General Description

WSF80N06H use advanced VD MOST technology to provide low RDS(ON), low gate charge, fast switching This device is specially designed to get better ruggedness and suitable to use in Low RDS(on) & FOM Extremely low switching loss
Excellent stability and uniformity or Invertors

Product Summery

BVDSS	RDSON	ID
60V	8.0mΩ	70A

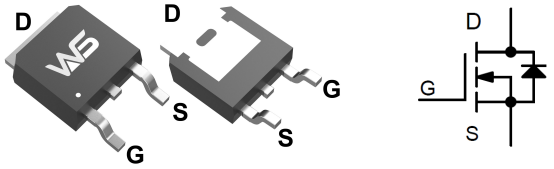
Applications

- Load switch.
- Battery protection.
- Uninterruptible power supply.

Features

- Advanced high cell density Trench technology
- Green Device Available
- Excellent Cdv/dt effect decline
- Super Low Gate Charge

TO-252 Pin Configuration



Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	60	V
VGS	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V[1]	70	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V[1]	36	A
I_D@T_A=25℃	Continuous Drain Current, V_{GS} @ 10V[1]	10.2	A
I_D@T_A=70℃	Continuous Drain Current, V_{GS} @ 10V[1]	9.5	A
IDM	Pulsed Drain Current[2]	100	A
EAS	Single Pulse Avalanche Energy[3]	72.2	mJ
IAS	Avalanche Current	38	A
P_D@T_C=25℃	Total Power Dissipation[4]	52	W
P_D@T_A=25℃	Total Power Dissipation[4]	2	W
TSTG	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
$R_{\theta}JA$	Thermal Resistance Junction-Ambient [1]	62	℃/W
$R_{\theta}JC$	Thermal Resistance Junction-Case[1]	2.4	℃/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BVDSS	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	60	65	---	V
△BVDSS/△TJ	BV_{DSS} Temperature Coefficient	Reference to 25℃ , I_D=1mA	---	0.052	---	V/℃
RDS(ON)	Static Drain-Source On-Resistance2	V_{GS}=10V , I_D=8A	---	8.0	10	mΩ
VGS(th)	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	2.0	2.9	4.0	V
△$V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	-5.76	---	mV/℃
IDSS	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	
IGSS	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=5V , I_D=30A	---	42	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	1.5	---	Ω
Q_g	Total Gate Charge (4.5V)	V_{DS}=48V , V_{GS}=4.5V , I_D=15A	---	28.7	---	nC
Qgs	Gate-Source Charge		---	10.5	---	
Qgd	Gate-Drain Charge		---	9.9	---	
Td(on)	Turn-On Delay Time	V_{DD}=30V , V_{GS}=10V , R_G=3.3 Ω, I_D=15A	---	10.4	---	ns
T_r	Rise Time		---	9.2	---	
Td(off)	Turn-Off Delay Time		---	63	---	
T_f	Fall Time		---	4.8	---	
Ciss	Input Capacitance	V_{DS}=15V , V_{GS}=0V , f=1MHz	---	3240	---	pF
Coss	Output Capacitance		---	210	---	
Crss	Reverse Transfer Capacitance		---	146	---	
IS	Continuous Source Current1,5	V_G=V_D=0V , Force Current	---	---	47	A
ISM	Pulsed Source Current2,5		---	---	100	A
VSD	Diode Forward Voltage2	V_{GS}=0V , I_S=1A , T_J=25℃	---	---	1.2	V
trr	Reverse Recovery Time	IF=15A , dI/dt=100A/μs , T_J=25℃	---	18	---	nS
Q_{rr}	Reverse Recovery Charge		---	14	---	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 =25V,VGS =10V,L=0.1mH,I AS =38A

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.

