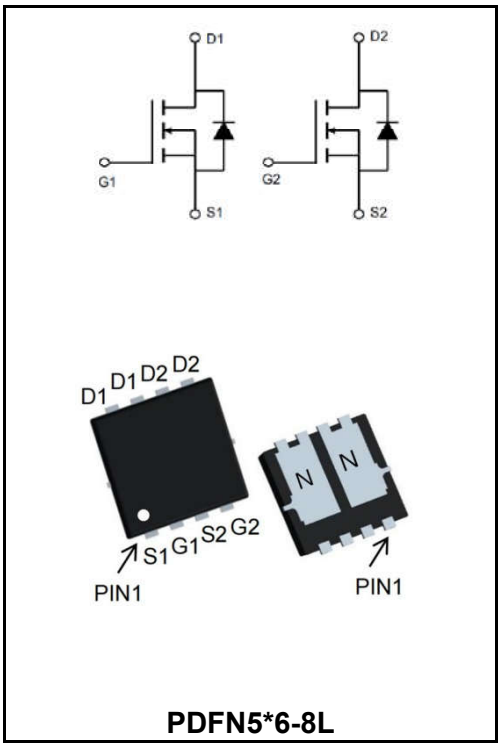
100V N+N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	40A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 20mΩ(Type:14 mΩ)



PDFN5*6-8L

Features

- YFW-SGT technology

Application

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

Product Specification Classification

Part Number	Package	Marking	Pack
YFWG40H10NF	PDFN5*6-8L	YFW 40H10NF XXXXX	5000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	VDS	100	V
Gate - Source Voltage	VGS	±20	V
Continuous drain current[1], T_C=25 ℃	I_D	40	A
Pulsed drain current[2], T_C=25 ℃	ID, pulse	120	A
Power dissipation[3], T_C=25 ℃	P_D	71	W
Single pulsed avalanche energy[5]	E_{AS}	57	mJ
Operating Junction Temperature Range	T_{STG} , T_J	-55 to +150	°C
Thermal Resistance ,Junction-Case	$R_{\theta JC}$	1.76	°C/W
Thermal resistance, junction-ambient[4]	$R_{\theta JA}$	25	°C/W

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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=250uA	B_{VDSS}	100	107	-	V
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	1.2	1.5	2.5	V
Drain-source on-state resistance	V_{GS}=10V, I_D=10A	$R_{DS(ON)}$	-	14	20	mΩ
	V_{GS}=4.5V, I_D=7A		-	18	25	
Gate-Source Leakage Current	V_{GS}=±20V	I_{GSS}	-	-	±100	nA
Drain-Source Leakage Current	V_{DS}=100V, V_{GS}=0V	I_{DSS}	-	-	1	uA
Input Capacitance	V_{GS}=0V V_{DS}=50V *f*=100 kHz	C_{iss}	-	1003.9	-	pF
Output Capacitance		C_{oss}	-	185.4	-	
Reverse Transfer Capacitance		C_{rss}	-	9.8	-	
Turn-on delay time	V_{GS}=10V V_{DD} =50V R_G = 10Ω I_D= 5A	$t_{d(on)}$	-	16.6	-	ns
Rise Time		T_r	-	3.8	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	75.5	-	
Fall Time		t_f	-	46	-	
Total Gate Charge	I_D=5A V_{DS}=50V V_{GS}=10V	Q_g	-	16.2	-	nC
Gate-Source Charge		Q_{gs}	-	2.8	-	
Gate-Drain Charge		Q_{gd}	-	4.1	-	
Gate plateau voltage		Vplateau	-	3	-	V
Diode forward current	VGS<Vth	I_S	-	30	-	A
Pulsed Source Current		I_{SP}	-	90	-	A
Reverse Recovery Time	I_S=1A , dI/dt=100A/μs	t_{rr}	49	-	-	nS
Reverse Recovery Charge		Q_{rr}	61.8	-	-	nC
Peak reverse recovery current		I_{rrm}	2.4	-	-	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、The value of RΘja is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with Ta=25 °C.
5、V_{DD}=50 V, R_G=25 Ω, L=0.3 mH, starting Tj=25 °C.

