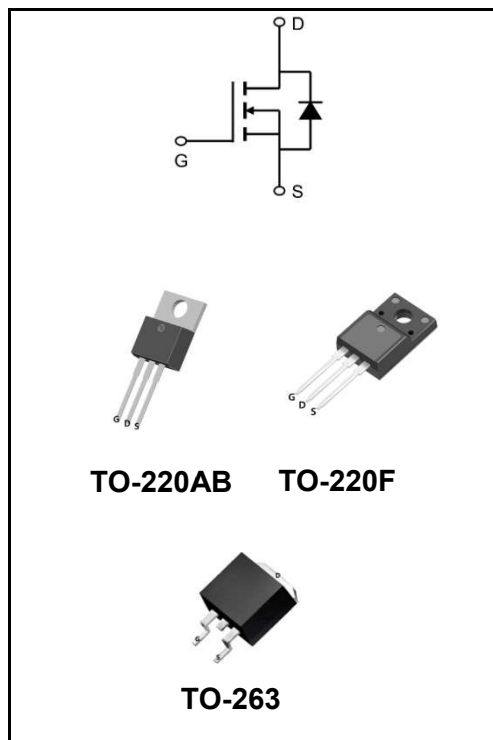


30V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	100A
V_{DSS}	30V
$R_{DS(on)-typ}(@V_{GS}=10V)$	< 5.5mΩ (Type: 4.5 mΩ)



Application

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



Product Specification Classification

Part Number	Package	Marking	Pack
YFW100N03AT	TO-220AB	YFW 100N03AT XXXXX	1000PCS/Tape
YFW100N03AF	TO-220F	YFW 100N03AF XXXXX	1000PCS/Tape
YFW100N03AS-R	TO-263	YFW 100N03AS XXXXX	800PCS/Tube

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 @T _C =25°C	I_D	100	A
Continuous Drain Current, V_{GS} @ 10V @T _C =100°C	I_D	46	A
Pulsed Drain Current ^{note1}	I_{DM}	300	A
Single Pulsed Avalanche Energy ^{note2}	E_{AS}	56	mJ
Total Power Dissipation ⁴ @T _C =25°C	P_D	68	W
Thermal Resistance Junction-ambient (Steady State) ¹	$R_{\theta JA}$	62	°C/W
Thermal Resistance Junction-Ambient 1 (t ≤ 10s)	$R_{\theta JA}$	25	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.2	°C/W
Operating Junction Temperature Range	T _J , T _{STG}	-55 to +175	°C

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	30	32	-	V
BVDSS Temperature Coefficient	Reference to 25℃, ID=1mA	ΔBV _{DSS} /ΔT _J	-	0.028	-	V/°C
Gate -Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	V _{GS(th)}	1.2	1.6	2.5	V
Static Drain-Source on-Resistance note3	V _{GS} =10V, I _D =30A	R _{DS(ON)}	-	4.5	5.5	mΩ
	V _{GS} =4.5V, I _D =20A		-	8.0	9.5	
Zero Gate Voltage Drain Current	V _{DS} =30V , V _{GS} =0V	I _{DSS}	-	-	1.0	μA
Gate to Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	I _{GSS}	-	-	±100	nA
Input Capacitance	V _{DS} =15V V _{GS} =0V f=1.0MHz	C _{iss}	-	1614	-	pF
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} =3Ω 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 .The EAS data shows Max. rating .
- 3、The test cond $\leq 300\mu s$ duty cycle $\leq 2\%$, duty cycle ition is $V_{DD}=24V, V_{GS}=10V, L=0.1mH, I_{AS}=15A$
- 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

