

### General Description

WSF80N06 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

### Applications

- Low RDS(on) & FOM
- Extremely low switching loss
- Excellent stability and uniformity or Invertors

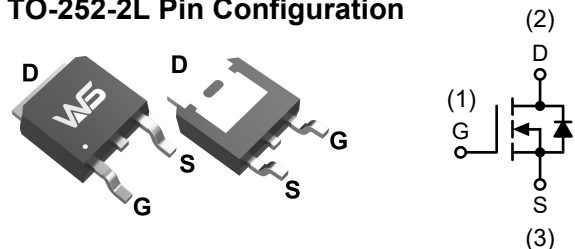
### Product Summary

BVDSS	RDSON	ID
60V	7.2mΩ	80A

### Applications

- Consumer electronic power supply Motor control
- Synchronous-rectification Isolated DC
- Synchronous-rectification applications

### TO-252-2L Pin Configuration



### Electrical Characteristics (T<sub>J</sub>=25 °C, unless otherwise noted)

Symbol	Parameter	Rating	Units
V <sub>DS</sub>	Drain-Source Voltage	60	V
V <sub>GS</sub>	Gate-Source Voltage	±20	V
I <sub>D</sub> @T <sub>C</sub> =25°C	Continuous Drain Current, V <sub>GS</sub> @ 10V	80	A
I <sub>D</sub> @T <sub>C</sub> =100°C	Continuous Drain Current, V <sub>GS</sub> @ 10V	43	A
I <sub>DM</sub>	Pulsed Drain Current	270	A
P <sub>D</sub> @T <sub>C</sub> =25°C	Total Power Dissipation	104	W
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C
T <sub>J</sub>	Operating Junction Temperature Range	-55 to 150	°C

### Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R <sub>θJA</sub>	Thermal Resistance Junction-Ambient	---	62.5	°C/W
R <sub>θJC</sub>	Thermal Resistance Junction-Case	---	1.2	°C/W

**Electrical Characteristics (T<sub>J</sub>=25 °C, unless otherwise noted)**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BVDSS	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V , I <sub>D</sub> =250uA	60	---	---	V
RDS(ON)	Static Drain-Source On-Resistance	V <sub>GS</sub> =10V , I <sub>D</sub> =45A	---	7.2	12	mΩ
		V <sub>GS</sub> =10V , I <sub>D</sub> =30A	---	8.3	15	
VGS(th)	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250uA	1	1.4	3	V
IDSS	Drain-Source Leakage Current	V <sub>DS</sub> =60V , V <sub>GS</sub> =0V , T <sub>J</sub> =25°C	---	---	10	uA
		V <sub>DS</sub> =48V , V <sub>GS</sub> =0V , T <sub>J</sub> =125°C	---	---	250	
IGSS	Gate-Source Leakage Current	V <sub>GS</sub> =±20V , V <sub>DS</sub> =0V	---	---	±100	nA
Qg	Total Gate Charge	I <sub>D</sub> =30A	---	33	45	nC
Qgs	Gate-Source Charge	V <sub>DS</sub> =48V	---	5	---	
Qgd	Gate-Drain Charge	V <sub>GS</sub> =4.5V	---	21	---	
Td(on)	Turn-On Delay Time	V <sub>DS</sub> =30V I <sub>D</sub> =30A	---	10	---	ns
T <sub>r</sub>	T <sub>Rise</sub> ime	R <sub>G</sub> =3.3Ω	---	43	---	
Td(off)	Turn-Off Delay Time	V <sub>GS</sub> =10V	---	47	---	
T <sub>f</sub>	T <sub>Fall</sub> ime		---	80	---	
Ciss	Input Capacitance	V <sub>GS</sub> =0V	---	2680	3300	pF
Coss	Output Capacitance	V <sub>DS</sub> =25V	---	260	---	
Crss	Reverse Transfer Capacitance	f=1.0MHz	---	180	---	

**Diode Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
VSD	Diode Forward Voltage	V <sub>GS</sub> =0V , I <sub>S</sub> =45A , T <sub>J</sub> =25°C	---	---	1.3	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> =10A , dI/dt=100A/μs, T <sub>J</sub> =25°C	---	30	---	nS
Q <sub>rr</sub>	Reverse Recovery Charge		---	18	---	nC

