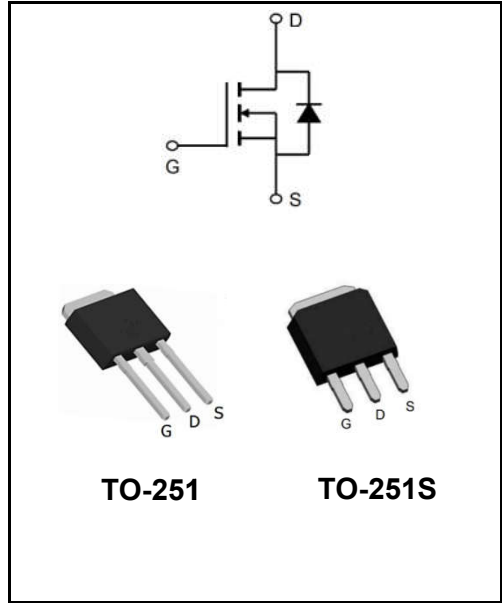


30V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	100A
V_{DSS}	30V
$R_{DS(on)-typ}(@V_{GS}=10V)$	< 6.5mΩ (Type:4.5 mΩ)



Application

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

Product Specification Classification

Part Number	Package	Marking	Pack
YFW100N03AMJ	TO-251	YFW 100N03AMJ XXXXX	4000PCS/Tape
YFW100N03AMJ	TO-251S	YFW 100N03AMJ XXXXX	4000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	30	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current, $V_{GS} @ 10V^1 @ T_C=25^\circ C$	I_D	100	A
Continuous Drain Current, $V_{GS} @ 10V^1 @ T_C=75^\circ C$	I_D	55	A
Pulsed Drain Current ²	I_{DM}	240	A
Single Pulse Avalanche Energy ³	E_{AS}	56	mJ
Avalanche Current	I_{AS}	15	A
Total Power Dissipation ⁴ @ $T_C=25^\circ C$	P_D	46	W
Total Power Dissipation ⁴ @ $T_A=25^\circ C$	P_D	2.72	W
Storage Temperature Range	T_{STG}	-55 to +175	°C
Operating Junction Temperature Range	T_J	-55 to +175	°C
Thermal Resistance, Junction-to-Ambient ¹	$R_{\theta JA}$	62	°C/W
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	2.72	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	V(BR)DSS	30	32	-	V
Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$	I_{DSS}	-	-	1.0	μA
Gate to Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	±100	nA
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	V_{GS(th)}	1.0	1.5	2.5	V
Static Drain-Source on-Resistance	$V_{GS}=10V, I_D=30A$	R_{DS(ON)}	-	4.5	6.5	mΩ
	$V_{GS}=4.5V, I_D=20A$		-	7.5	12	
Input Capacitance	$V_{DS}=15V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	1614	-	μF
Output Capacitance		C_{oss}	-	245	-	
Reverse Transfer Capacitance		C_{rss}	-	215	-	
Total Gate Charge	$V_{DS}=15V$ $I_D=30A$ $V_{GS}=10V$	Q_g	-	33.7	-	nC
Gate-Source Charge		Q_{gs}	-	8.5	-	
Gate-Drain("Miller") Charge		Q_{gd}	-	7.5	-	
Turn-on delay time	$V_{DS}=15V$ $I_D=30A$ $R_{GEN}=3\Omega$ $V_{GS}=10V$	t_{d(on)}	-	7.5	-	ns
Turn-on Rise Time		T_r	-	14.5	-	
Turn-Off Delay Time		t_{d(OFF)}	-	35.2	-	
Turn-Off Fall Time		t_f	-	9.6	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	70	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}	-	-	280	A
Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=30A$	V_{SD}	-	-	1.2	V

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 $\cong 300\mu s$, duty cycle $\cong 2\%$
- 3、 The EAS data shows Max. rating . The test condition is $V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=15A$
- 4、 The power dissipation is limited by 175°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