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Ratings and Characteristic Curves

Typical Characteristics

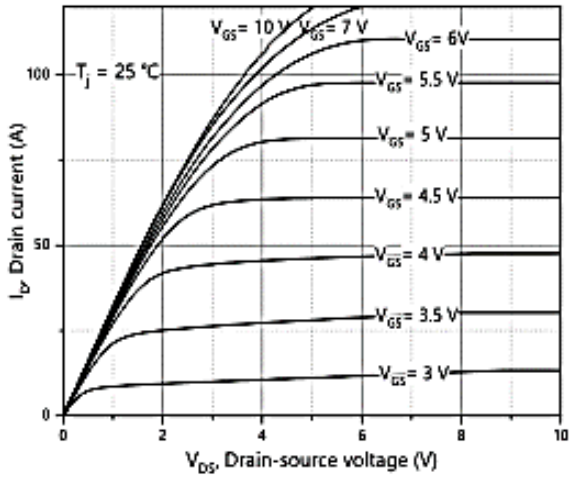

Figure 1, Typ. output characteristics

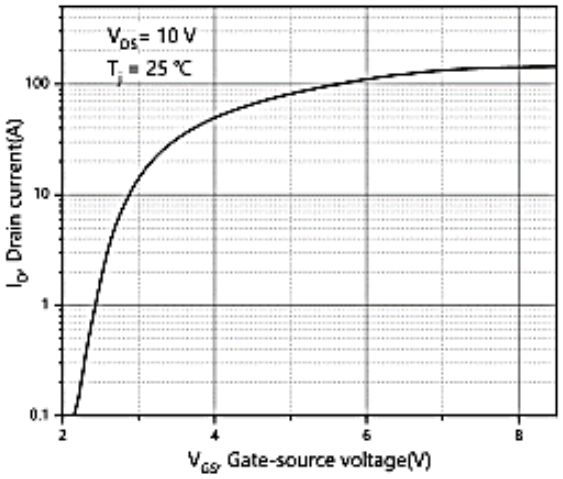

Figure 2, Typ. transfer characteristics

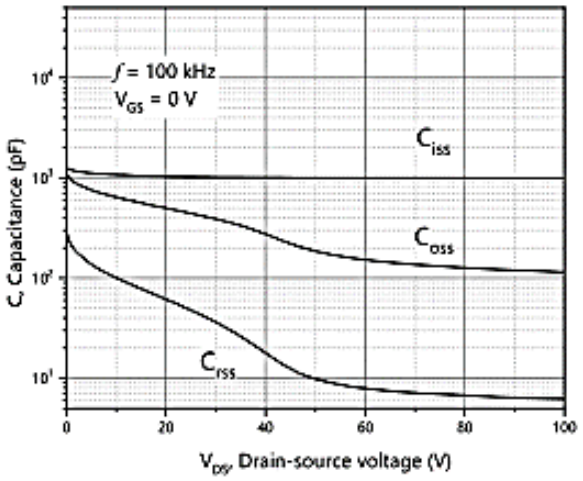

Figure 3, Typ. capacitances

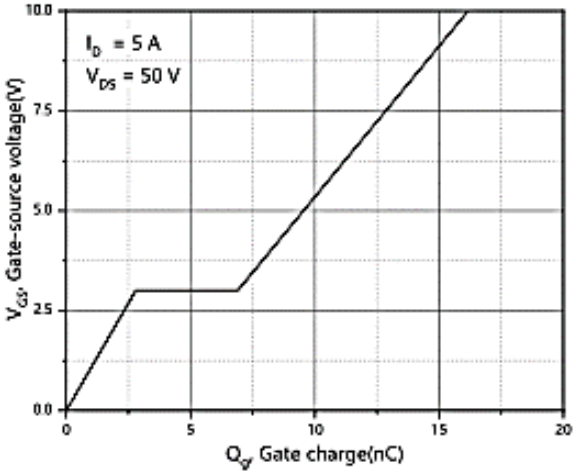

Figure 4, Typ. gate charge

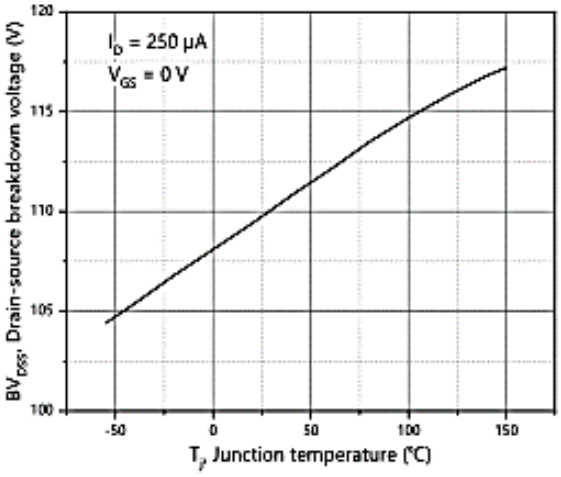

Figure 5, Drain-source breakdown voltage

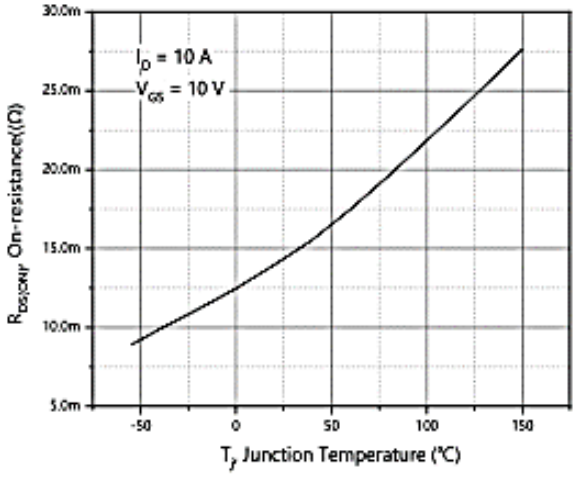

Figure 6, Drain-source on-state resistance

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Ratings and Characteristic Curves

