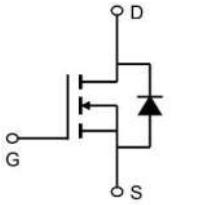
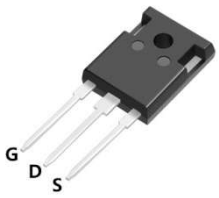
250V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	50A
V_{DSS}	250V
R_{DSON}-typ(@V_{GS}=10V)	< 85mΩ(Type:70mΩ)





TO-247

Application

- Uninterruptible Power Supply(UPS)
- Power Factor Correction (PFC)

Product Specification Classification

Part Number	Package	Marking	Pack
YFW50N25AP	TO-247	YFW 50N25AP XXXXX	600PCS/Tube

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage(V_{GS}=0V)	V_{DS}	250	V
Continuous Drain Current	I_D	50	A
Pulsed Drain Current	I_{DM}	180	A
Gate - Source Voltage	V_{GS}	±30	V
Single Pulse Avalanche Energy	E_{AS}	973	mJ
Avalanche Current	I_{AS}	36	A
Repetitive Avalanche Energy	E_{AR}	584	mJ
Power Dissipation (T_C=25℃)	P_D	65	W
Operating Junction and Storage Temperature Range	T_J ,T_{STG}	-55 to +150	°C
Thermal Resistance, Junction-case	$R_{\theta JC}$	0.89	K/W
Thermal Resistance, Junction ambient	$R_{\theta JA}$	60	K/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=250uA	**V(BR)DSS**	250	-	-	**V**
Zero Gate Voltage Drain Current	V_{DS}=250V , V_{GS}=0V , T_J= 25℃	**I_{DSS}**	-	-	1	**μA**
Gate- Source Leakage	V_{GS}=±30V	**I_{GSS}**	-	-	±100	**nA**
Gate Source Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	**$V_{GS(th)}$**	2	-	4	**V**
Drain-Source On-Resistance (Note3)	V_{GS}=10V, I_D=22.5A	**$R_{DS(ON)}$**	-	70	85	**mΩ**
Input Capacitance	V_{DS}=25V V_{GS}=0V f=1MHz	**C_{iss}**	-	3539	-	**pF**
Output Capacitance		**C_{oss}**	-	535	-	
Reverse Transfer Capacitance		**C_{rss}**	-	309	-	
Total Gate Charge	V_{DD}=200V I_D=45A V_{GS}=10V	**Q_g**	-	244	-	**nC**
Gate-Source Charge		**Q_{gs}**	-	16	-	
Gate-Drain Charge		**Q_{gd}**	-	143	-	
Turn-on delay time	V_{DD}=125V I_D=45A R_G=25Ω	**$t_{d(on)}$**	-	57	-	**ns**
Turn-on Rise Time		**T_r**	-	145	-	
Turn-Off Delay Time		**$t_{d(OFF)}$**	-	960	-	
Turn-on Fall Time		**t_f**	-	235	-	
Continuous Body Diode Current	T_C= 25℃	**I_S**	-	-	45	**A**
Pulsed Diode Forward Current		**I_{SM}**	-	-	180	
Body Diode Voltage	V_{GS}=0V , I_{SD}=22.5A , T_J= 25℃	**V_{SD}**	-	-	1.4	**V**
Reverse Recovery Time	V_{GS}=0V, I_S=10A, dI_{SD}/dt=100A/μs	**t_{rr}**	-	264	-	**ns**
Reverse Recovery Charge		**Q_{rr}**	-	3	-	**nC**

Notes
1、Repetitive Rating: Pulse width limited by maximum junction temperature
2、L = 1.0mH, VDD = 50V, RG = 25 Ω, Starting TJ = 25 ºC
3、Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 1%

