

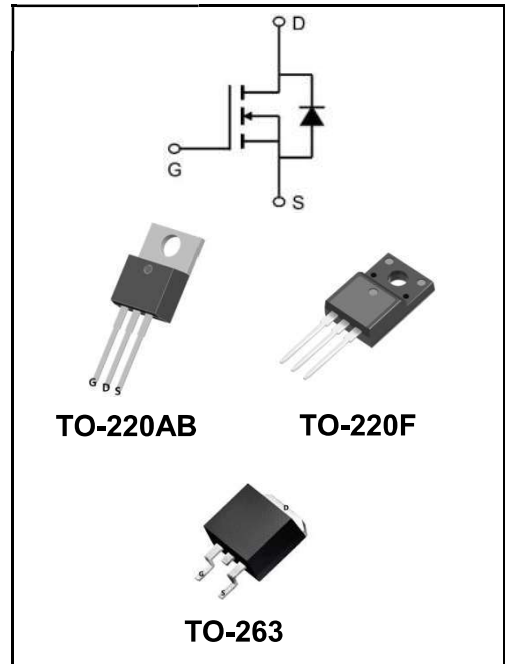
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	70A
V_{DSS}	100V
$R_{DS(on)-typ}(@V_{GS}=10V)$	< 14mΩ (Type:12 mΩ)

Application

- ◆ Power amplifier
- ◆ motor drive



Product Specification Classification

Part Number	Package	Marking	Pack
YFW70N10AT	TO-220AB	YFW 70N10AT XXXXX	1000PCS/Box
YFW70N10AF	TO-220F	YFW 70N10AF XXXXX	1000PCS/Box
YFW70N10AS	TO-263	YFW 70N10AS XXXXX	800PCS/Reel

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Continuous Drain Current	I_D	70	A
Pulsed Drain Current	I_{DM}	560	A
Gate - Source Voltage	V_{GS}	±20	V
Single Pulse Avalanche Energy	E_{AS}	2943	mJ
Avalanche Current	I_{AR}	32	A
Repetitive Avalanche Energy	E_{AR}	36	mJ
Power Dissipation (Tc=25°C)	P_D	500	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +175	°C
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	0.75	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	82	°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	100	-	-	V
Zero Gate Voltage Drain Current	$V_{DS}=100V, V_{GS}=0V, T_J=25^\circ C$	I_{DSS}	-	-	1	μA
	$V_{DS}=80V, V_{GS}=0V, T_J=125^\circ C$		-	-	100	
Gate Source Leakage	$V_{GS}=20V, V_{DS}=0V$	I_{GSS}	-	-	100	nA
	$V_{GS}=-20V, V_{DS}=0V$		-	-	-100	
Gate-Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	V_{GS(th)}	2.0	-	4.0	V
Drain-Source On-Resistance (Note3)	$V_{GS}=10V, I_D=28A$	R_{DS(ON)}	-	12	14	mΩ
Forward Transconductance	$V_{DS}=10V, I_D=28A$	g_{fs}	-	85	-	S
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	5600	-	μF
Output Capacitance		C_{oss}	-	610	-	
Reverse Transfer Capacitance		C_{rss}	-	260	-	
Total Gate Charge	$V_{DD}=50V$ $I_D=28A$ $V_{DS}=0$ to 10V	Q_g	-	60	-	nC
Gate-Source Charge		Q_{gs}	-	15	-	
Gate-Drain Charge		Q_{gd}	-	45	-	
Turn-on delay time	$V_{DD}=50V$ $I_D=28A$ $V_{GS}=10V$ $R_G=2.5\Omega$	t_{d(on)}	-	20	-	ns
Turn-on Rise Time		T_r	-	28	-	
Turn-Off Delay Time		t_{d(OFF)}	-	65	-	
Turn-Off Fall Time		t_f	-	15	-	
Continuous Body Diode Current	$T_C=25^\circ C$	I_S	-	-	57	A
Pulsed Diode Forward Current		I_{SM}	-	-	230	
Body Diode Voltage	$T_J=25^\circ C, I_{SD}=28A, V_{GS}=0V$	V_{SD}	-	-	1.5	V
Reverse Recovery Time	$V_{GS}=0V, I_S=28A, di/dt=100A/\mu s$	t_{rr}	-	195	-	ns
Reverse Recovery Charge		Q_{rr}	-	107	-	nC