Typical Characteristics

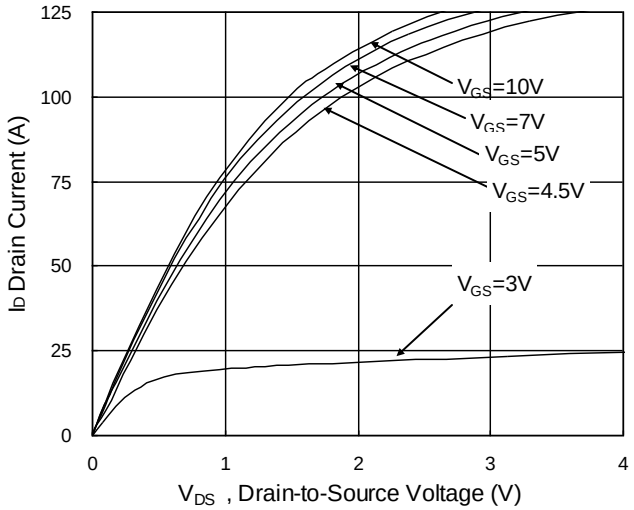


Fig.1 Typical Output Characteristics

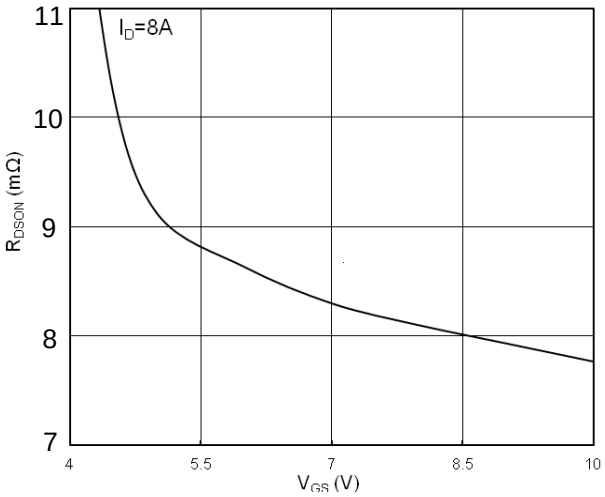


Fig.2 On-Resistance v.s Gate-Source

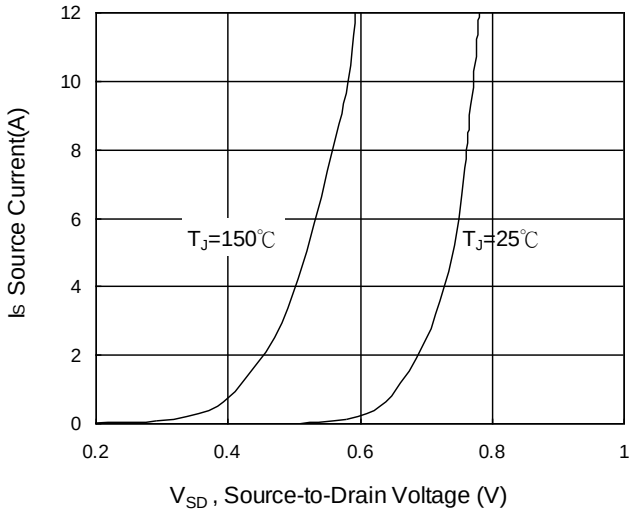


Fig.3 Forward Characteristics of Reverse

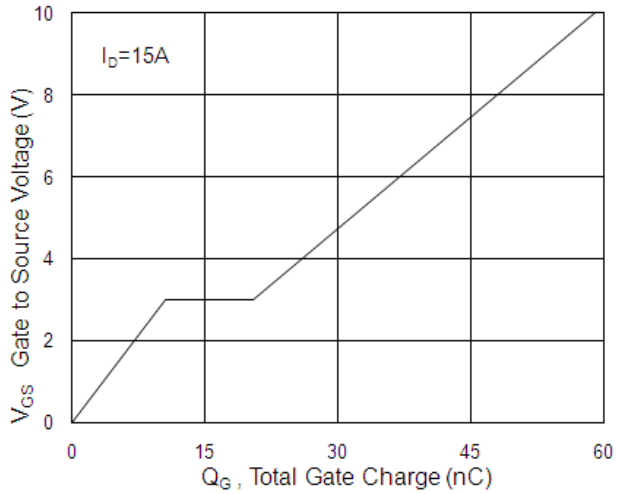


