

60V N+N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

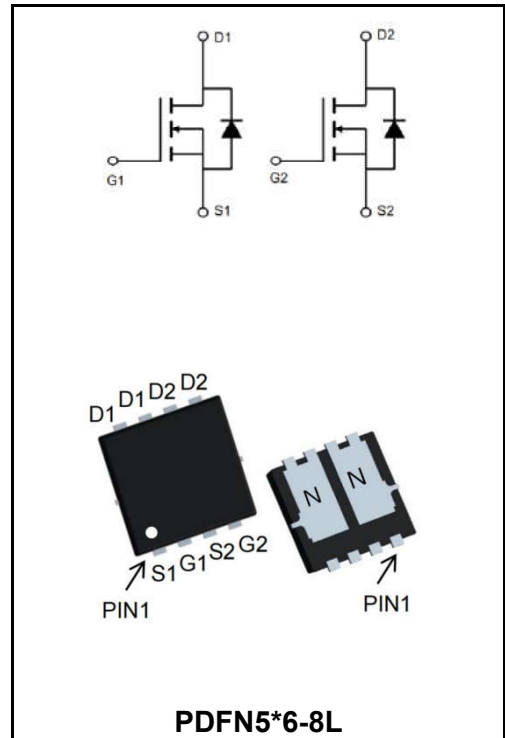
I_D	70A
V_{DSS}	60V
R_{DS(on)-typ(@V_{GS}=10V)}	< 10mΩ (Type:7.5 mΩ)

Features

◆ **YFW-SGT technology**

Application

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



Product Specification Classification

Part Number	Package	Marking	Pack
YFWG70H06NF	PDFN5*6-8L	YFW 70H06NF XXXXX	5000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	60	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current @T _A =25°C	I_D	70	A
Continuous Drain Current @T _A =70°C	I_D	45	A
Pulsed Drain Current	I_{DM}	280	A
Power dissipation @T _A =25°C	P_D	60	W
Single Pulse Avalanche Energy	E_{AS}	30	mJ
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance ,Junction-Case	R_{θJC}	2.1	°C/W
Thermal resistance, junction-ambient5)	R_{θJA}	25	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$B_{V_{DS}}$	60	68	-	V
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1.2	1.5	2.5	V
Drain-source on-state resistance	$V_{GS}=10V, I_D=20A$	$R_{DS(on)}$	-	7.5	10	mΩ
	$V_{GS}=4.5V, I_D=10A$		-	10	13	
Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	± 100	nA
Drain-Source Leakage Current	$V_{DS}=60V, V_{GS}=0V$	I_{DSS}	-	-	1	uA
Input Capacitance	$V_{GS}=0V$ $V_{DS}=50V$ $f=100\text{ kHz}$	C_{iss}	-	1182.1		pF
Output Capacitance		C_{oss}	-	199.5		
Reverse Transfer Capacitance		C_{rss}	-	4.1		
Turn-on delay time	$V_{GS}=10V$ $V_{DD}=50V$ $R_G=2\Omega$ $I_D=10A$	$t_{d(on)}$	-	17.9	-	ns
Rise Time		T_r	-	4.0	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	34.9	-	
Fall Time		t_f	-	5.5	-	
Total Gate Charge	$I_D=10A$ $V_{DS}=50V$ $V_{GS}=10V$	Q_g	-	18.4	-	nC
Gate-Source Charge		Q_{gs}	-	3.3	-	
Gate-Drain Charge		Q_{gd}	-	3.1	-	
Gate plateau voltage		$V_{plateau}$		2.8		V
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	$I_S=10A, di/dt=100A/\mu s$	t_{rr}	-	41.8	-	nS
Reverse Recovery Charge		Q_{rr}	-	36.1	-	nC
Peak reverse recovery current		I_{rrm}		1.4		A

Note

- 1、Calculated continuous current based on maximum allowable junction temperature.
- 2、Repetitive rating; pulse width limited by max. junction temperature.
- 3、Pd is based on max. junction temperature, using junction-case thermal resistance.
- 4、 $V_{DD}=50\text{ V}$, $R_G=50\ \Omega$, $L=0.3\text{ Mh}$, starting $T_j=25\ ^\circ\text{C}$.
- 5、The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_a=25\ ^\circ\text{C}$.