Ratings and Characteristic Curves

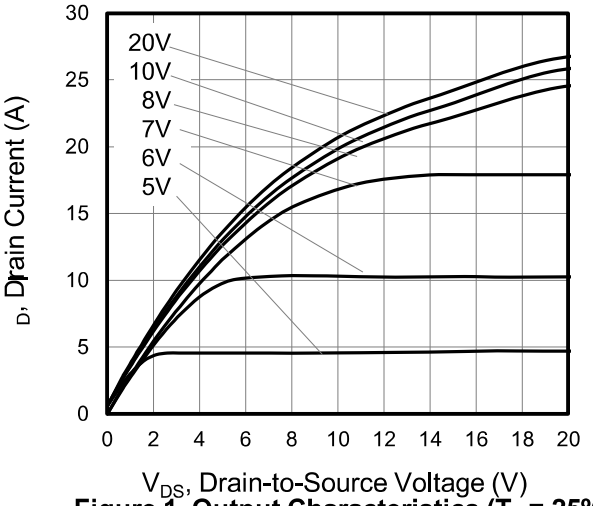


Figure 1. Output Characteristics (T_J = 25ºC)

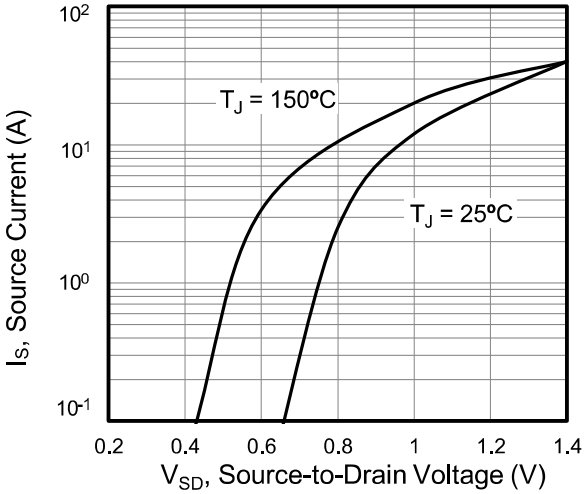


Figure 2. Body Diode Forward Voltage

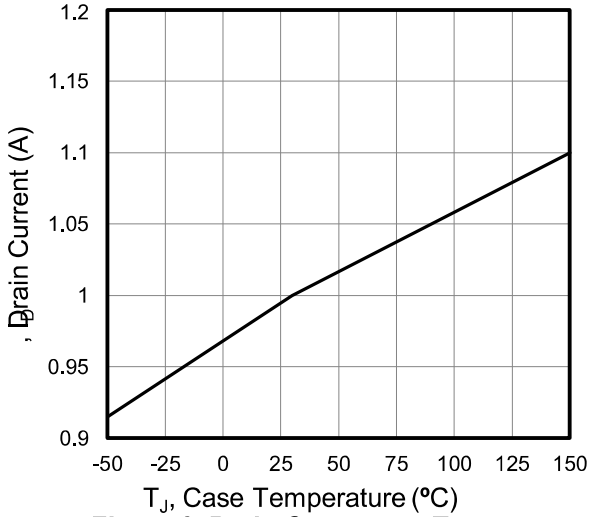


Figure 3. Drain Current vs. Temperature

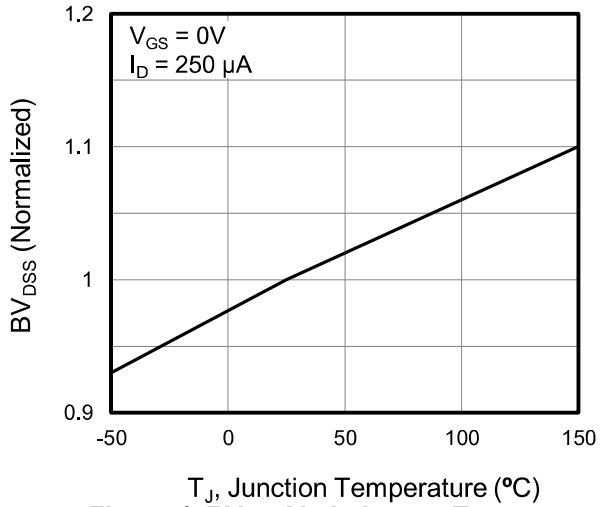


Figure 4. BV_{DSS} Variation vs. Temperature

