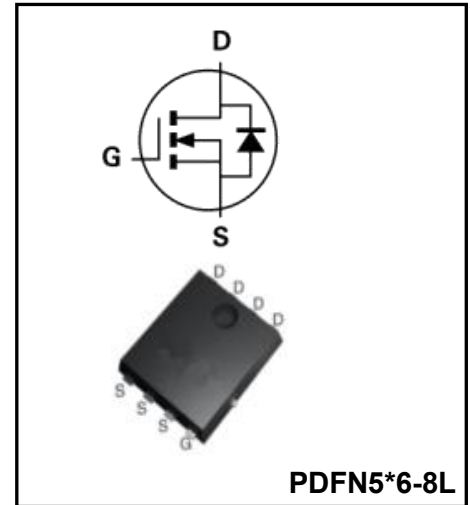


**60V N-Channel Enhancement Mode MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	125A
<b>V<sub>DSS</sub></b>	60V
<b>R<sub>DS(ON)-typ(@V<sub>GS</sub>=10V)</sub></b>	<2.6mΩ <b>(Type:1.85mΩ)</b>



**Features**

Adopt advanced trench technology to provide excellent R<sub>DS(ON)</sub>, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

**Applications**

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

**Mechanical Data**

- ◆ Case: Molded plastic
- ◆ Mounting Position: Any
- ◆ Molded Plastic: UL Flammability Classification Rating 94V-0
- ◆ Lead free in compliance with EU RoHS 2011/65/EU directive
- ◆ Solder bath temperature 275°C maximum, 10s per JESD 22-B106

**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW125N06NF	PDFN5*6-8L	YFW 125N06NF XXXXX	5000PCS/Tape

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

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continue Drain Current	$I_D$	125	A
Pulsed Drain Current (Note1)	$I_{DM}$	520	A
Power Dissipation	$P_D$	140	W
Single Pulse Avalanche Energy (Note1)	$E_{AS}$	158	mJ
Operating Temperature Range	$T_J$	150	°C
Storage Temperature Range	$T_{STG}$	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.89	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62	°C/W

Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

**Electrical Characteristics at Tc=25°C unless otherwise specified**

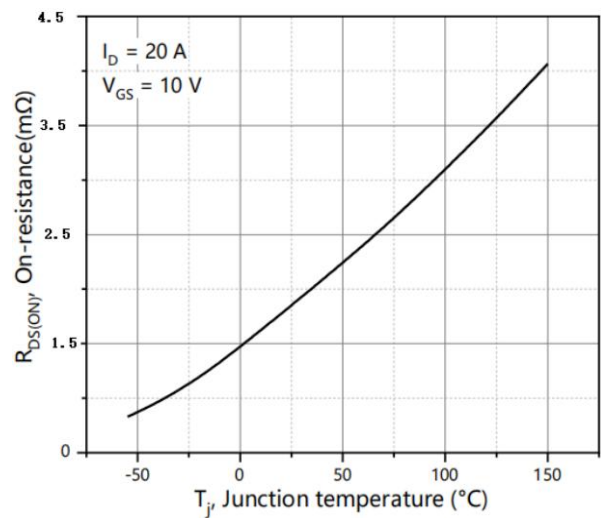
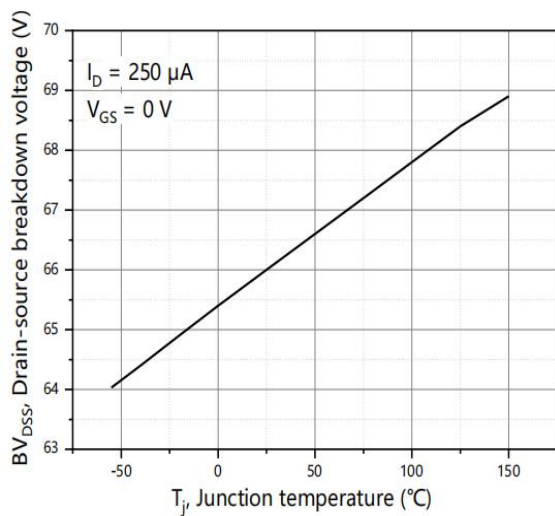
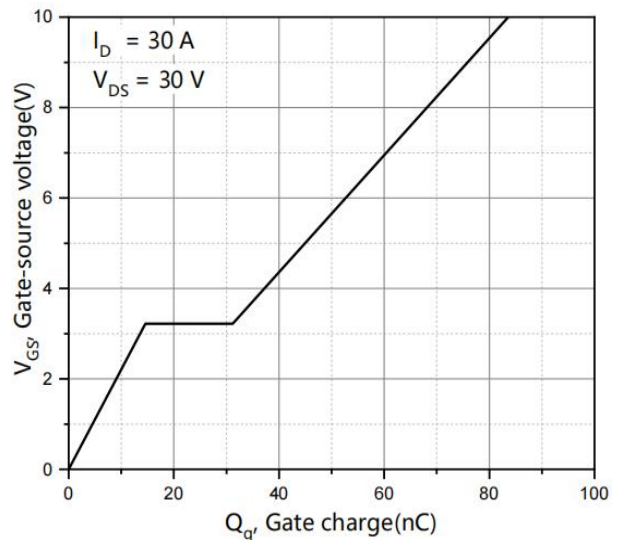
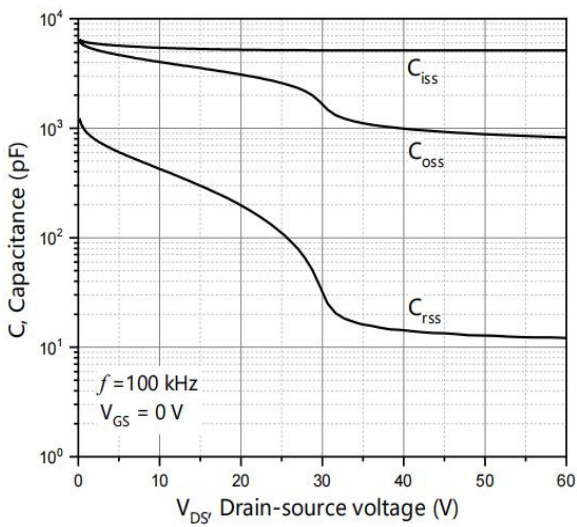
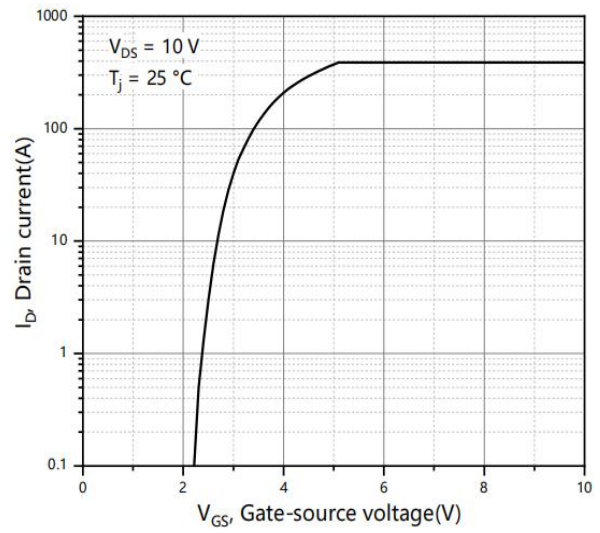
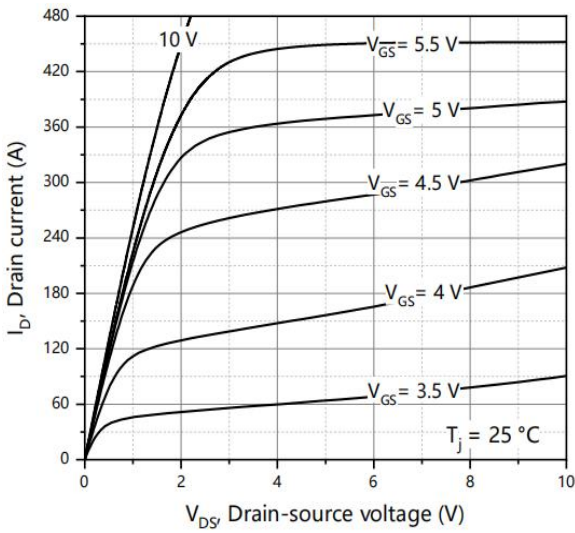
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0 V, I_D = 250 \mu A$	$BV_{DSS}$	60	-	-	V
Drain-Source Leakage Current	$V_{DS} = 60 V, V_{GS} = 0 V$	$I_{DSS}$	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 20 V, V_{DS} = 0 V$	$I_{GSS}$	-	-	±100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu A$	$V_{GS(th)}$	1.2	-	2.5	V
Drain-Source On-State Resistance	$V_{GS} = 10 V, I_D = 20 A$	$R_{DS(on)}$	-	1.85	2.6	mΩ
	$V_{GS} = 4.5 V, I_D = 20 A$	$R_{DS(on)}$	-	2.55	3.6	mΩ
Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	$C_{iss}$	-	5100	-	pF
Output Capacitance		$C_{oss}$	-	2550	-	pF
Reverse Transfer Capacitance		$C_{rss}$	-	105	-	pF
Turn-on Delay Time(Note2)		$t_{d(ON)}$	-	19.5	-	ns
Rise Time(Note2)	$V_{DD}=30V, V_{GS}=10V, RG=2\Omega, I_D=30 A$	$t_r$	-	34.6	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	68	-	ns
Fall Time(Note2)		$t_f$	-	24.8	-	ns
Total Gate Charge(Note2)	$V_{DS}=30V, V_{GS}=10V, I_D=30A$	$Q_G$	-	83.2	-	nC
Gate to Source Charge(Note2)		$Q_{GS}$	-	14.5	-	nC
Gate to Drain Charge(Note2)		$Q_{GD}$	-	16.4	-	nC

**Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified**

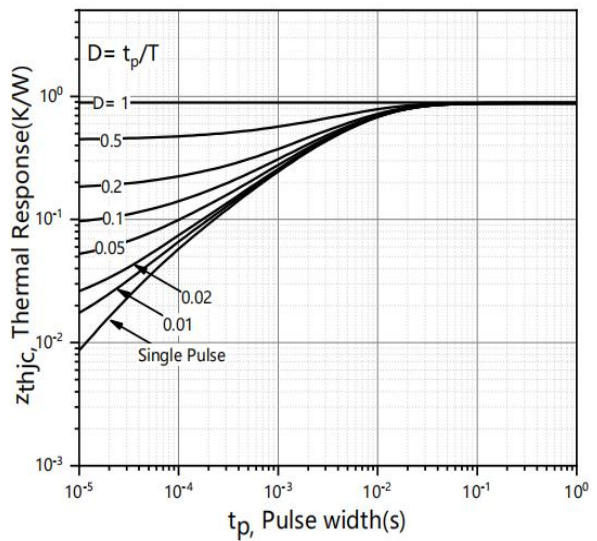
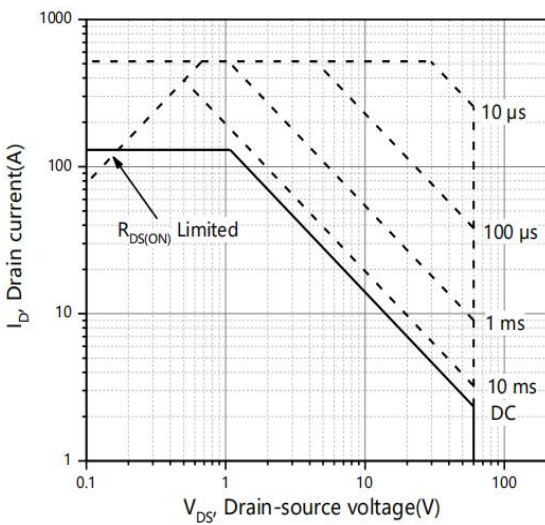
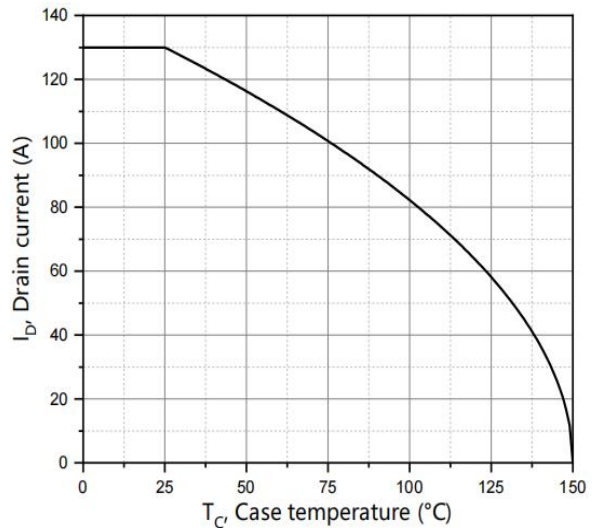
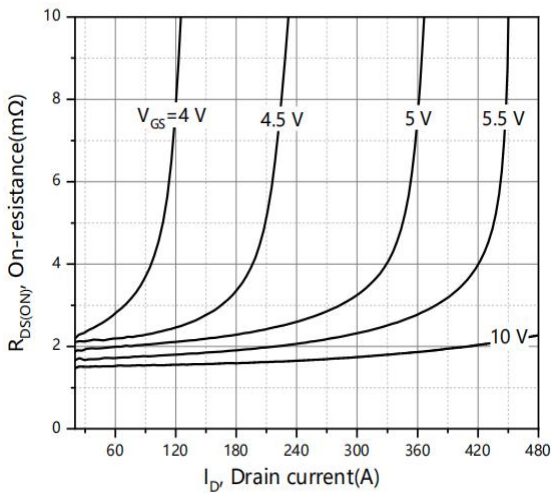
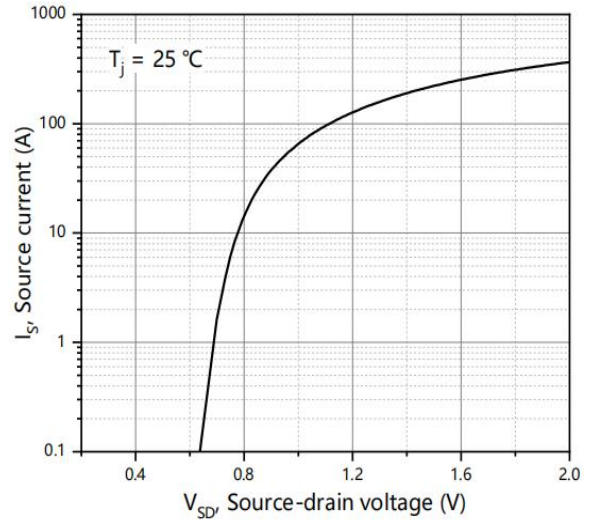
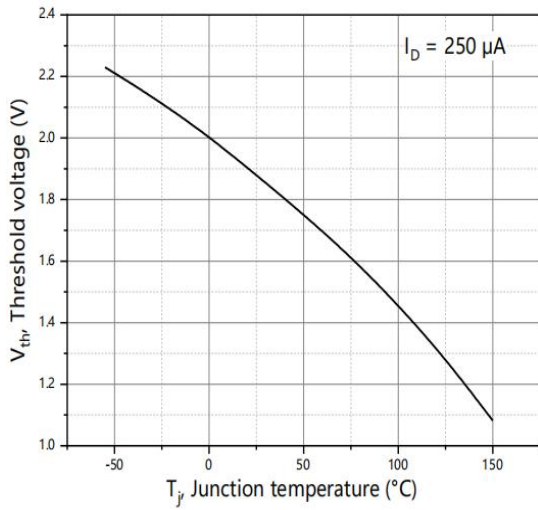
Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		$I_S$	-	-	125	A
Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=20A, T_J=25$	$V_{SD}$	-	-	1.3	V
Reverse Recovery Time(Note2)	$T_J = 25^\circ C, I_F = I_S$ $di / dt = 100 A/\mu s$	$t_{rr}$	-	58	-	ns
Reverse Recovery Charge(Note2)		$Q_{rr}$	-	55	-	nC

Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

**RATINGS AND CHARACTERISTIC CURVES**



**RATINGS AND CHARACTERISTIC CURVES**



Package Outline Dimensions Millimeters

PDFN5\*6-8L

	<b>Dim.</b>	<b>Min.</b>	<b>Max.</b>
	A	4.8	5.2
	B	0.25	0.35
	C	1	1.2
	C1	Typ0.254	
	C2	Typ0.254	
	E	Typ1.27	
	L	6	6.3
	L1	5.7	6
	L2	Max0.2	
R	Typ13°		
All Dimensions in millimeter			