Fig.4 Gate-Charge Characteristics

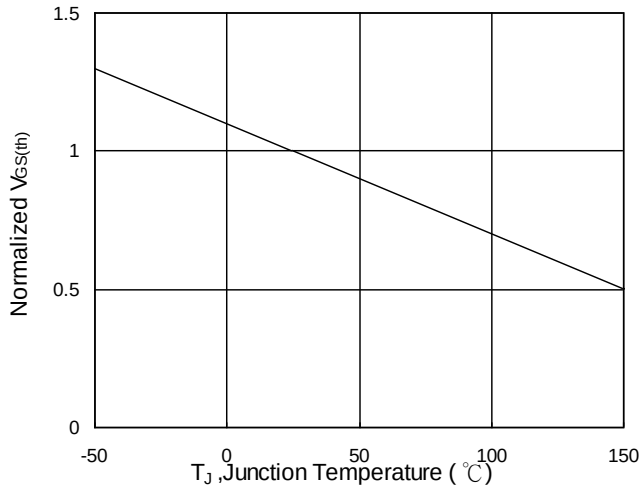


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

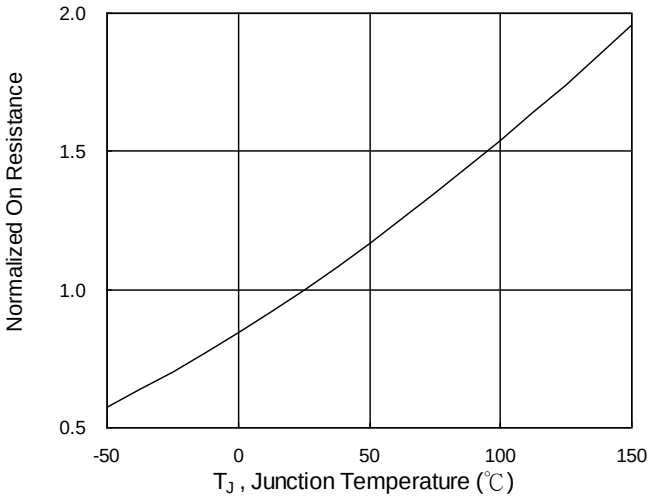


Fig.6 Normalized R_{DSON} vs. T_J

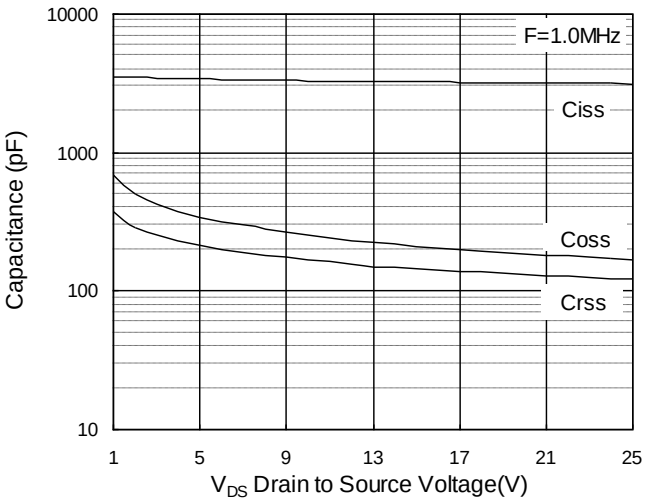


Fig.7 Capacitance

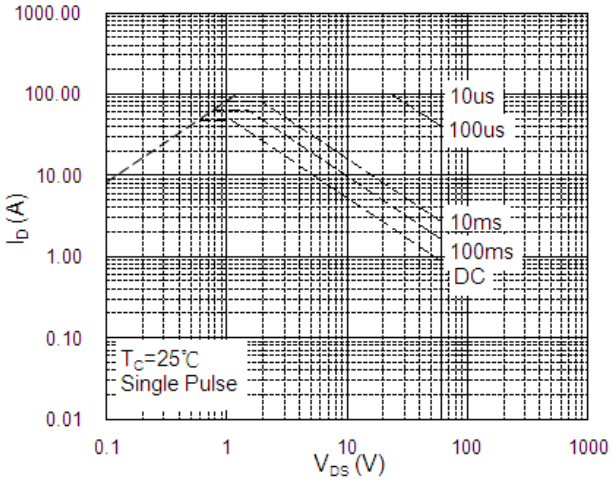


Fig.8 Safe Operating Area

