

**100V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

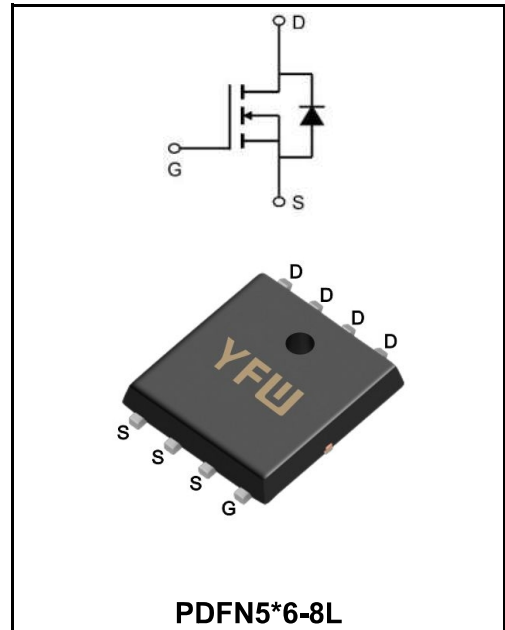
<b>I<sub>D</sub></b>	60A
<b>V<sub>DSS</sub></b>	100V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	< 12mΩ (Type: 9.0 mΩ)

**Features**

◆ YFW-SGT technology

**Application**

- ◆ Isolated DC
- ◆ Motor control
- ◆ Synchronous-rectification



**Maximum Ratings at T<sub>c</sub>=25°C unless otherwise specified**

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V <sub>DS</sub>	100	V
Gate - Source Voltage	V <sub>GS</sub>	±20	V
Continuous drain current <sup>1)</sup> , T <sub>C</sub> =25 °C	I <sub>D</sub>	60	A
Pulsed drain current <sup>2)</sup> , T <sub>C</sub> =25 °C	I <sub>DM</sub>	180	A
Power dissipation <sup>3)</sup> , T <sub>C</sub> =25 °C	P <sub>D</sub>	107	W
Single Pulse Avalanche Energy <sup>4)</sup>	E <sub>AS</sub>	183.8	mJ
Operation and storage temperature	T <sub>STG</sub> , T <sub>J</sub>	-55 to +150	°C
Thermal Resistance, Junction-case	R <sub>θJC</sub>	1.17	°C/W
Thermal Resistance, Junction-ambient <sup>4)</sup>	R <sub>θJA</sub>	62	°C/W

**Maximum Ratings at Tc=25°C unless otherwise specified**

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$BV_{DSS}$	100	111	-	V
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1.2	1.8	2.5	V
Drain-source on-state resistance	$V_{GS}=10V, I_D=20A$	$R_{DS(on)}$	-	9.0	12.0	mΩ
	$V_{GS}=4.5V, I_D=12A$		-	12	14.0	
Gate-Source Leakage Current	$V_{GS}=\pm 20V$	$I_{GSS}$	-	-	$\pm 100$	nA
Drain-Source Leakage Current	$V_{DS}=100V, V_{GS}=0V$	$I_{DSS}$	-	-	1	μA
Gate resistance	f= 1 MHz, Open drain	$R_G$	-	5.5		Ω
Input Capacitance	$V_{GS}=0V$ $V_{DS}=50V$ f=100KHz	$C_{iss}$	-	1998.1	-	pF
Output Capacitance		$C_{oss}$	-	321.7	-	
Reverse Transfer Capacitance		$C_{rss}$	-	7.1	-	
Turn-on delay time	$V_{GS}=10V$ $V_{DS}=50V$ $R_G=2\Omega$ $I_D=25A$	$t_{d(on)}$	-	22.1	-	ns
Rise Time		$T_r$	-	5.2	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	44	-	
Fall Time		$t_f$	-	8.4	-	
Total Gate Charge	$I_D=25A$ $V_{DS}=50V$ $V_{GS}=10V$	$Q_g$	-	28.9	-	nC
Gate-Source Charge		$Q_{gs}$	-	6	-	
Gate-Drain Charge		$Q_{gd}$	-	6.8	-	
Gate plateau voltage		$V_{plateau}$	-	3.7	-	
Diode forward current	$V_{GS}<V_{th}$	$I_S$	-	-	60	A
Pulsed Source Current		$I_{SP}$	-	-	180	
Diode Forward Voltage	$I_S=20A, V_{GS}=0V$	$V_{SD}$	-	-	1.3	V
Reverse Recovery Time	$I_S=25A, dI/dt=100A/\mu s$	$t_{rr}$	-	102.9	-	ns
Reverse Recovery Charge		$Q_{rr}$	-	379	-	nC
Peak reverse recovery current		$I_{rrm}$	-	6.4	-	A

