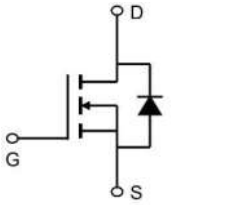
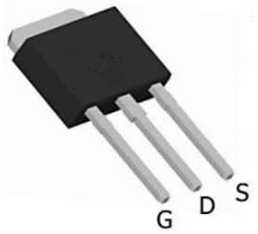
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	12A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 140mΩ(Type:110 mΩ)





TO-251

Application

- LED lighting
- Load switch
- Atomizer

Product Specification Classification

Part Number	Package	Marking	Pack
YFW12N10AMJ	TO-251	YFW 12N10AMJ XXXXX	4000PCS/Tape

Maximum Ratings at Tc=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[1], T_C=25 ℃	I_D	12	A
Pulsed drain current[2], T_C=25 ℃	$I_{D,\ pulse}$	24	A
Power dissipation[3], TC=25 ℃	P_D	17	W
Single Pulse Avalanche Energy[5]	E_{AS}	1.2	mJ
Operation and storage temperature	T_{STG}, T_J	-55 to +150	°C
Thermal Resistance Junction-Case	$R_{\theta JC}$	7.4	°C/W
Thermal Resistance, Junction–Ambient [4]	$R_{\theta JA}$	62	°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=250uA	BV_{DSS}	100	-	-	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=5A	$R_{DS(ON)}$	-	110	140	mΩ
	V_{GS}=4.5V, I_D=3A		-	160	180	
Gate-Source Leakage Current	V_{GS}=20V	I_{GSS}	-	-	100	nA
	V_{GS}=-20V		-	-	-100	
Drain-Source Leakage Current	V_{DS}=100V , V_{GS}=0V	I_{DSS}	-	-	1	μA
Input Capacitance	V_{GS}=0V V_{DS}=50V f=100KHz	C_{iss}	-	206.1	-	pF
Output Capacitance		C_{oss}	-	28.9	-	
Reverse Transfer Capacitance		C_{rss}	-	1.4	-	
Turn-on delay time	V_{GS}=10V V_{DS}=50V R_G=2Ω I_D=5A	$t_{d(on)}$	-	14.7	-	ns
Rise Time		T_r	-	3.5	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	20.9	-	
Fall Time		t_f	-	2.7	-	
Total Gate Charge	I_D=5A V_{DS}=50V V_{GS}=10V	Q_g	-	4.3	-	nC
Gate-Source Charge		Q_{gs}	-	1.5	-	
Gate-Drain Charge		Q_{gd}	-	1.1	-	
Gate plateau voltage		$V_{plateau}$	-	5.0	-	V
Diode forward current	VGS<Vth	I_S	-	-	7	A
Pulsed Source Current		I_{SP}	-	-	21	A
Diode Forward Voltage	V_{GS}=0V , I_S=7A	V_{SD}	-	-	1.0	V
Reverse Recovery Time	I_S=5A , dI/dt=100A/μs	t_{rr}	-	32.1	-	ns
Reverse Recovery Charge		Q_{rr}	-	39.4	-	nC
Peak reverse recovery current		I_{rrm}	-	2.1	-	A

Note :
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 .The EAS data shows Max. rating .
3、The test condition is V≦ 300us , duty cycle VDD=50 V, RG=25Ω, L=0.1 mH, starting Tj=25 °C.
4、The power dissipation is limited by 150℃ 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

