

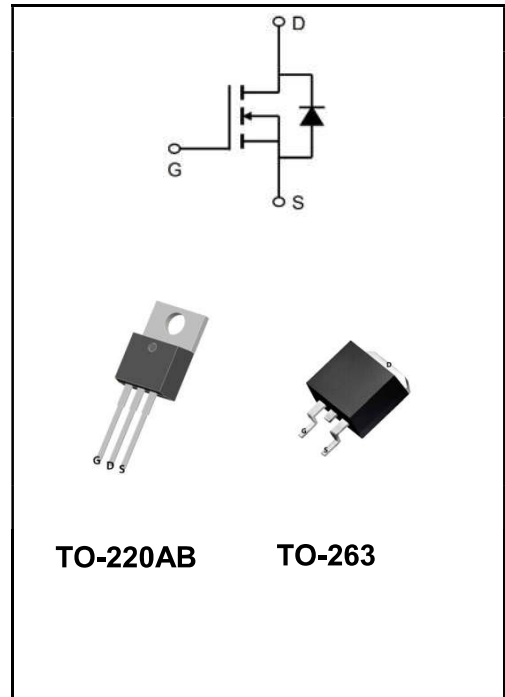
60V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	120A
V_{DSS}	60V
R_{DS(on)-typ(@V_{GS}=10V)}	< 5.6mΩ (Type:4.8 mΩ)

Application

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



Product Specification Classification

Part Number	Package	Marking	Pack
YFW120N06AT	TO-220AB	YFW 120N06AT XXXXX	1000PCS/box
YFW120N06AS	TO-263	YFW 120N06AS XXXXX	800PCS/Reel

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	65	V
Gate - Source Voltage	V_{GS}	±25	V
Continuous drain current ¹⁾	I_D	125	A
Pulsed drain current ²⁾	I_{DM}	492	A
Diode forward current	I_{AS}	55	A
Power dissipation	P_D	172	W
Single pulsed avalanche energy ³⁾	E_{AS}	225	mJ
Operation and storage temperature	T_{STG} , T_J	-55 to +150	°C
Thermal Resistance Junction-Case	R_{θJC}	1.4	°C/W
Thermal Resistance, Junction-to-Ambient ⁴⁾	R_{θJA}	62.5	°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	60	72	-	V
Zero Gate Voltage Drain Current	$V_{DS}=60V, V_{GS}=0V$	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)}	2.0	2.8	4.0	V
Static Drain-Source on-Resistance note	$V_{GS}=10V, I_D=55A$	R_{DS(ON)}	-	4.8	5.6	mΩ
Input Capacitance	$V_{DS}=30V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	3135	-	pF
Output Capacitance		C_{oss}	-	521	-	
Reverse Transfer Capacitance		C_{rss}	-	306	-	
Total Gate Charge	$V_{DS}=30V$ $I_D=55A$ $V_{GS}=10V$	Q_g	-	77	-	nC
Gate-Source Charge		Q_{gs}	-	18	-	
Gate-Drain("Miller") Charge		Q_{gd}	-	30	-	
Turn-on delay time	$V_{DS}=30V, I_D=55A$ $R_G=1.8\Omega, V_{GS}=10V$	t_{d(on)}	-	15	-	ns
Turn-on Rise Time		T_r	-	89	-	
Turn-Off Delay Time		t_{d(OFF)}	-	36	-	
Turn-Off Fall Time		t_f	-	91	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	123	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}	-	-	492	A
Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=30A$	V_{SD}	-	-	1.2	V
Body Diode Reverse Recovery Time	$I_F=550A, di/dt=100A/\mu s$	t_{rr}	-	32	-	ns
Body Diode Reverse Recovery Charge		Q_{rr}	-	31	-	nC

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 cond \cong 300us duty cycle \cong 2%, duty cycle ition is $T_J=25^\circ C, V_{DD}=35V, V_G=10V, R_G=25\Omega, L=0.5mH, I_{AS}=55A$
- 4、 The power dissipation is limited by $175^\circ C$ 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