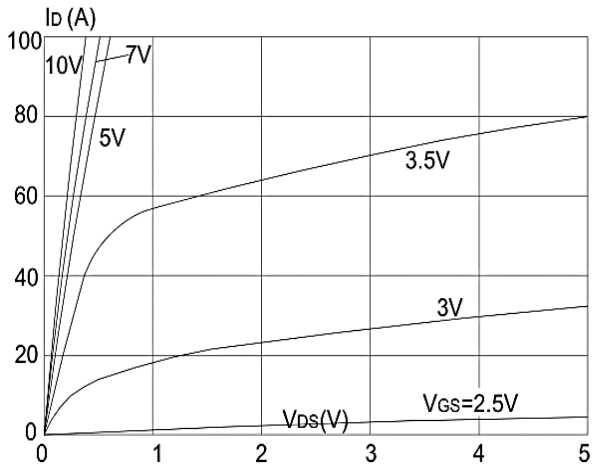


Figure 1: Output Characteristics

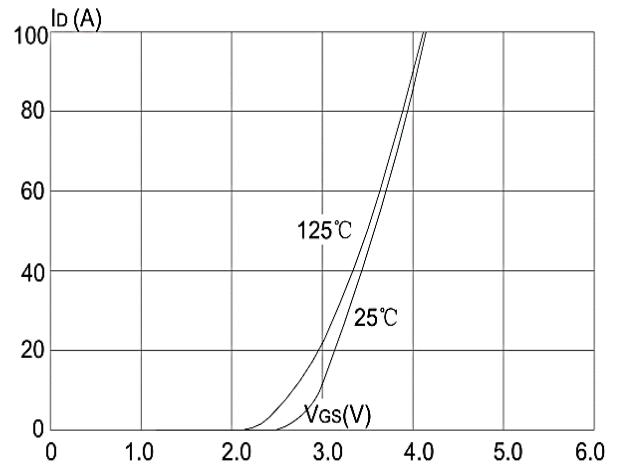


Figure 2: Typical Transfer Characteristics

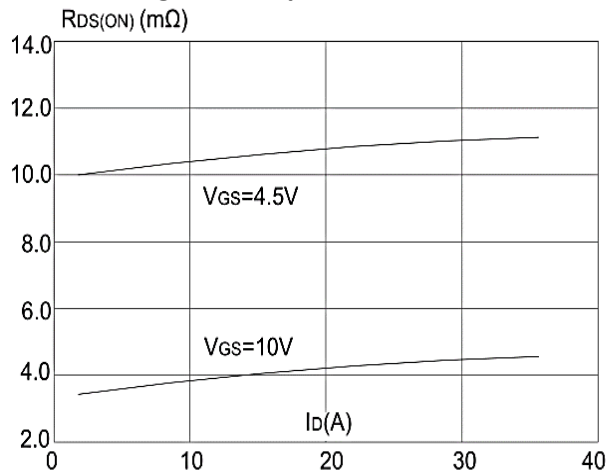


Figure 3: On-resistance vs. Drain Current

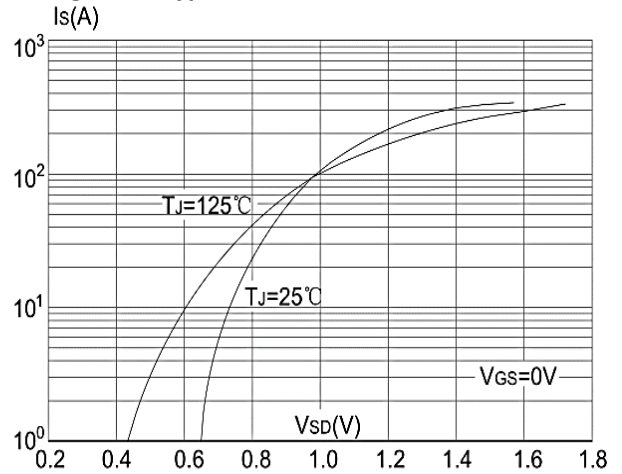


Figure 4: Body Diode Characteristics

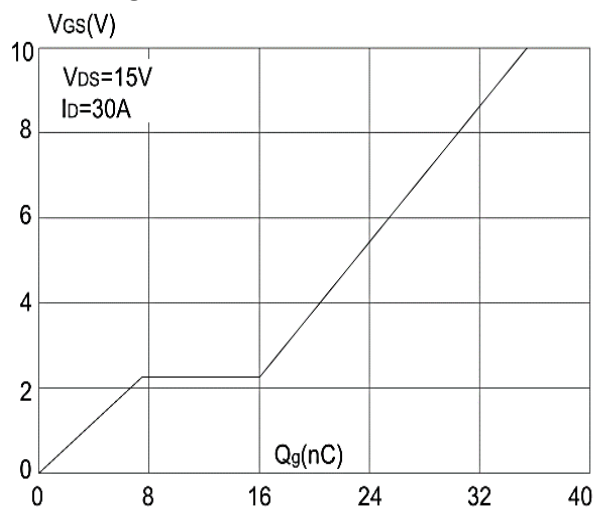


Figure 5: Gate Charge Characteristics

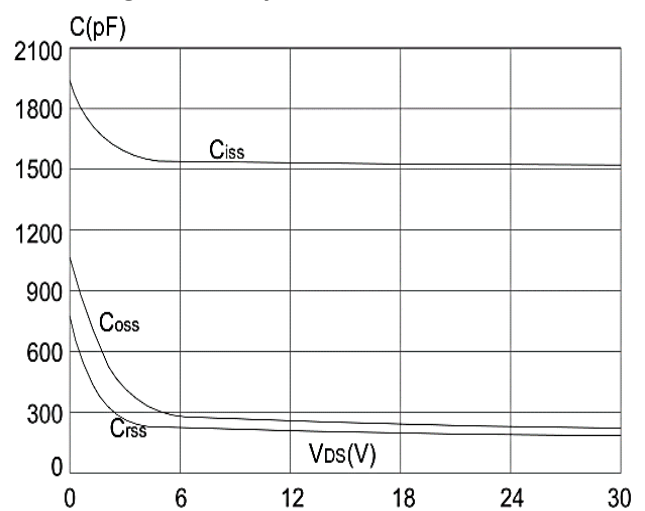


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

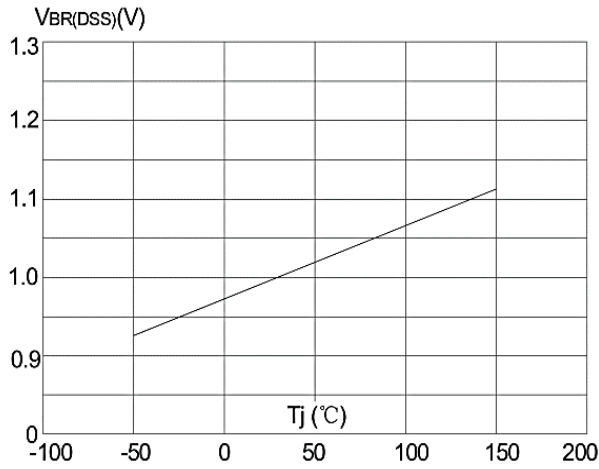


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