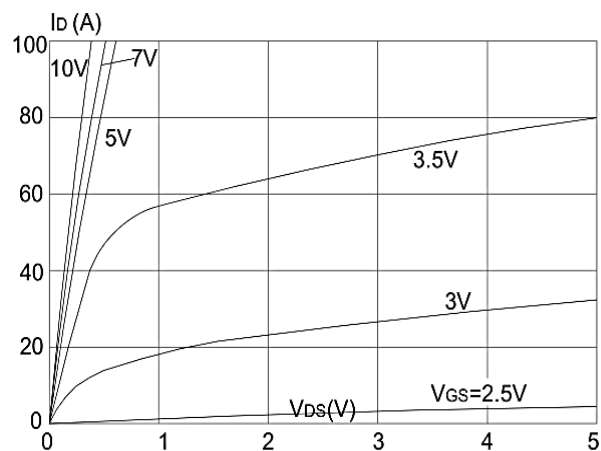


Figure1: Output Characteristics

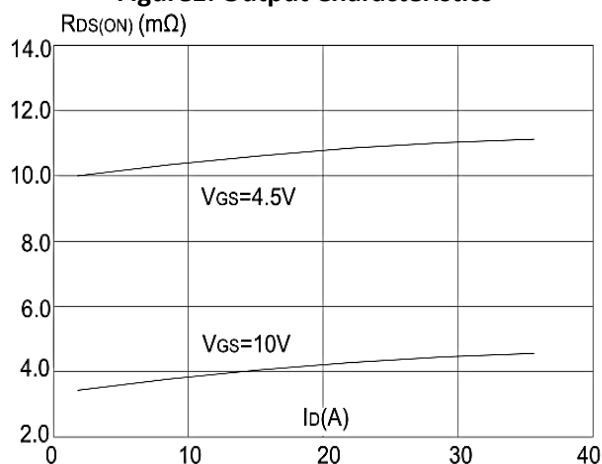


Figure 3: On-resistance vs. Drain Current

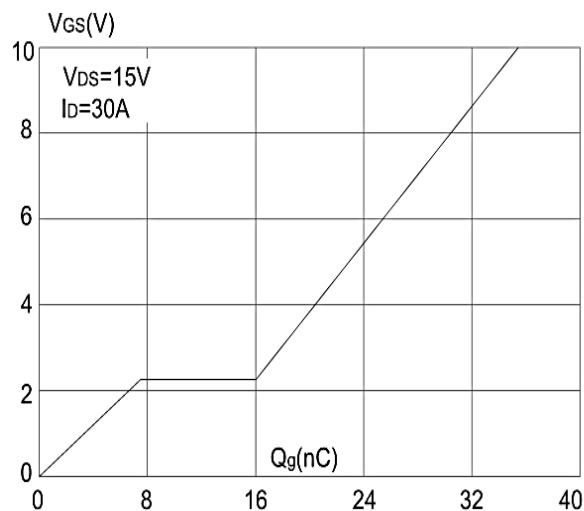


Figure 5: Gate Charge Characteristics

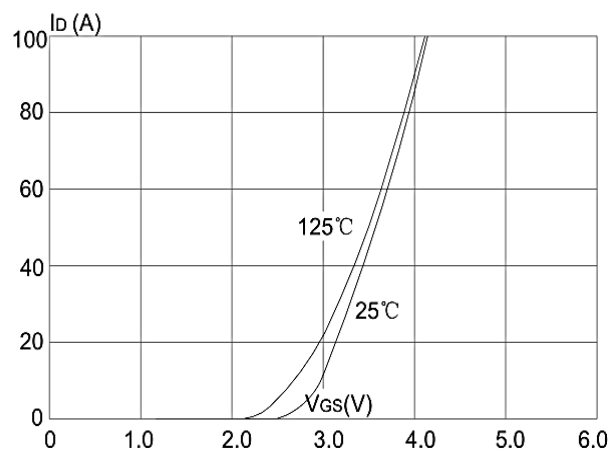


Figure 2: Typical Transfer Characteristics

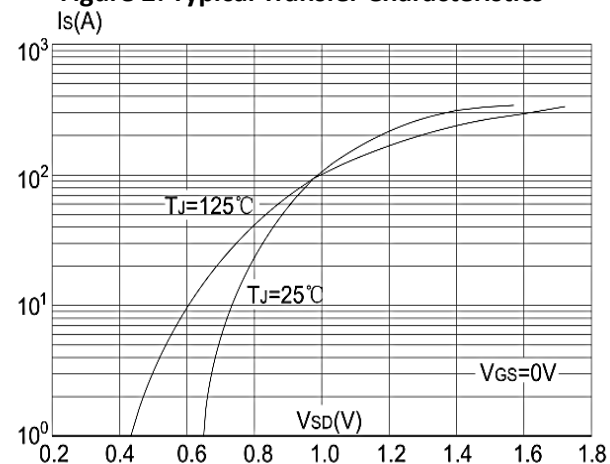


Figure 4: Body Diode Characteristics

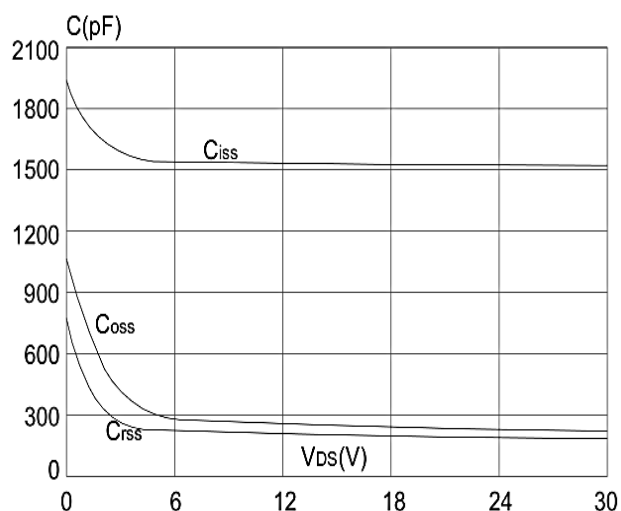


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