Typical Characteristics

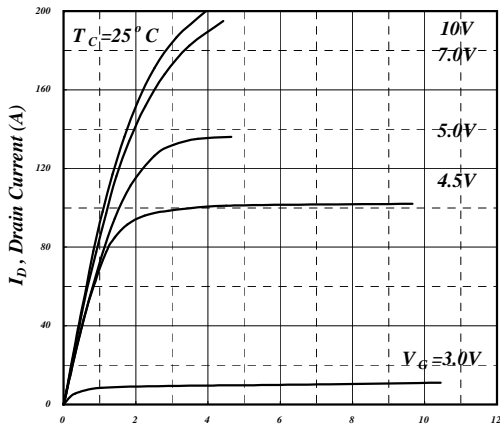


Fig 1. Typical Output Characteristics

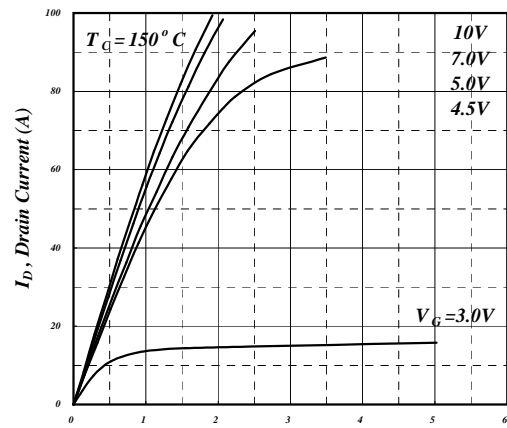


Fig 2. Typical Output Characteristics

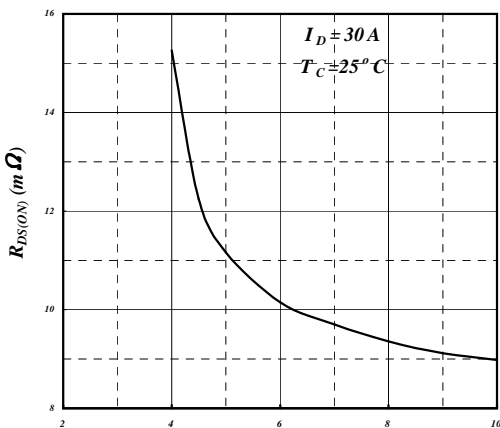


Fig 3. On-Resistance v.s. Gate Voltage

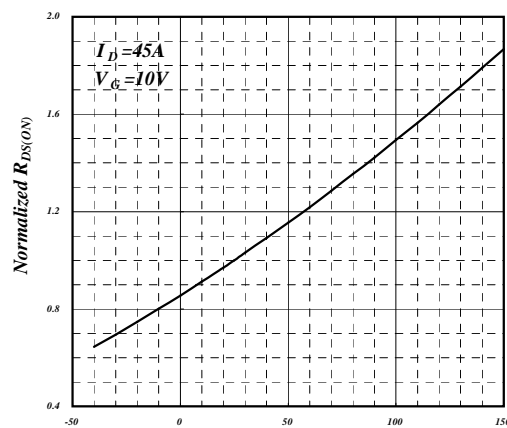


Fig 4. Normalized On-Resistance v.s. Junction Temperature

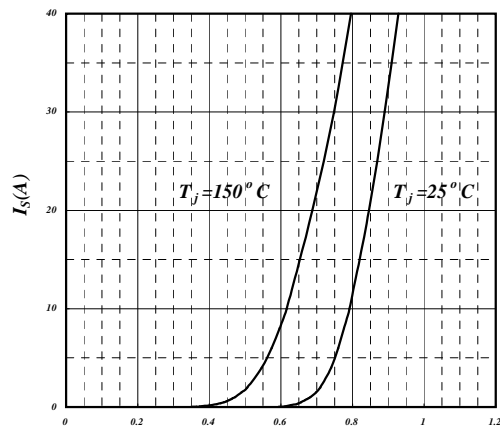


Fig 5. Forward Characteristic of Reverse Diode

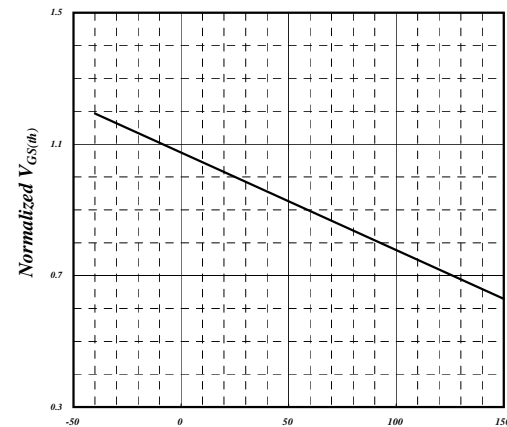


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