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  $\leq 300\mu s$  , duty cycle  $\leq 2\%$
- 3、 The EAS data shows Max. rating . The test condition is  $V_{DD}=30V, V_{GS}=10V, L=0.3mH$ , starting  $T_j=25^\circ C$
- 4、 The power dissipation is limited by  $150^\circ C$  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

Ratings and Characteristic Curves

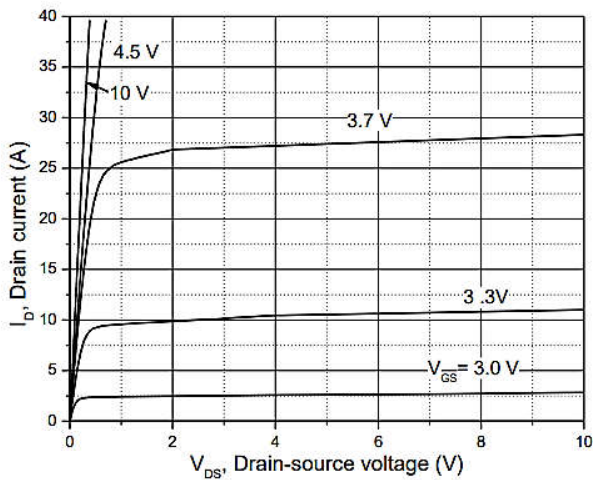


Figure 1. Typ. output characteristics