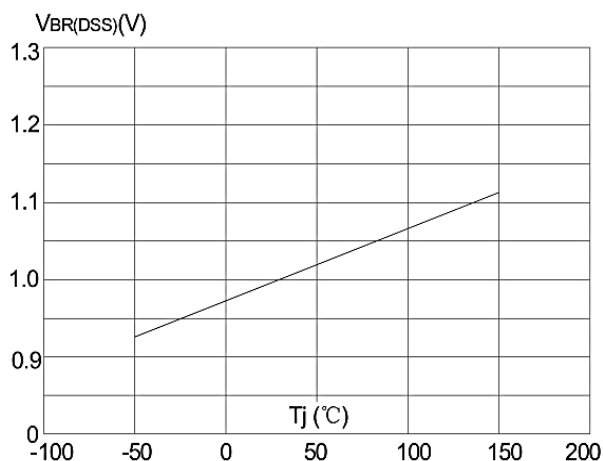


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

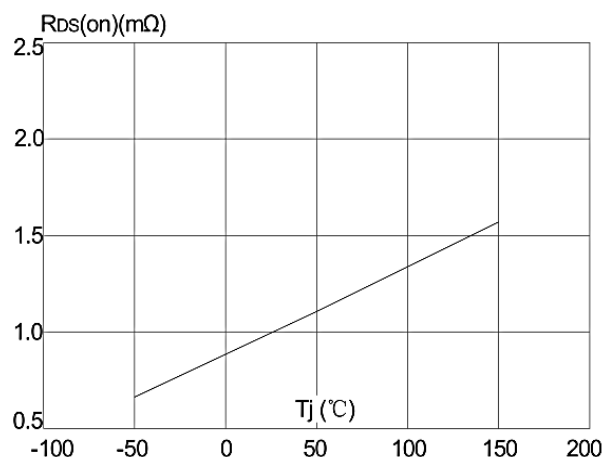


Figure 8: Normalized on Resistance vs. Junction Temperature

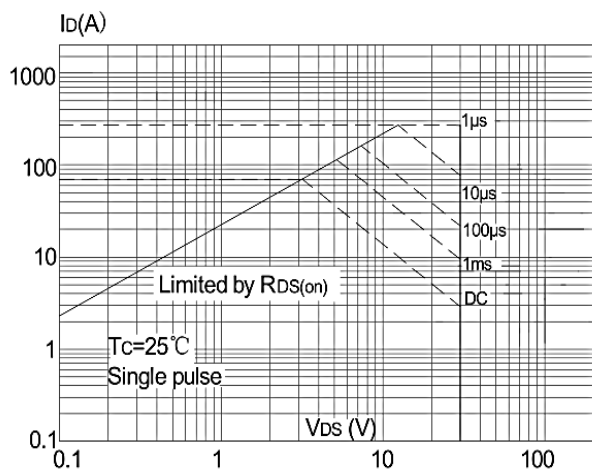


Figure 9: Maximum Safe Operating Area vs. Case Temperature

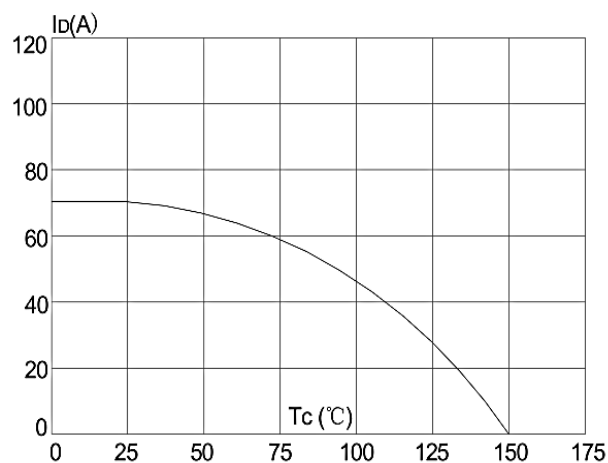


Figure 10: Maximum Continuous Drain Current

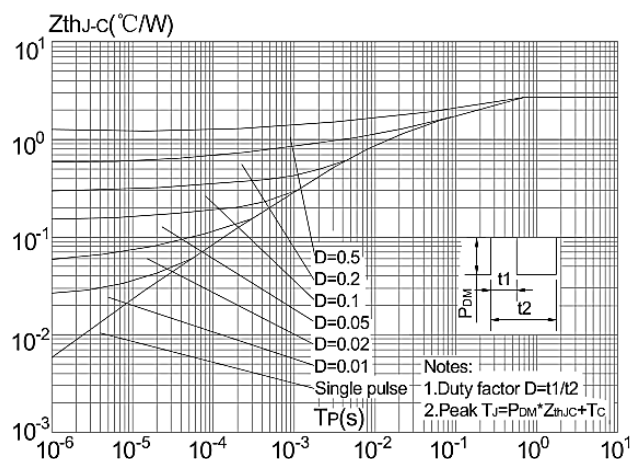
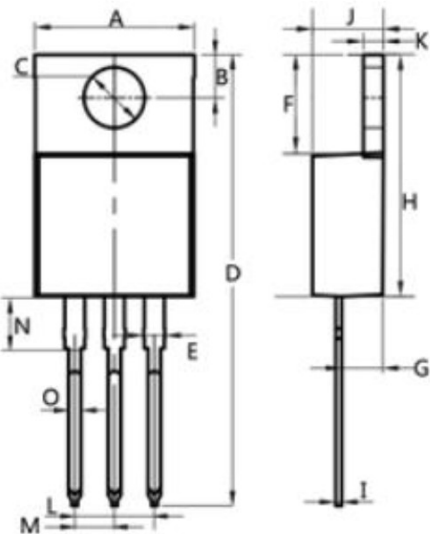