Ratings and Characteristic Curves

Typical Characteristics

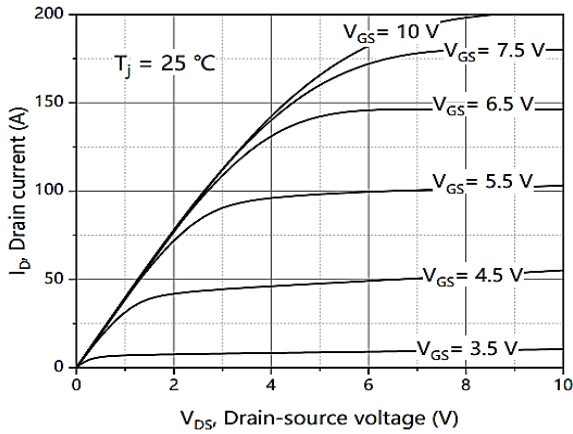


Figure 1. Typ. output characteristics

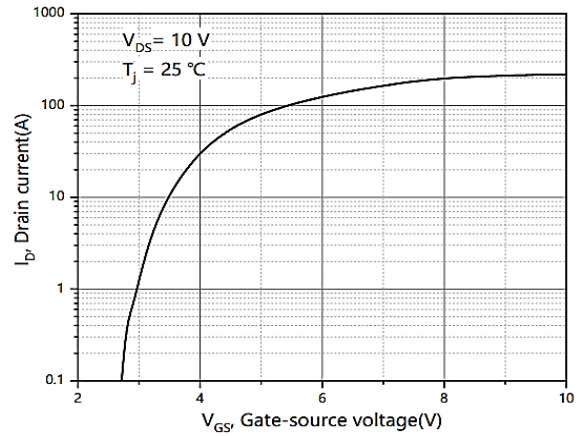


Figure 2. Typ. transfer characteristics

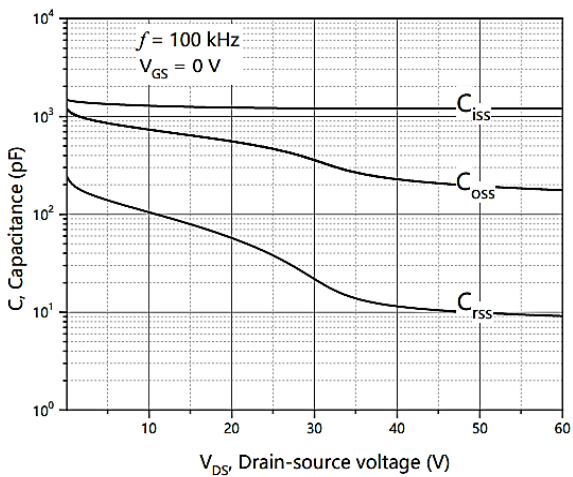


Figure 3. Typ. capacitances

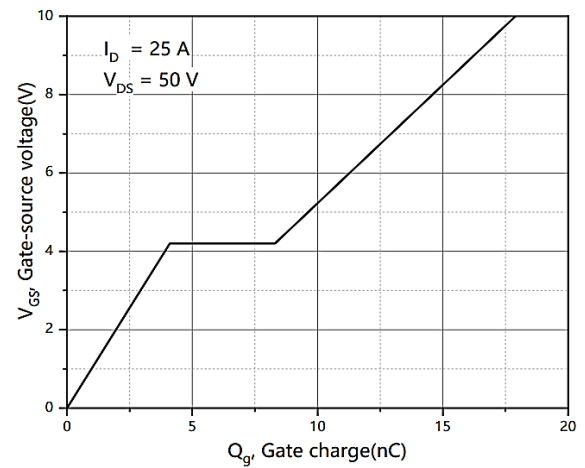


Figure 4. Typ. gate charge

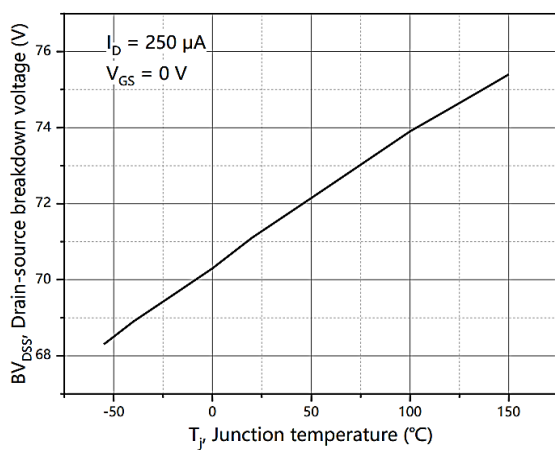


Figure 5. Drain-source breakdown voltage