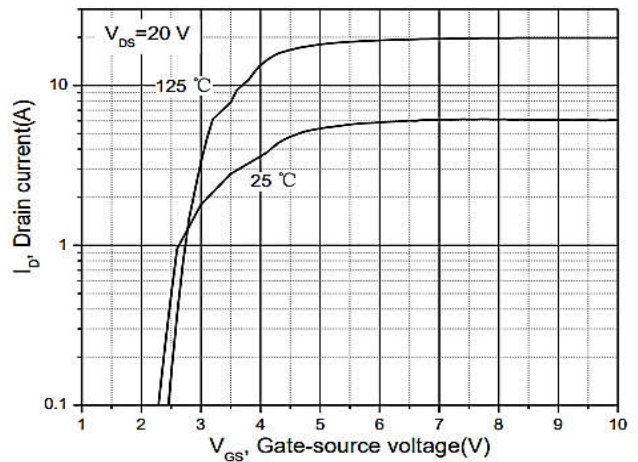


Figure 2. Typ. transfer characteristics

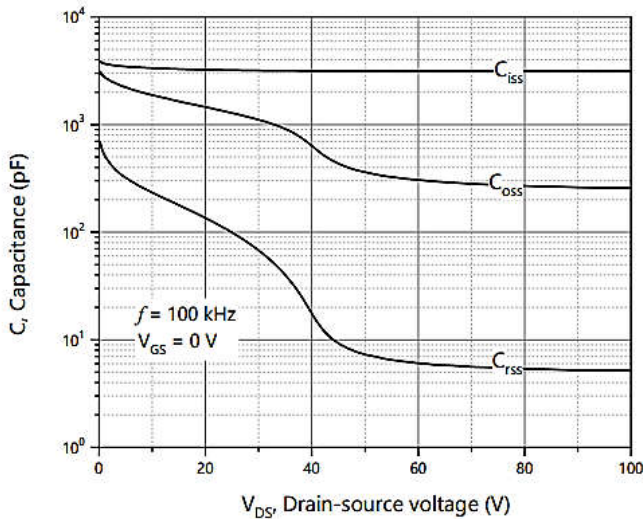


Figure 3. Typ. capacitances

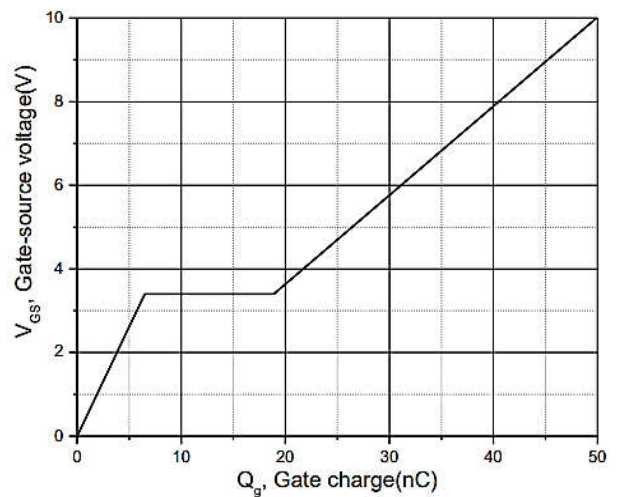


Figure 4. Typ. gate charge

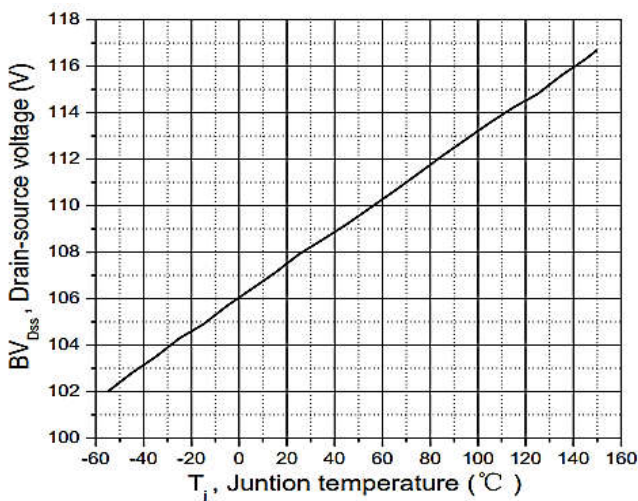


Figure 5. Drain-source breakdown voltage

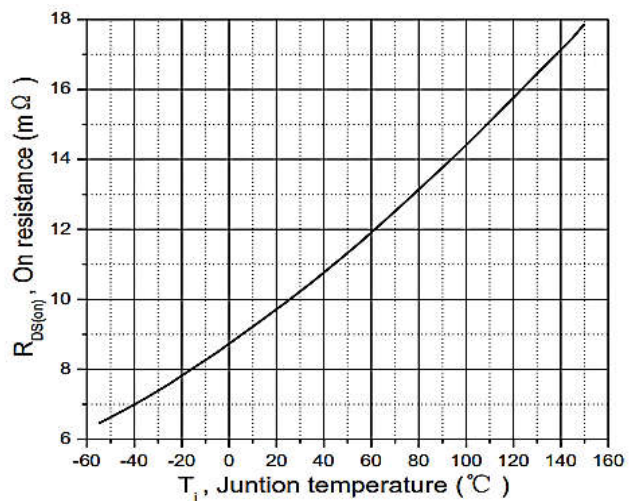
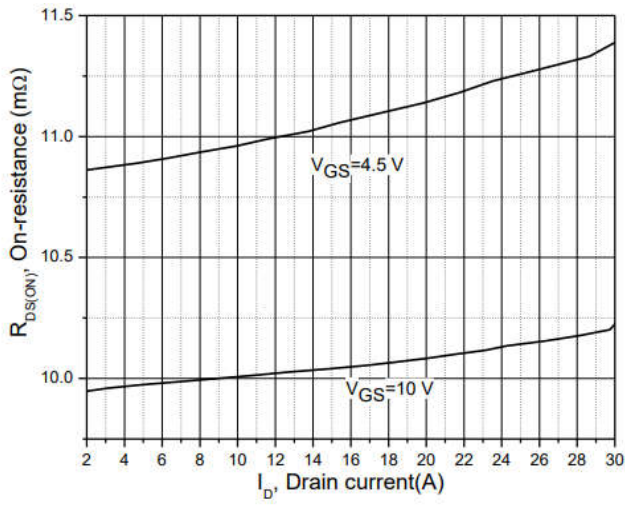
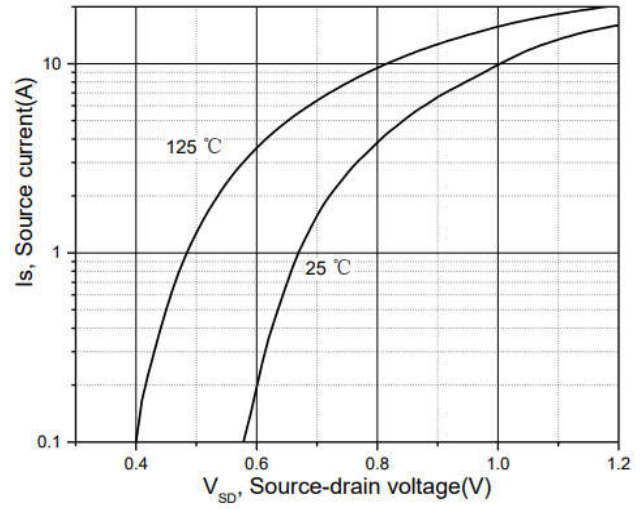