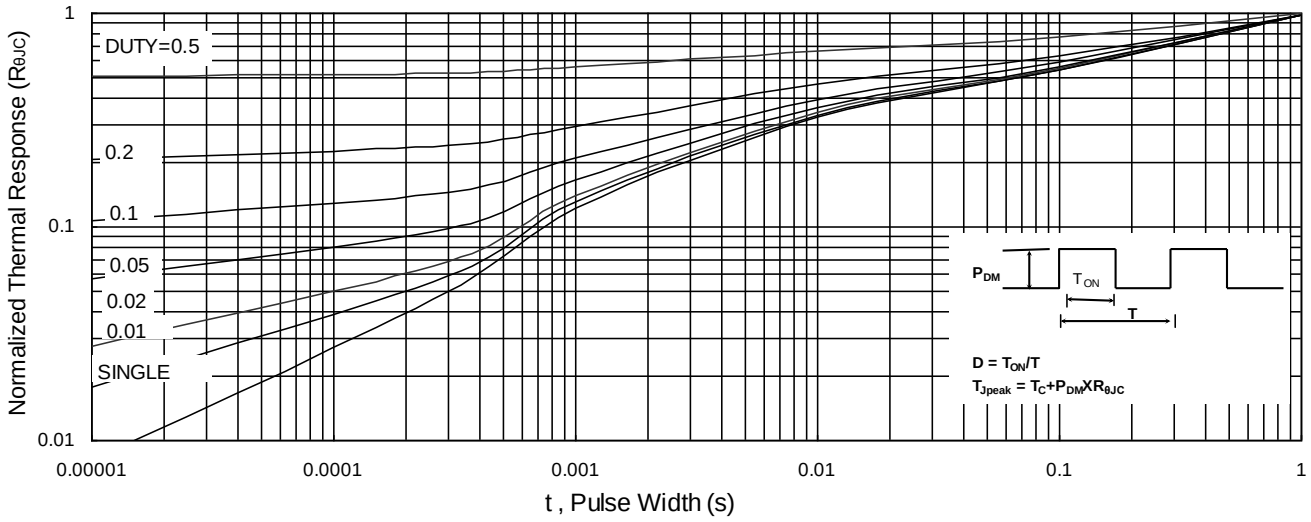


Fig.9 Normalized Maximum Transient Thermal Impedance

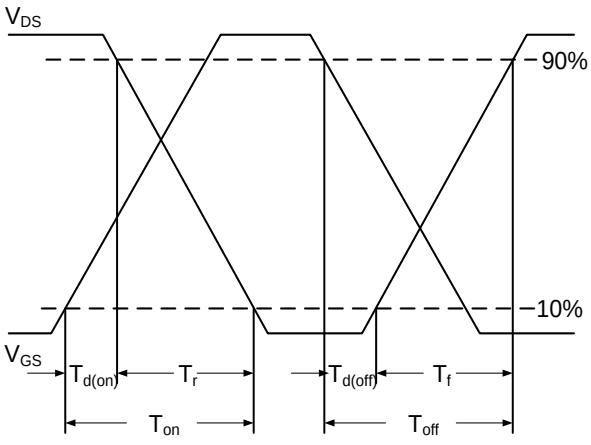


Fig.10 Switching Time Waveform

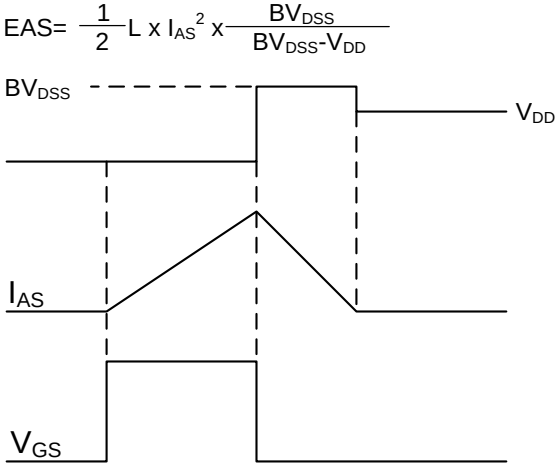


Fig.11 Unclamped Inductive Switching Waveform

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