

100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

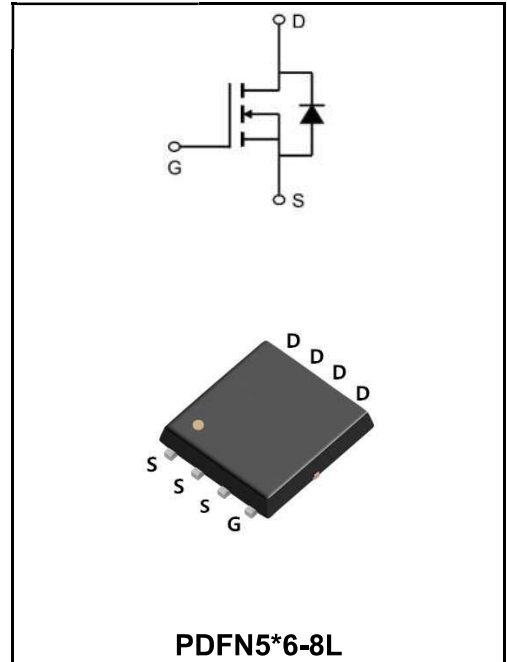
I_D	110A
V_{DSS}	100V
R_{DS(on)-typ(@V_{GS}=10V)}	< 6.0mΩ (Type:4.2 mΩ)

Features

◆YFW-SGT technology

Application

- ◆DC/DC Converter
- ◆LED Backlighting
- ◆Power Management Switches



Product Specification Classification

Part Number	Package	Marking	Pack
YFWG110N10NF	PDFN5*6-8L	YFW 110N10NF XXXXX	5000PCS/ Tape

Maximum Ratings at T_c=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V _{DS}	100	V
Gate - Source Voltage	V _{GS}	±20	V
Continuous Drain Current, T _c =25°C	I _D	110	A
Pulsed Drain Current, T _c =25°C	I _{DM}	380	A
Power Dissipation @T _c =25°C	P _D	113.6	W
Single Pulse Avalanche Energy(4)	E _{AS}	205	mJ
Operation and storage temperature	T _{STG} , T _J	-55 to +150	°C
Thermal Resistance, Junction-case	R _{θJC}	1.1	°C/W
Thermal Resistance, Junction-ambient(4)	R _{θJA}	58	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	VDSS	100	-	-	V
Gate -Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	IGSS	-	-	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}=100V, V_{GS}=0V, T_J=25^\circ C$	IDSS	-	-	1	μA
	$V_{DS}=100V, V_{GS}=0V, T_J=100^\circ C$		-	-	100	
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	VGS(th)	1.2	1.8	2.5	V
Drain-Source on-Resistance ²	$V_{GS}=10V, I_D=20A$	RDS(ON)	-	4.2	6	mΩ
	$V_{GS}=4.5V, I_D=15A$		-	6.6	9	
Input Capacitance	$V_{DS}=50V$ $V_{GS}=0V$ $f=1MHz$	Ciss	-	4400	-	pF
Output Capacitance		Coss	-	645	-	
Reverse Transfer Capacitance		Crss	-	20	-	
Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	Rg	-	1.7	-	Ω
Total Gate Charge	$V_{DS}=50V$ $V_{GS}=10V$ $I_D=20A$	Qg	-	75	-	nC
Gate-Source Charge		Qgs	-	17	-	
Gate-Drain Charge		Qgd	-	13	-	
Turn-on delay time	$V_{GS}=10V$ $V_{DS}=50V$ $R_G=3\Omega$ $I_D=20A$	td(on)	-	15.4	-	ns
Rise Time		Tr	-	13	-	
Turn-Off Delay Time		td(OFF)	-	34	-	
Fall Time		tf	-	6.2	-	
Diode Forward Voltage ²	$V_{GS}=0V, I_F=20A$	VSD	-	-	1.2	V
Continuous Source Current ^{1,5}	$V_G=V_D=0V, \text{Force Current}$	IS	-	-	95	A
Body Diode Reverse Recovery Time	$I_F=20A, di_{SD}/dt=100A/\mu s$	trr	-	55	-	ns
Body Diode Reverse Recovery Charge		Qrr	-	101	-	nC

Notes:

- 1、The data tested by surface mounted on a 1 inch² 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 VDD=50V, VGS=10V, L=0.4mH, IAS=32A
- 4、The power dissipation is limited by 150°C junction temperature
- 5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Ratings and Characteristic Curves