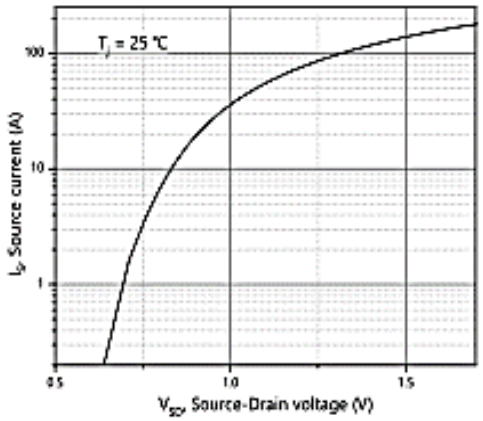


Figure 7, Forward characteristic of body diode

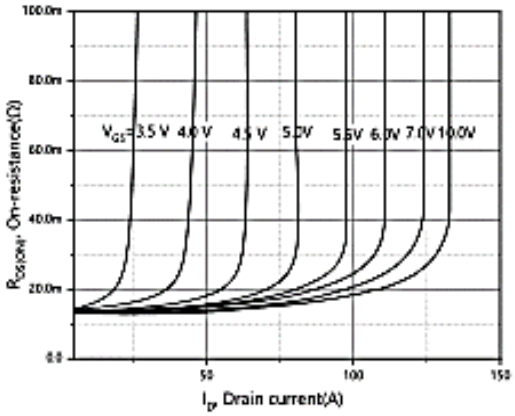


Figure 8, Drain-source on-state resistance

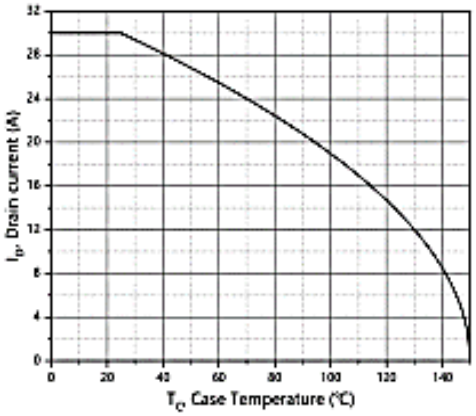


Figure 9, Drain current

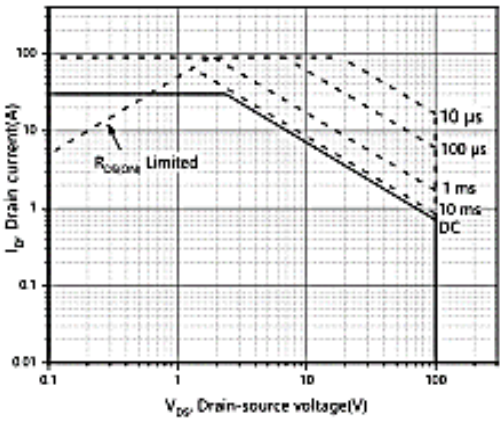
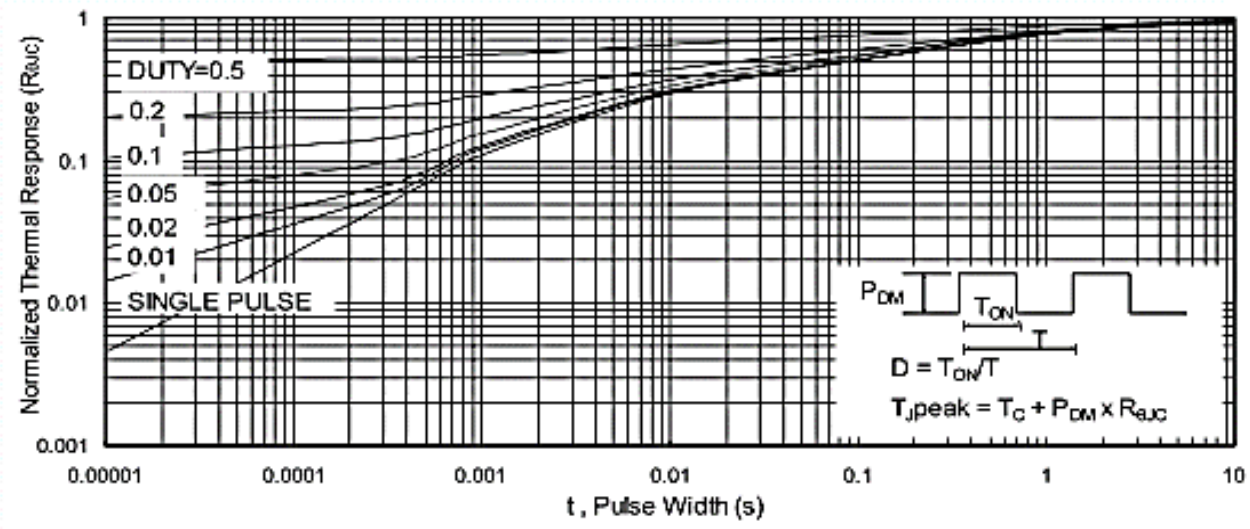


Figure 10, Safe operation area T_C=25 ℃



Figu11. Normalized Maximum Transient Thermal Impedance