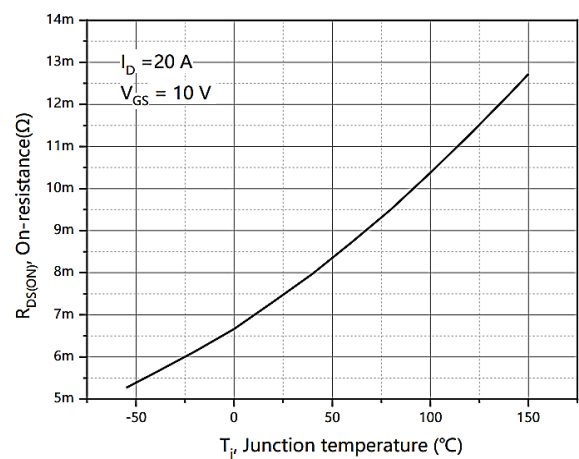


Figure 6. Drain-source on-state resistance

Ratings and Characteristic Curves

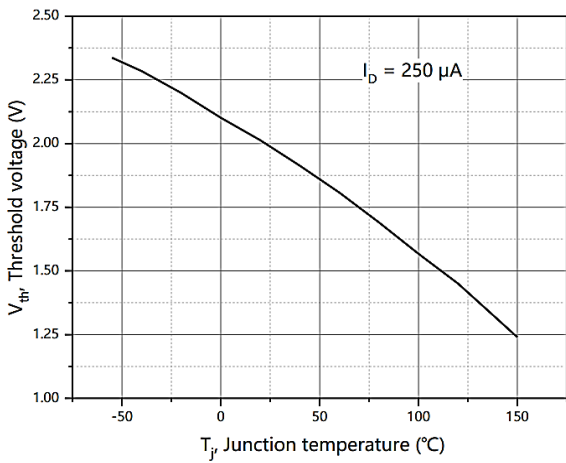


Figure 7. Threshold voltage

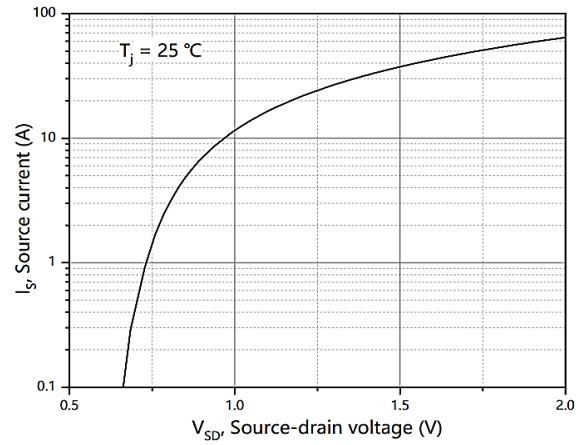


Figure 8. Forward characteristic of body diode

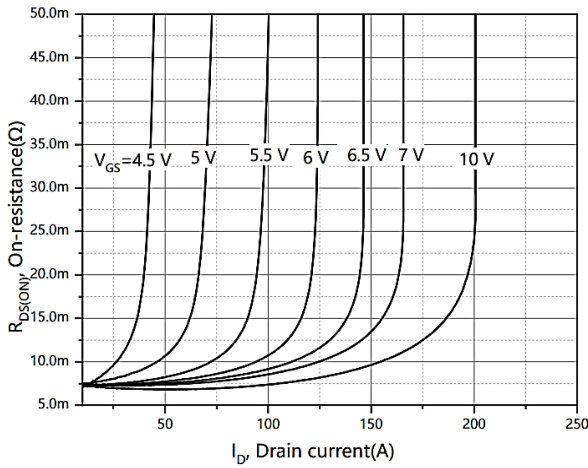


Figure 9. Drain-source on-state resistance

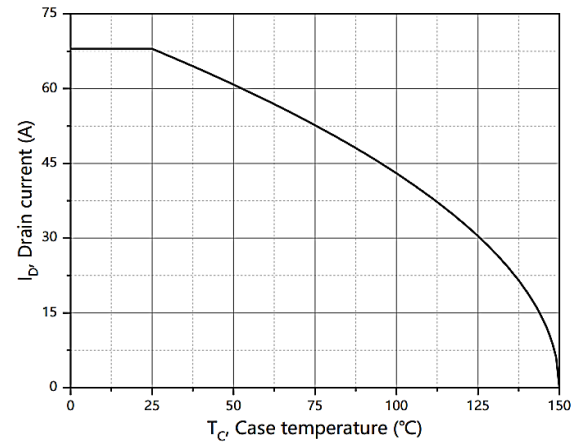


Figure 10. Drain current

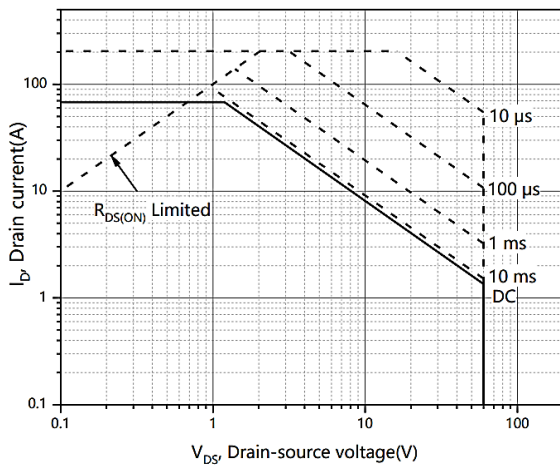