Typical Characteristics

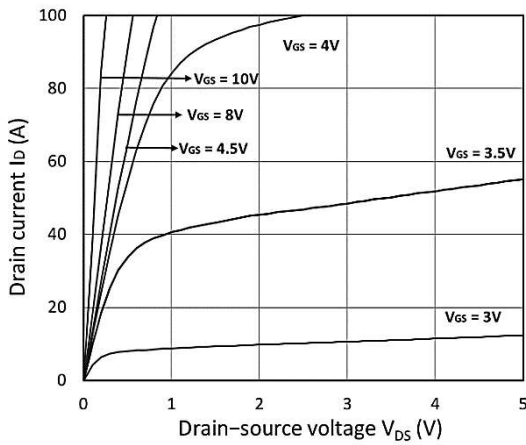


Figure 1. Output Characteristics

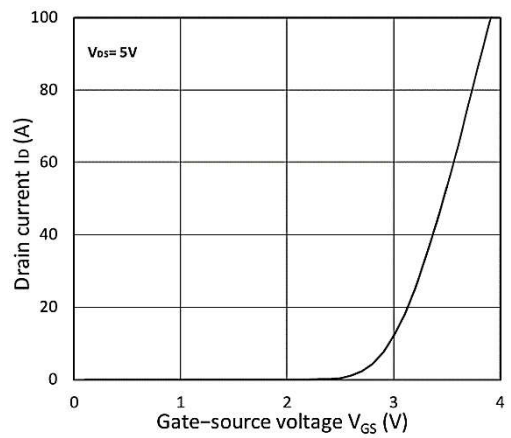


Figure 2. Transfer Characteristics

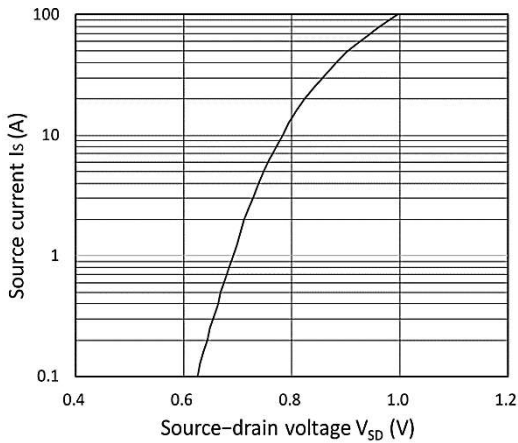


Figure 3. Forward Characteristics of Reverse

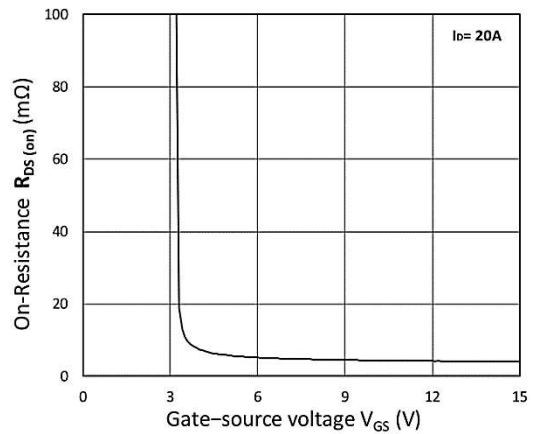


Figure 4. R_DS(ON) vs. V_GS

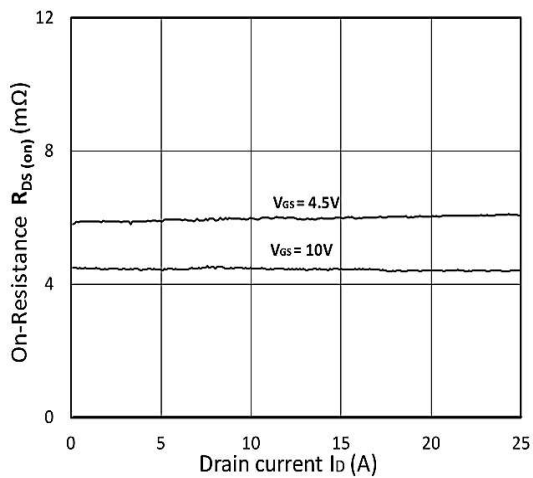