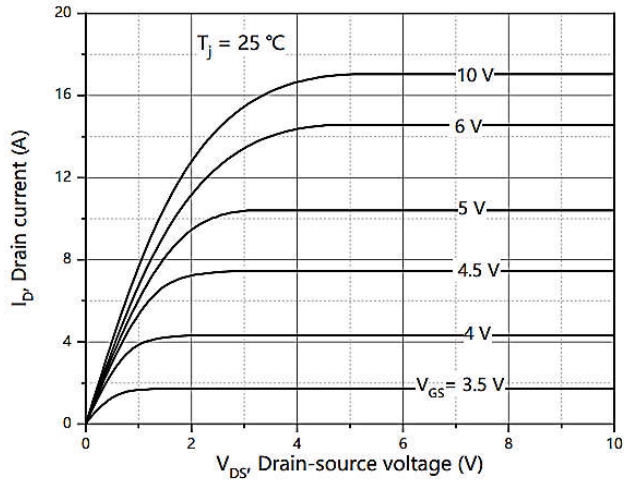


Figure 1. Typ. output characteristics

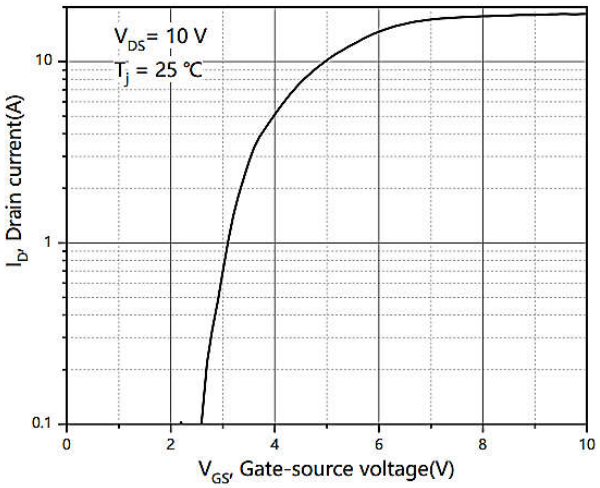


Figure 2. Typ. transfer characteristics

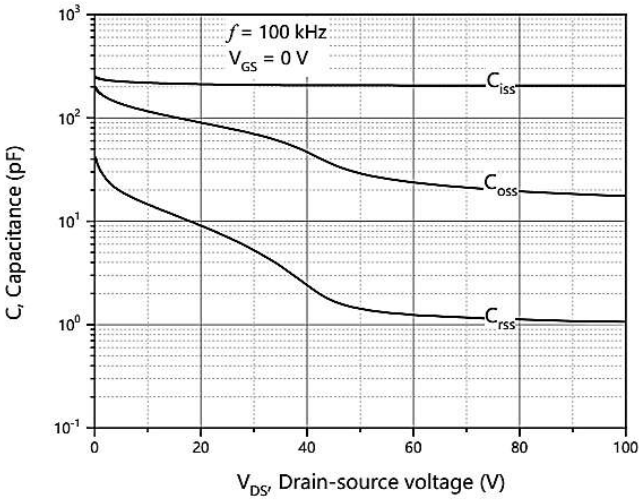


Figure 3. Typ. capacitances

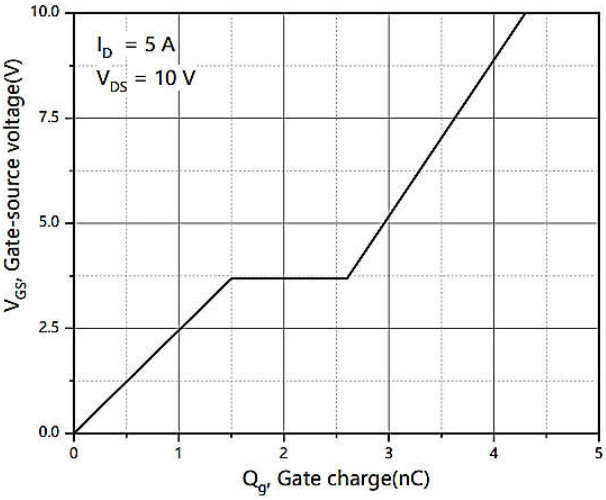


Figure 4. Typ. gate charge

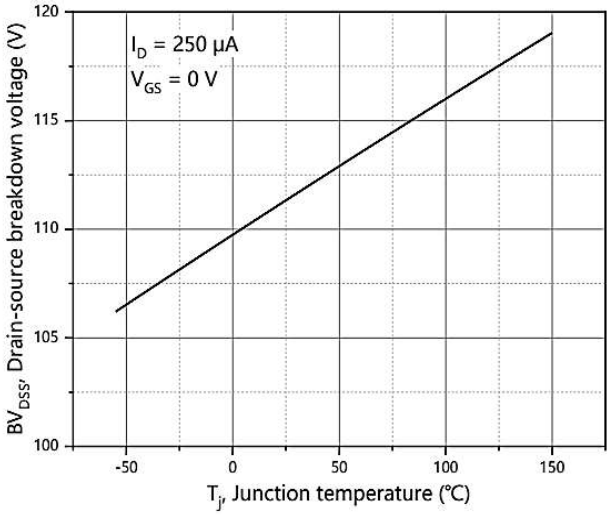


Figure 5. Drain-source breakdown voltage

