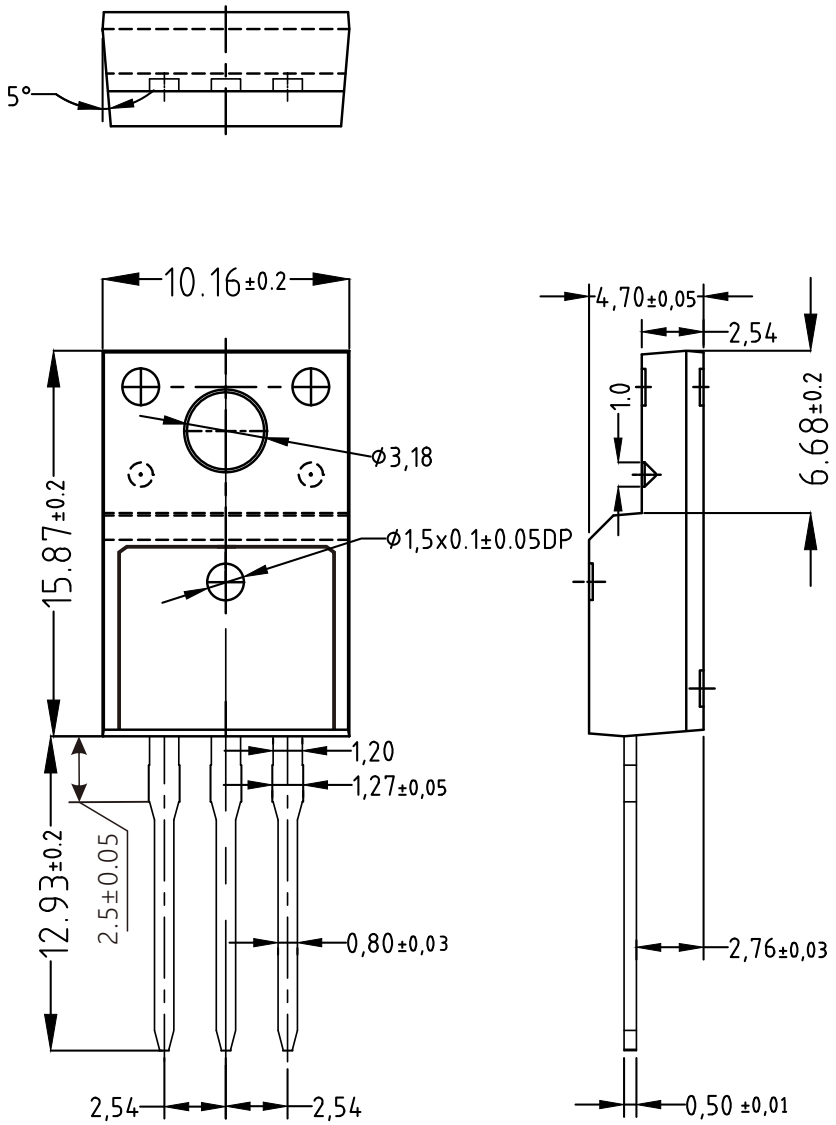
Fig.11 Unclamped Inductive Switching Waveform

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM60N80F-T	60N80	TO-220F	Tube	50/Tube

PACKAGE	MARKING
TO-220F	

TO-220F


5°
10.16±0.2
15.87±0.2
12.93±0.2
2.5±0.05
φ3,18
φ1,5x0.1±0.05DP
1,20
1,27±0,05
0,80±0,03
2,54
2,54
4,70±0,05
2,54
1.0
6.68±0.2
2,76±0,03
0,50 ±0,01

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