Figure 5. R_DS(ON) vs. I_D

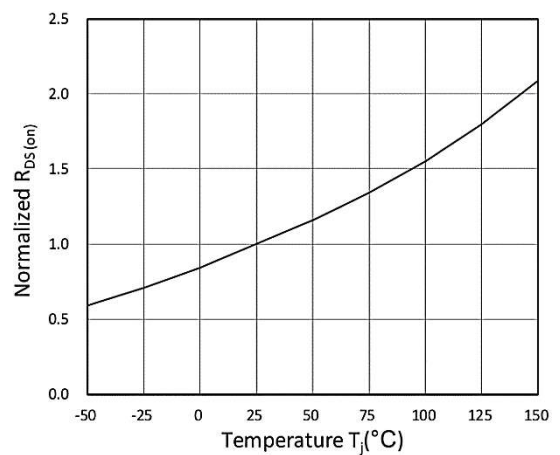


Figure 6. Normalized R_DS(on) vs. Temperature

Ratings and Characteristic Curves

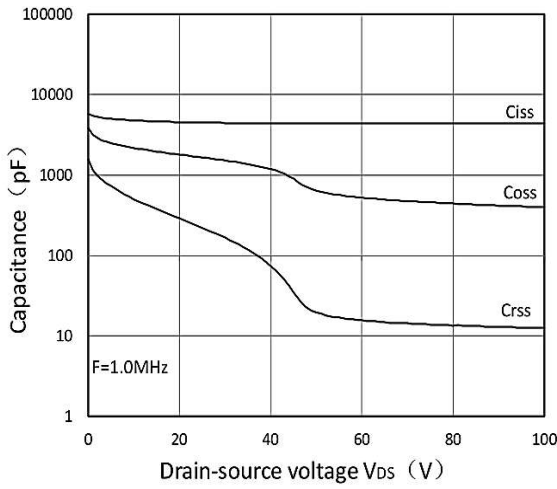


Figure 7. Capacitance Characteristics

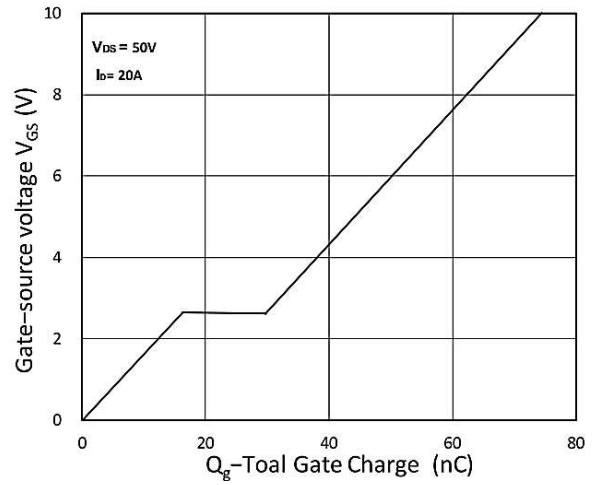


Figure 8. Gate Charge Characteristics

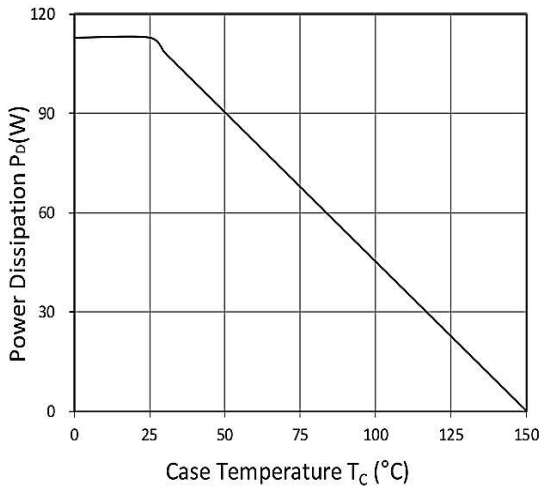