Figure 6. Drain-source on-state resistance

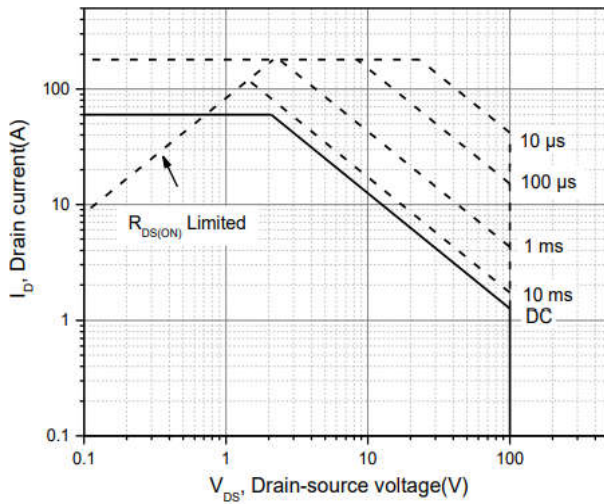
**Ratings and Characteristic Curves**



**Figure 7. Drain-source on-state resistance**

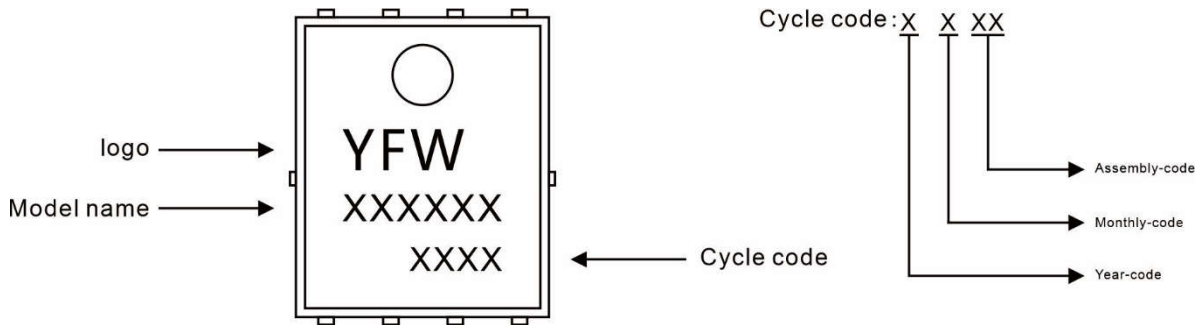


**Figure 8. Forward characteristic of body diode**



**Figure 9. Safe operation area T<sub>c</sub>=25 °C**

**Marking Diagram**



**Ordering information**

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFWG60N10NF	PDFN5*6-8L	0.0032oz(0.093g)	5000pcs/reel	10000pcs/box 50000pcs/Carton

**Package Dimensions**

PDFN5\*6-8L

Dim	Millimeter		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.2	35	45
A2	0.204	0.304	8	12
b	0.4ref.		16ref.	
b1	0.2	0.4	8	16
D	5.0	5.3	197	209
D1	4.84	5.24	191	206
E	5.95	6.35	234	250
E1	3.275	3.675	129	145
E2	5.69	6.09	224	232
e	1.27typ.		50typ.	
K	1.29typ.		51typ.	
L	0.585	0.785	23	27
L1	0.7typ.		28typ.	

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