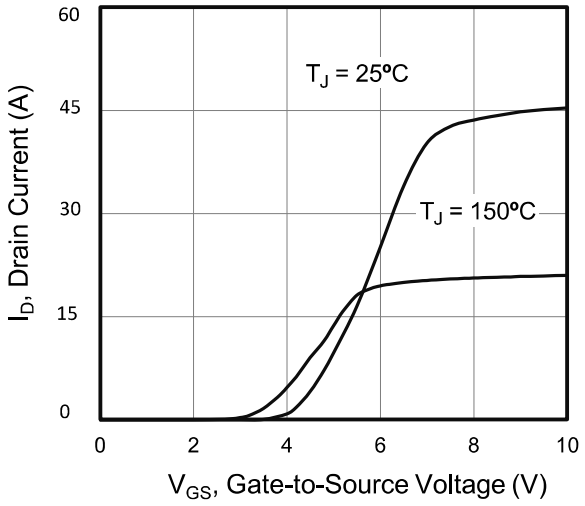


Figure 5. Transfer Characteristics

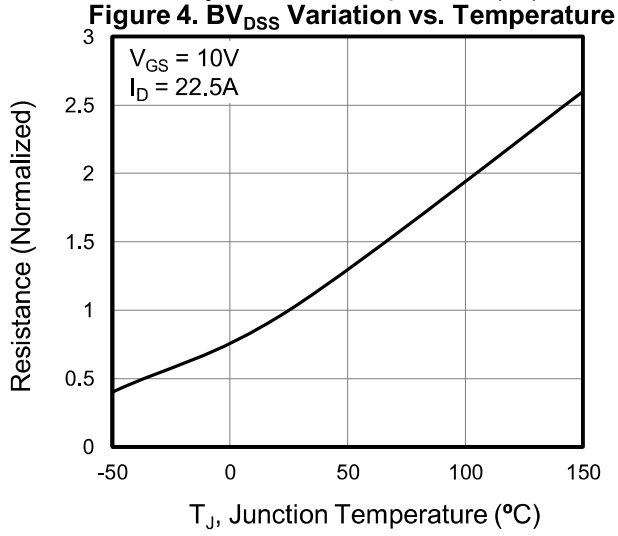


Figure 6. On-Resistance vs. Temperature

Ratings and Characteristic Curves

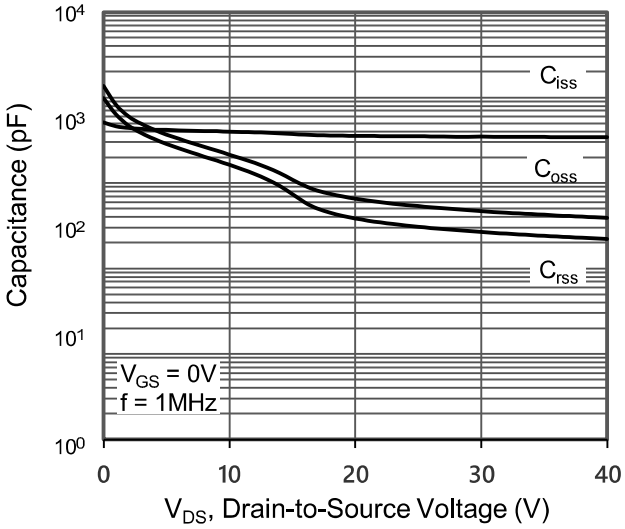


Figure 7. Capacitance

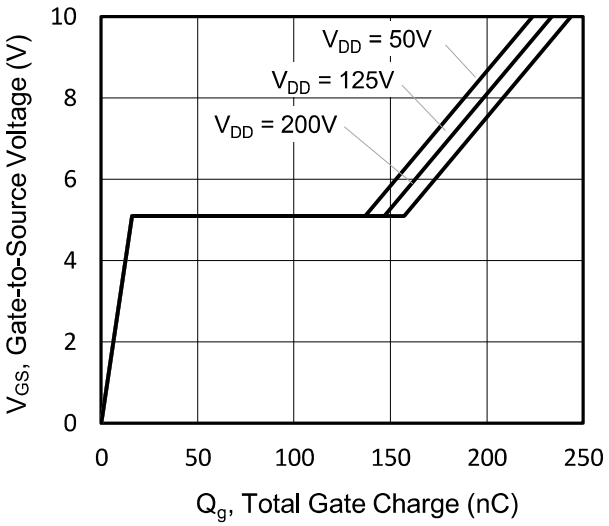


Figure 8. Gate Charge

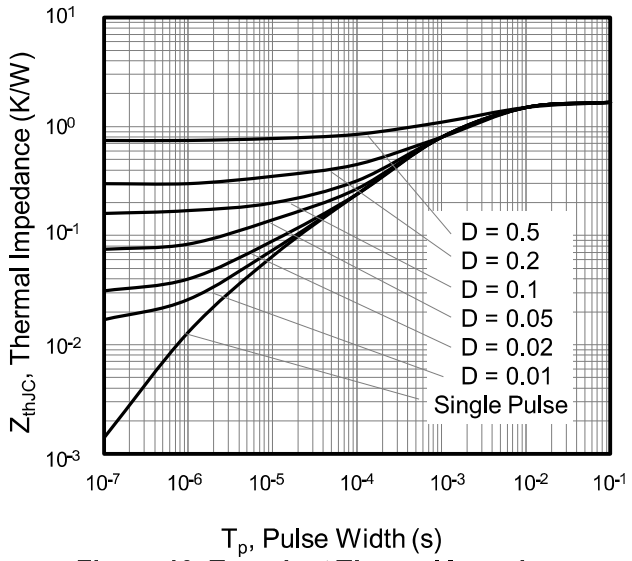