Figure 9. Power Dissipation

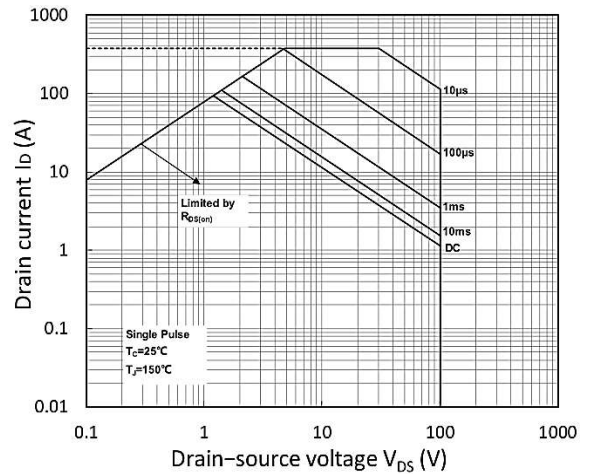


Figure 10. Safe Operating Area

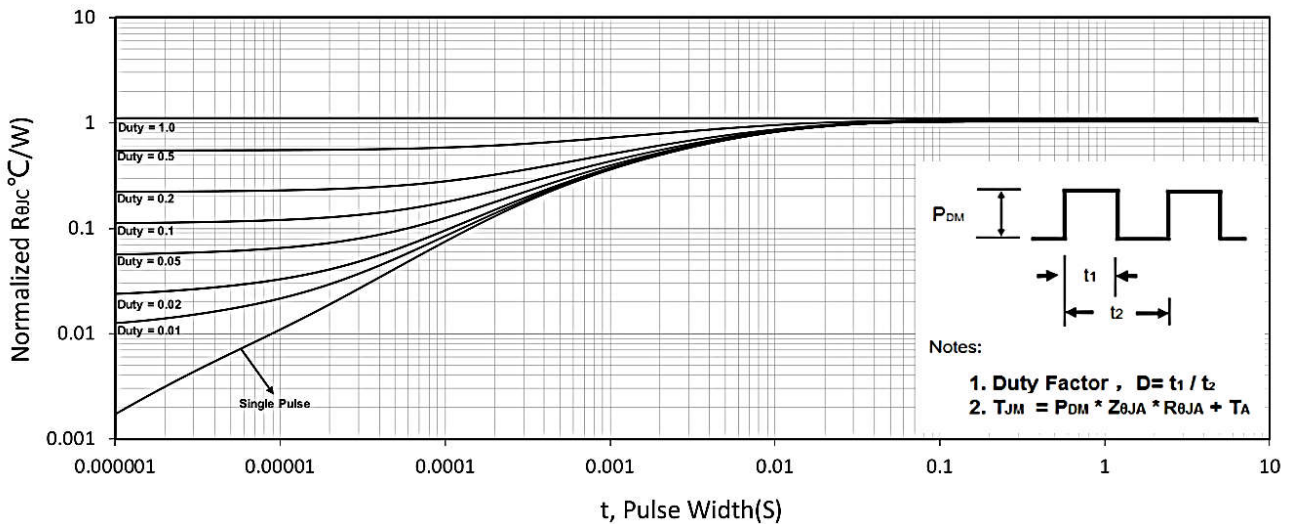
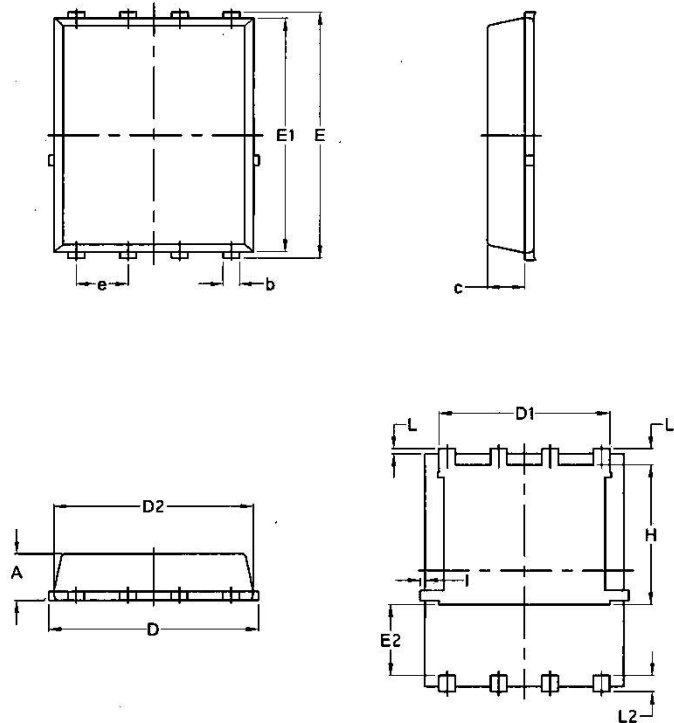


Figure 11. Normalized Maximum Transient Thermal Impedance

PDFN5*6-8L



Symbol	Common			
	mm		Inch	
	Min	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070