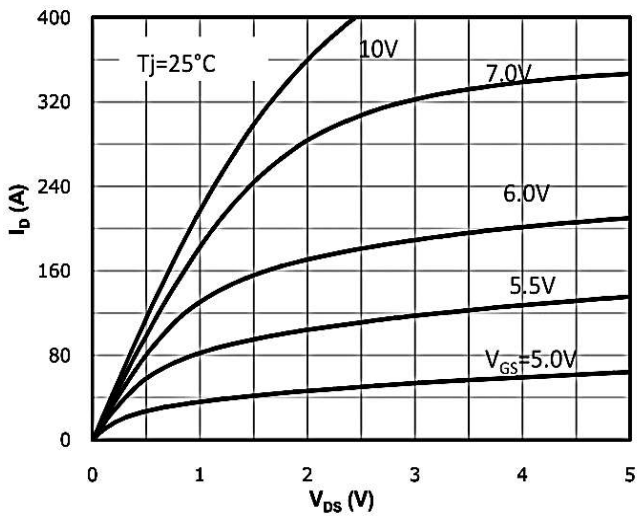


Figure 1: Output Characteristics

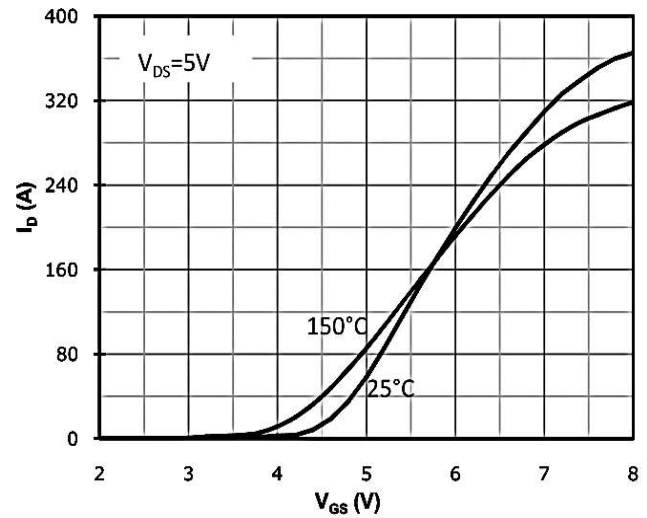


Figure 2: Typical Transfer Characteristics

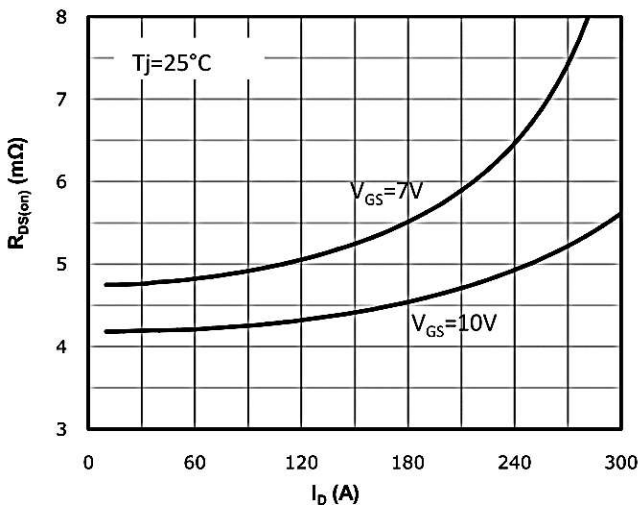


Figure 3: Rds(on) vs Drain Current and

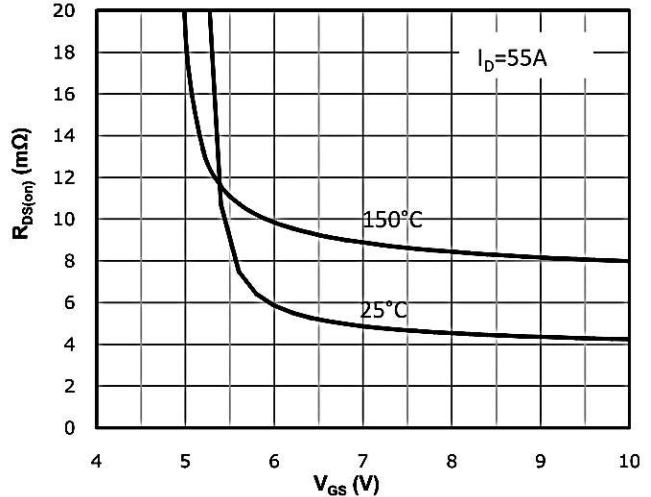


Figure 4: Rds(on) vs Gate Voltage

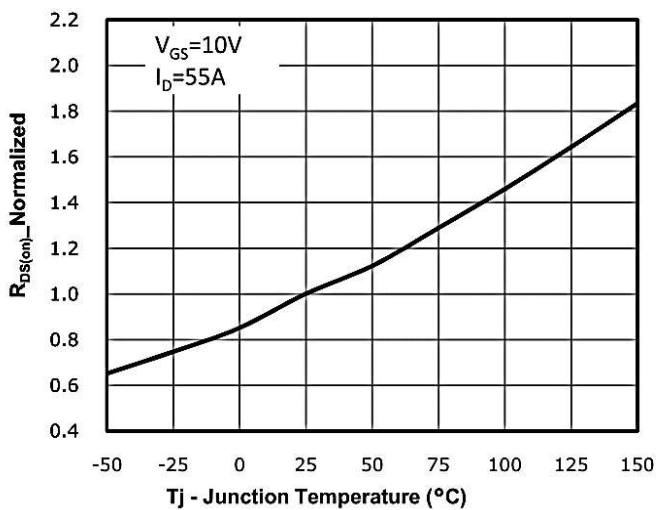


Figure 5: Rds(on) vs. Temperature

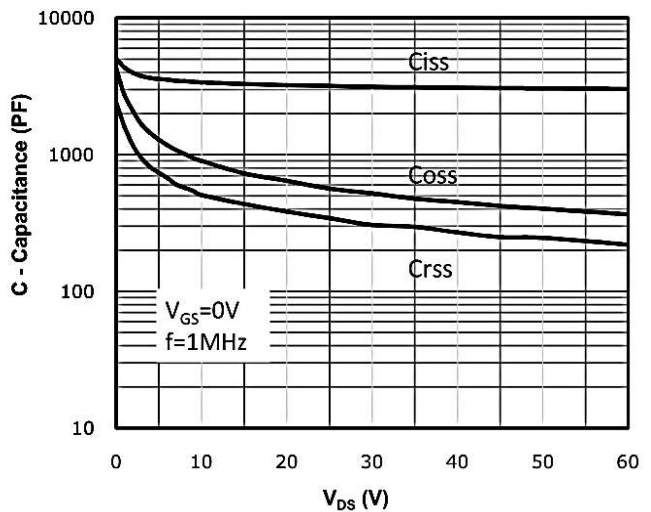


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