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Package Outline Dimensions Millimeters

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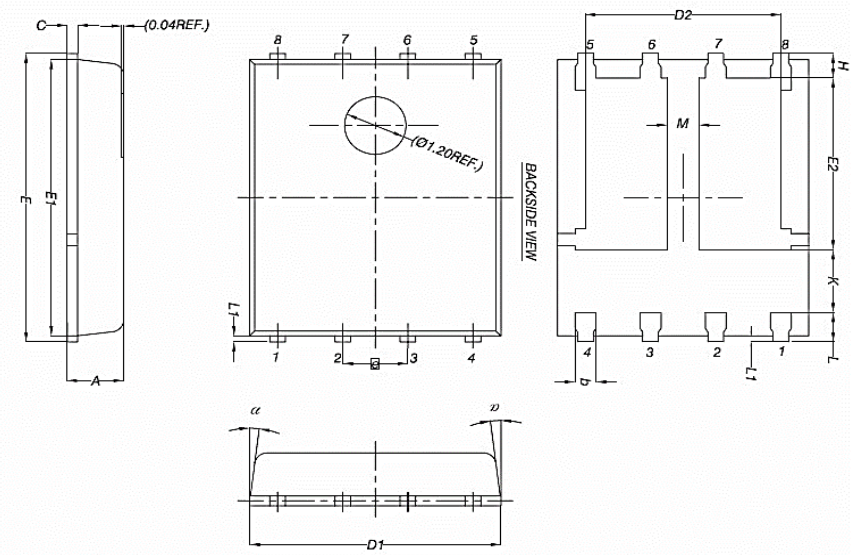

Symbol	Common		
	mm		
	Mim	Nom	Max
A	0.90	1.00	1.10
b	0.33	0.41	0.51
C	0.20	0.25	0.30
D1	4.80	4.90	5.00
D2	3.61	3.81	3.96
E	5.90	6.00	6.10
E1	5.70	3.30	3.45
E2	3.38	3.05	3.20
e	1.27BSC		
H	0.41	0.51	0.61
K	1.10	--	--
L	0.51	0.61	0.71
L1	0.06	0.13	0.20
M	0.50	--	--
a	0°	--	12°

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