Figure 10. Transient Thermal Impedance

Package Outline Dimensions Millimeters

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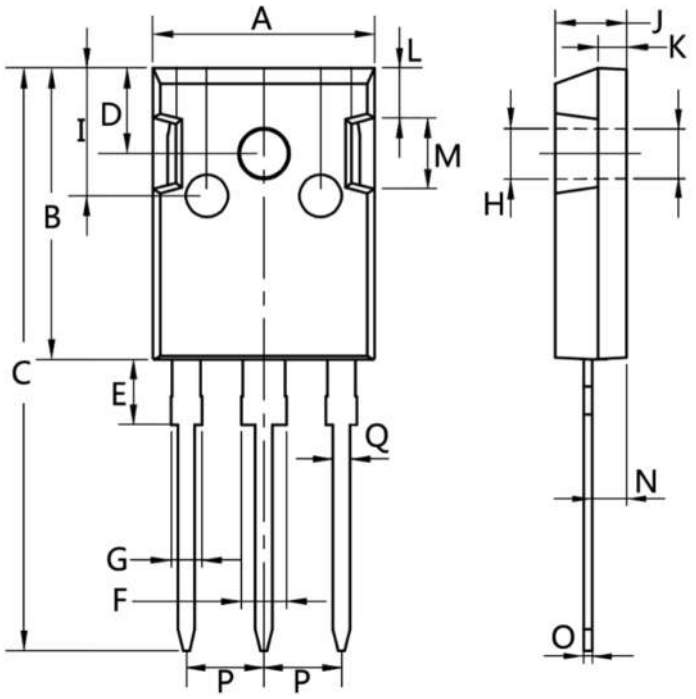

Dim.	Min.	Max.
A	15.0	16. 0
B	20.0	21.0
C	41.0	42.0
D	5.0	6.0
E	4.0	5.0
F	2.5	3.5
G	1.75	2.5
H	3.0	3.5
I	8.0	10.0
J	4.9	5.1
K	1.9	2.1
L	3.5	4.0
M	4.75	5.25
N	2.0	3.0
O	0.55	0.75
P	Typ 5.08	
Q	1.2	1.3