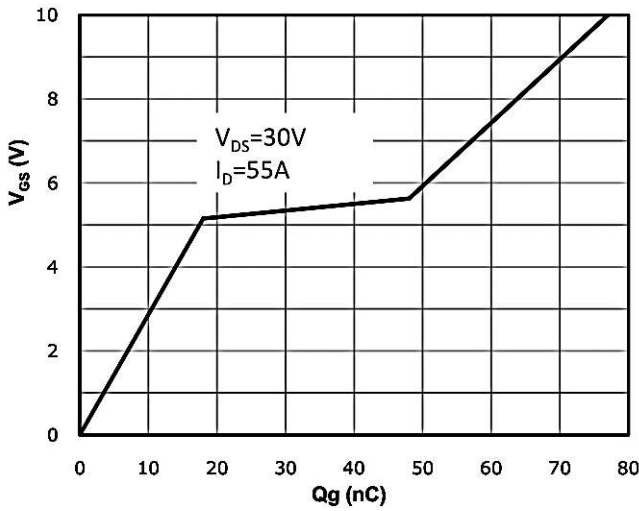


Figure 7: Gate Charge Characteristics

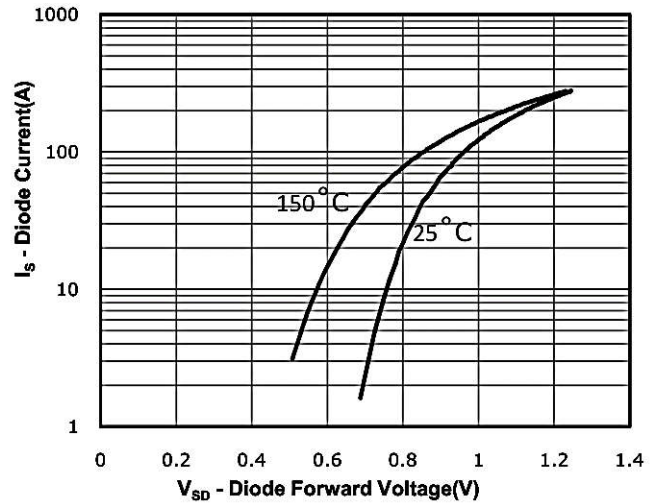


Figure 8: Body-diode Forward Characteristics

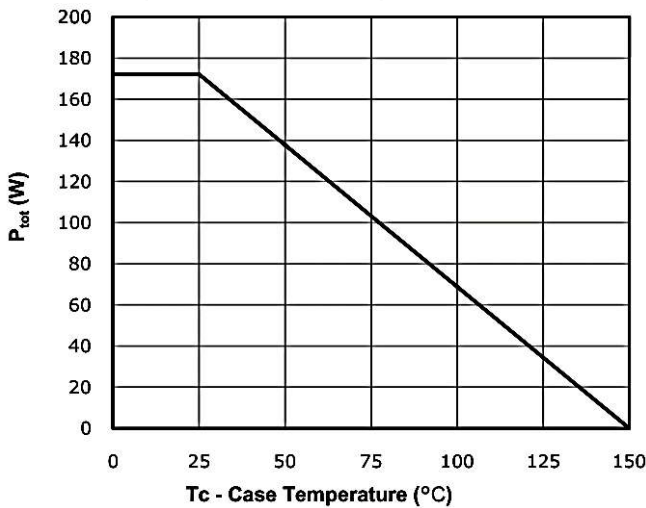


Figure 9: Power Dissipation

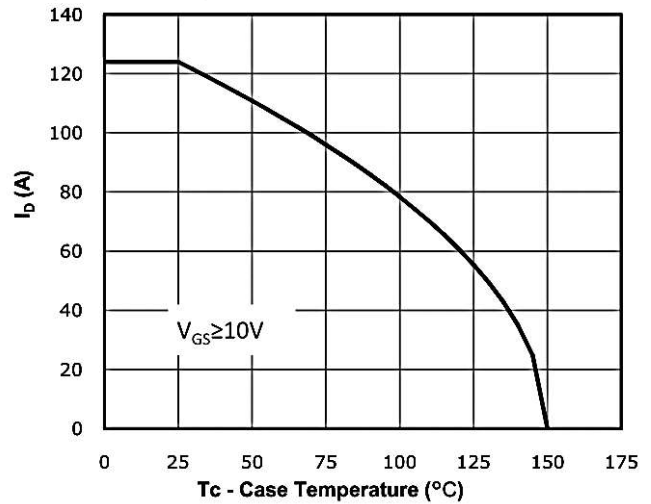


Figure 10: Drain Current Derating

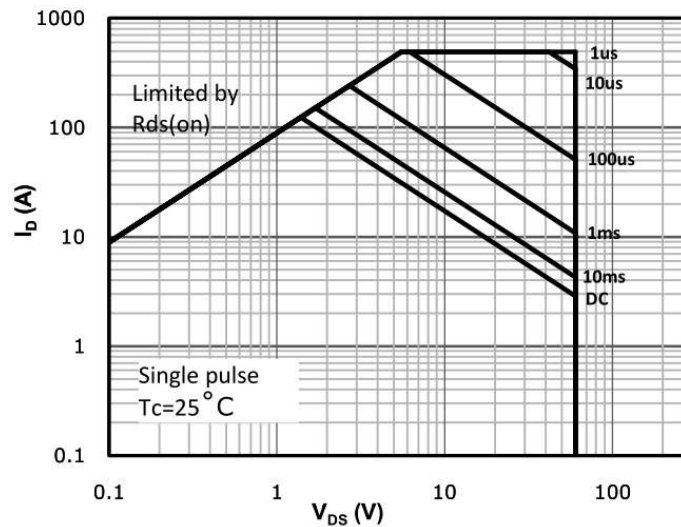


Figure.11: Safe Operating Area

Package Outline Dimensions Millimeters

TO-220AB

	Dim.	Min.	Max.
	A	10.15	10.35
	B	2.65	2.95
	C	3.70	3.90
	D	28.5	29.5
	E	1.30	1.45
	F	6.35	6.55
	G	2.9	3.3
	H	15.0	16.0
	I	0.38	0.42
	J	4.45	4.55
	K	1.25	1.35
	L	Typ 5.08	
	M	Typ 2.54	
N	3.1	3.3	
O	0.76	0.84	
All Dimensions in millimeter			

TO-263

	Dim.	Min.	Max.
	A	10.1	10.2
	B	7.4	7.6
	C	1.3	1.5
	D	0.55	0.75
	E	5.0	6.0
	F	1.4	1.6
	G	0.78	0.86
	H	1.2	1.3
	I	Typ 2.54	
	J	8.4	8.6
	K	4.45	4.55
	L	1.25	1.35
	M	0.02	0.1
N	2.4	2.8	
O	0.36	0.40	
All Dimensions in millimeter			