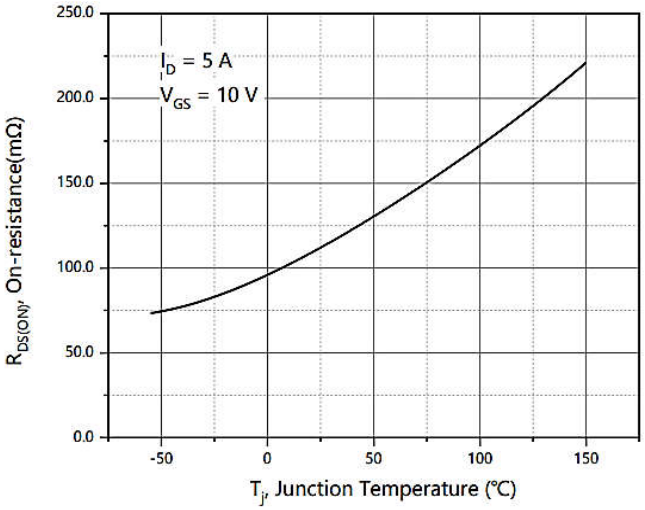


Figure 6. Drain-source on-state resistance

Ratings and Characteristic Curves

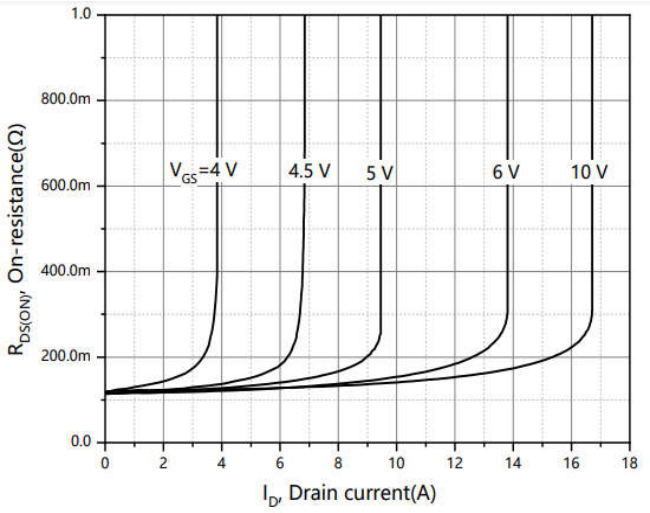


Figure 7. Drain-source on-state resistance

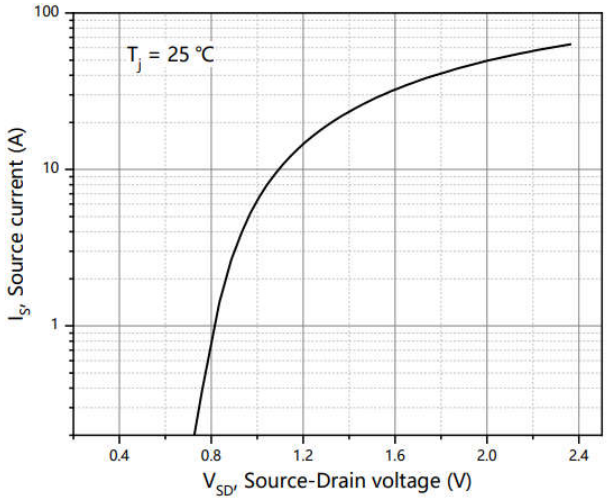


Figure 8. Forward characteristic of body diode

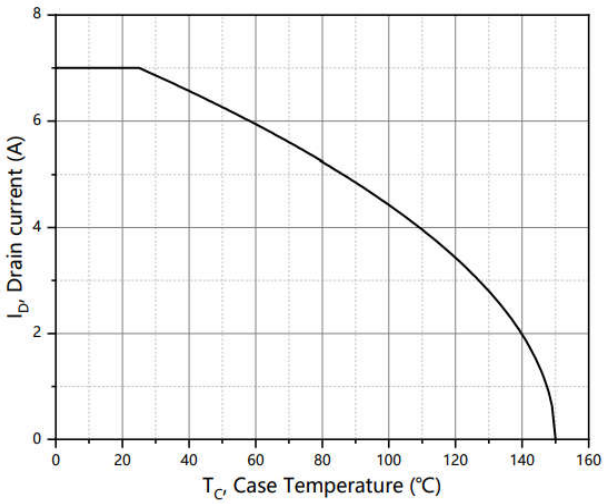


Figure 9. Drain current