Notes

- 1、Repetitive Rating: Pulse width limited by maximum junction temperature
- 2、IAS = 58A, VDD = 50V, RG = 25 Ω, Starting TJ = 25 °C
- 3、Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 1%

Typical Characteristics

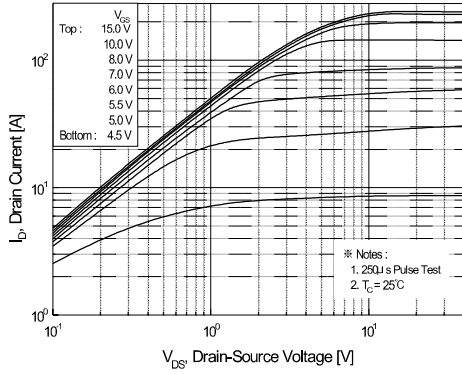


Figure 1. On-Region Characteristics

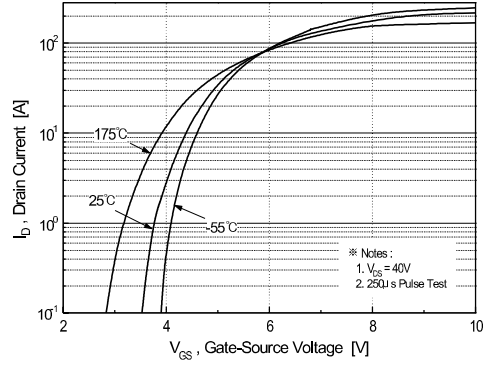


Figure 2. Transfer Characteristics

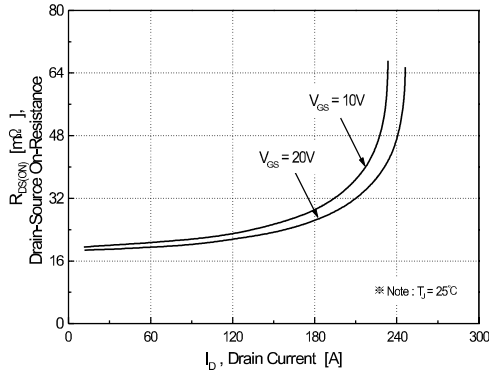


Figure 3. On-Resistance Variation vs. Drain Current and Gate Voltage

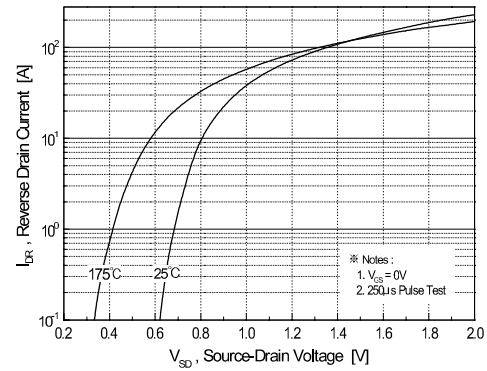


Figure 4. Body Diode Forward Voltage Variation vs. Source Current and Temperature