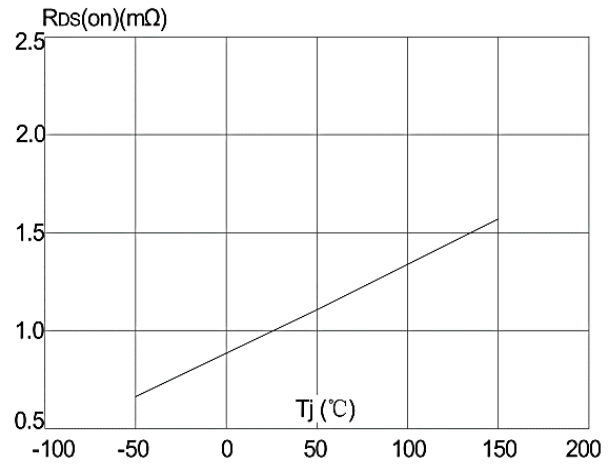


Figure 8: Normalized on Resistance vs. Junction Temperature

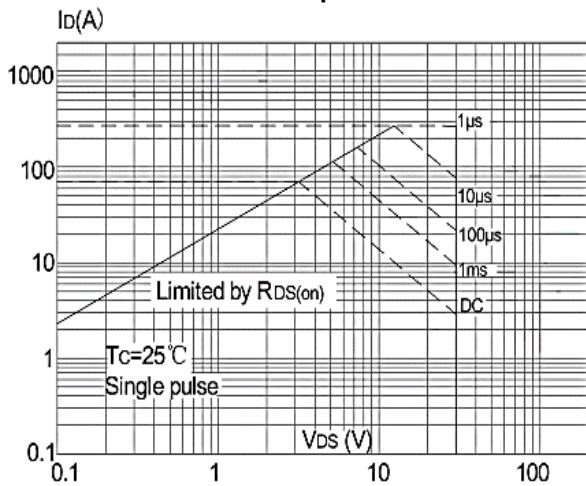


Figure 9: Maximum Safe Operating Area vs. Case Temperature

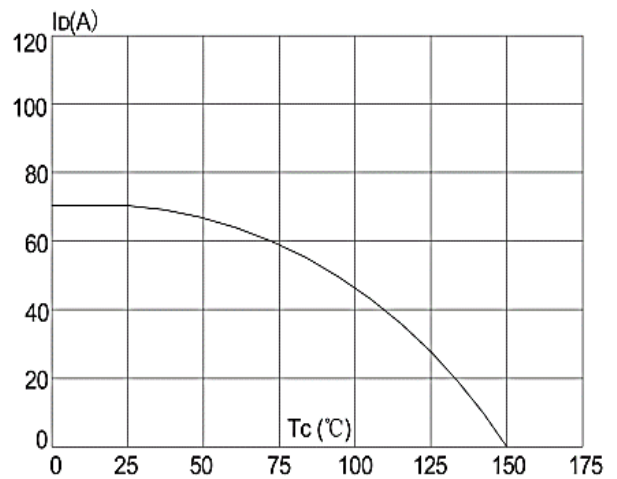


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

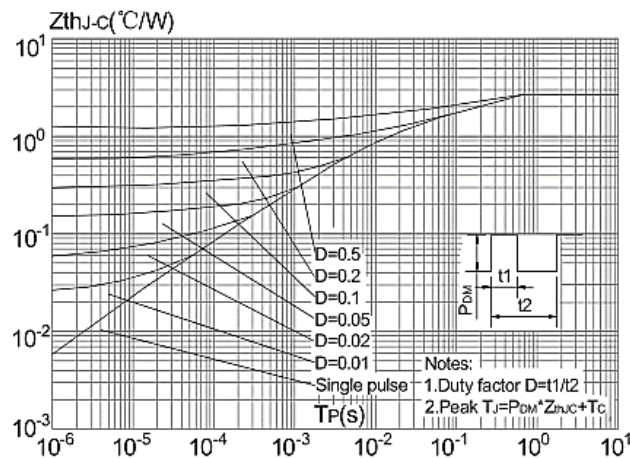


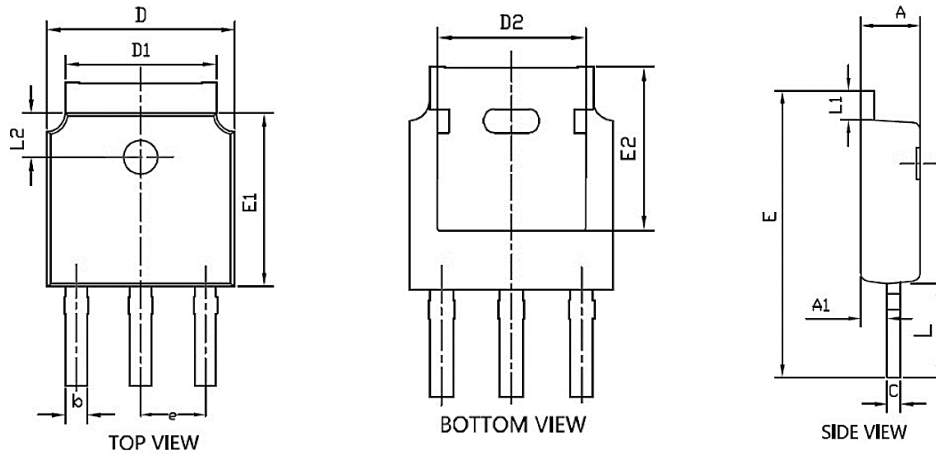
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ca

Ratings and Characteristic Curves

TO-251

Pef.	Dimensions					
	Millometers			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.088		0.095
A2	0.90		1.20	0.035		0.047
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
B3	0.76		0.85	0.030		0.033
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G		2.30			0.091	
H	16.0		17.0	0.630		0.669
L	8.90		9.40	0.350		0.370
L1	1.80		1.90	0.071		0.075
L2	1.37		1.50	0.054		0.059
V1		4°			4°	

TO-251S



Symbol	Common		
	mm		
	Mim	Nom	Max
A	2.2	2.3	2.4
A1	0.9	1.0	1.1
b	0.66	0.76	0.86
C	0.46	0.52	0.58
D	6.50	6.6	6.7
D1	5.15	5.3	5.45
D2	4.6	4.8	4.95
E	10.4	----	11.5
E1	6.0	6.1	6.2
E2	5.400REF		
e	2.286BSC		
L	3.5	4.0	4.3
L1	0.9	---	1.27
L2	1.4	---	1.9