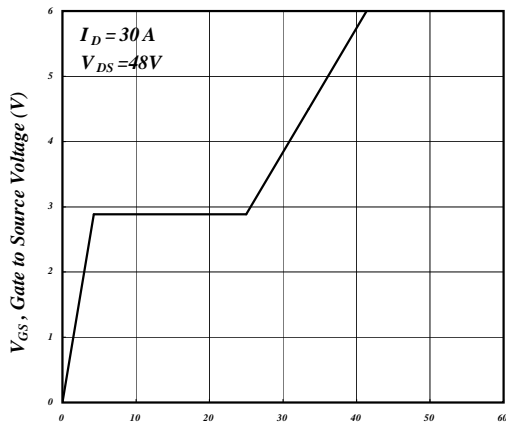


Fig 7. Gate Charge Characteristics

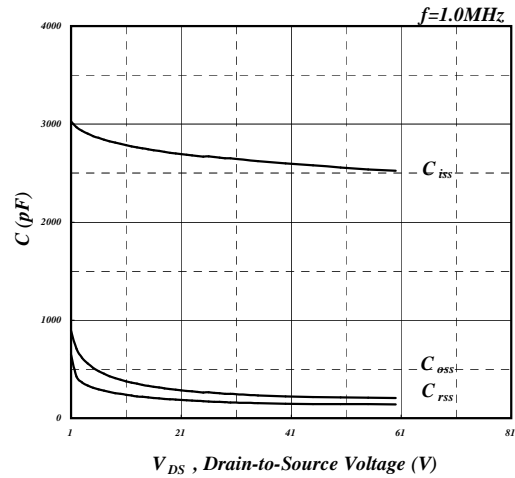


Fig 8. Typical Capacitance Characteristics

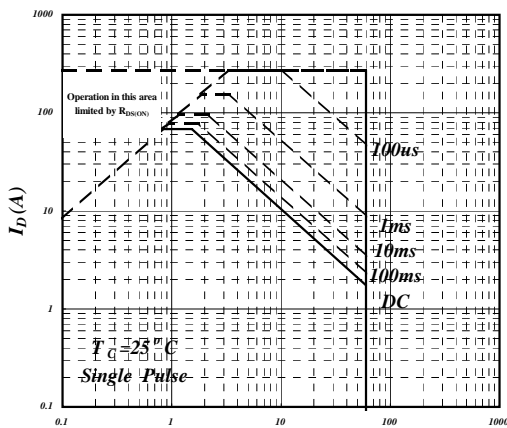


Fig 9. Maximum Safe Operating Area

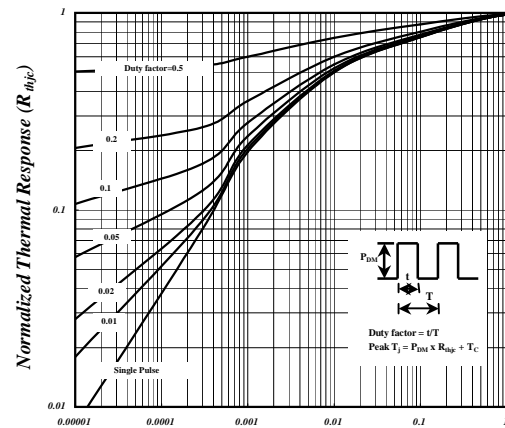


Fig 10. Effective Transient Thermal Impedance

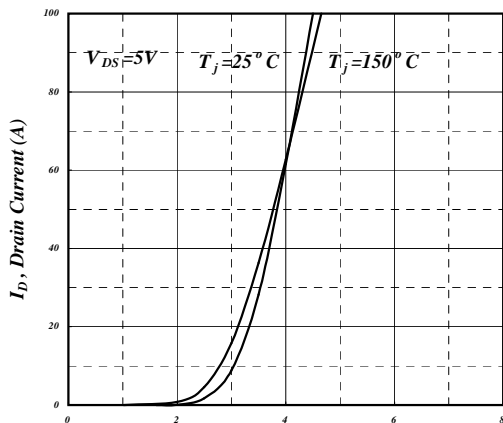


Fig 11. Transfer Characteristics

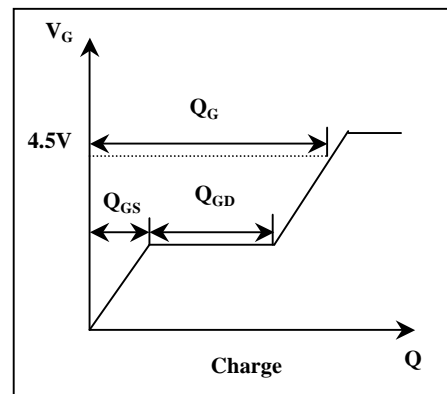


Fig 12. Gate Charge Waveform





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