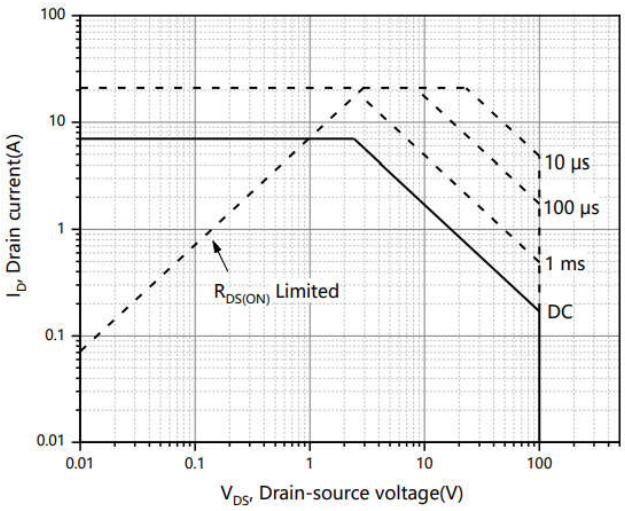
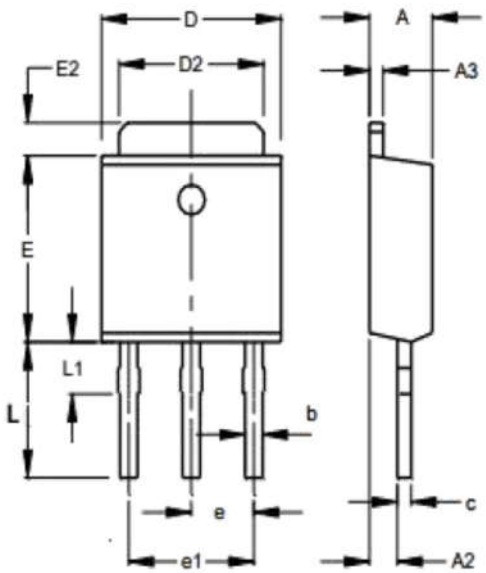


Figure 10. Safe operation area T_C=25 ℃

Package Outline Dimensions Millimeters

TO-251



Dim.	Min.	Max.
A	2.2	2.4
A2	0.95	1.15
A3	0.45	0.65
b	0.65	0.85
c	0.45	0.55
D	6.45	6.75
D2	5.2	5.4
E	5.8	6
E2	0.95	1.25
e	Typ 2.3	
e1	Typ 4.6	
L	4	4.2
L1	1.2	1.5

All Dimensions in millimeter