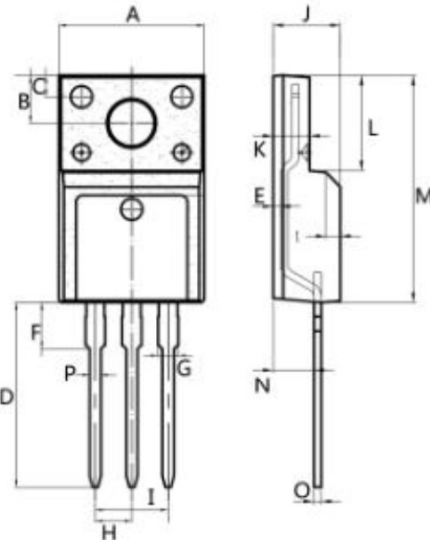
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

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-220F

	Dim.	Min.	Max.
	A	9.95	10.25
	B	2.95	3.25
	C	1.25	1.45
	D	12.95	13.25
	E	0.50	0.65
	F	3.1	3.3
	G	1.30	1.45
	H	Typ 2.54	
	I	Typ 5.08	
	J	4.60	4.75
	K	2.50	2.65
	L	6.35	6.55
	M	15.4	16.0
	N	2.75	3.05
	O	0.48	0.52
	P	0.76	0.84
All Dimensions in millimeter			

Package Outline Dimensions Millimeters

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			