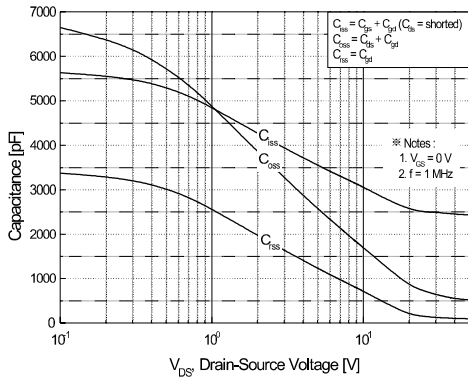


Figure 5. Capacitance Characteristics

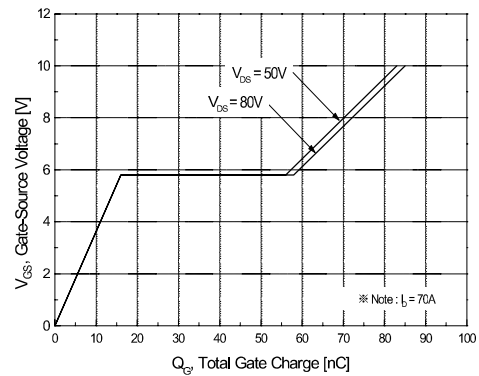


Figure 6. Gate Charge Characteristics

Ratings and Characteristic Curves

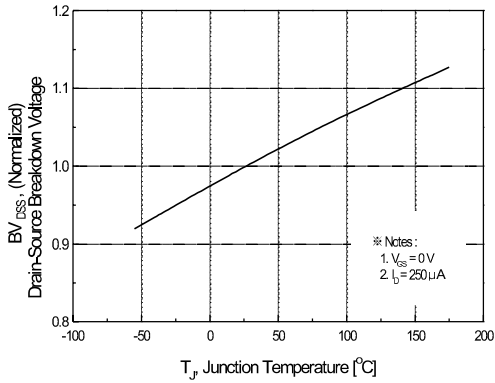


Figure 7. Breakdown Voltage Variation vs. Temperature

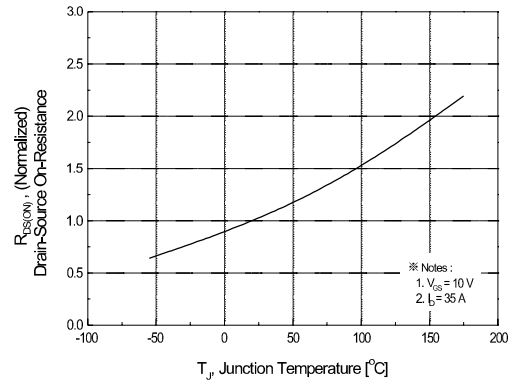


Figure 8. On-Resistance Variation vs. Temperature

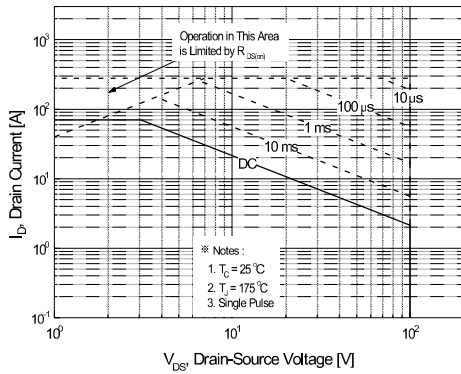


Figure 9. Maximum Safe Operating Area

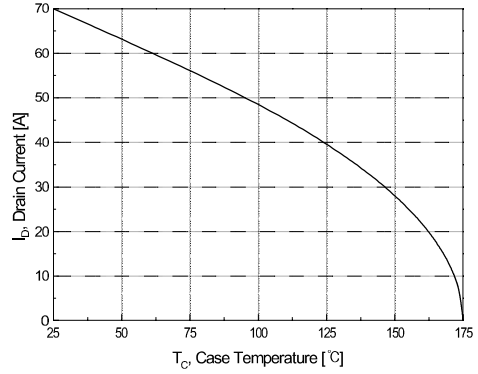


Figure 10. Maximum Drain Current vs. Case Temperature

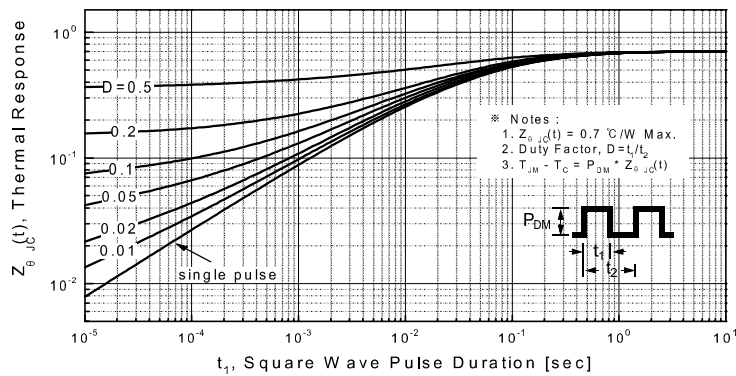


Figure 11. Transient Thermal Response Curve

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	Typ2.54	
	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			