Figure 11. Safe operation area T_C=25 °C

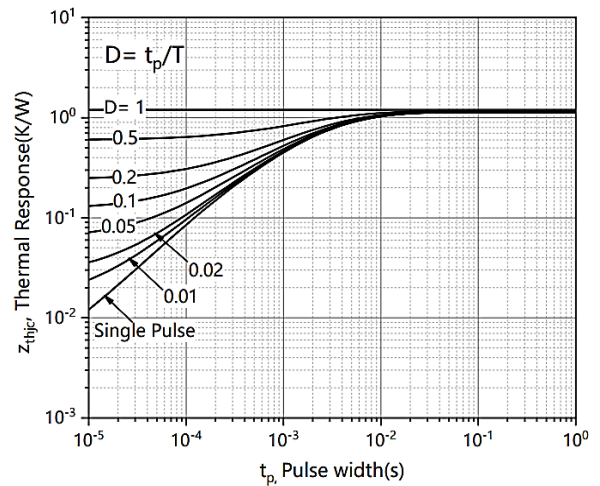
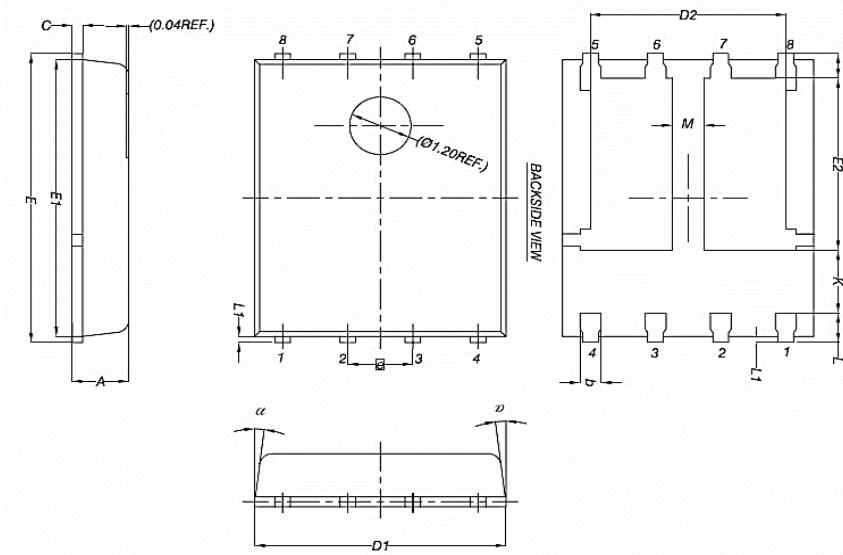


Figure 12. Max. transient thermal impedance

PDFN5*6-8L



Symbol	Common		
	mm		
	Mim	Nom	Max
A	0.90	1.00	1.10
b	0.33	0.41	0.51
C	0.20	0.25	0.30
D1	4.80	4.90	5.00
D2	3.61	3.81	3.96
E	5.90	6.00	6.10
E1	5.70	3.30	3.45
E2	3.38	3.05	3.20
e	1.27BSC		
H	0.41	0.51	0.61
K	1.10	--	--
L	0.51	0.61	0.71
L1	0.06	0.13	0.20
M	0.50	--	--
a	0°	--	12°