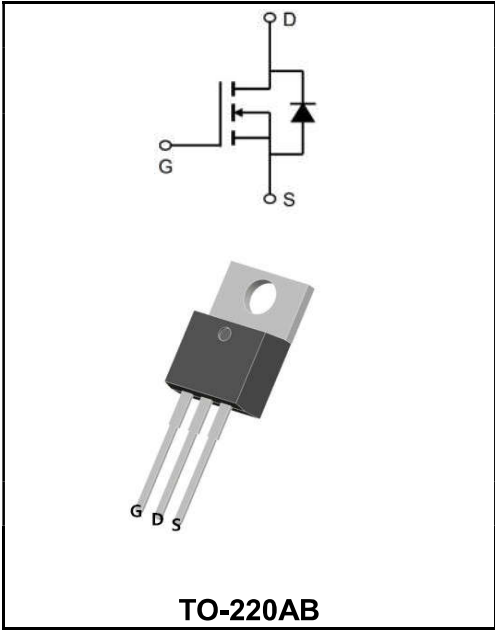


100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	130A
V_{DSS}	100V
R_{DS(on)-typ}(@V_{GS}=10V)	< 4.4 mΩ (Type:3.5 mΩ)



Features

- ◆Fast Switching
- ◆Low ON Resistance
- ◆Low Gate Charge
- ◆100% Single Pulse avalanche energy Test

Product Specification Classification

Part Number	Package	Marking	Pack
YFW130N10AT	TO-220AB	YFW 130N10AT XXXXX	50PCS/Tube

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	I_D	130	A
Pulsed Drain Current (Note1)	I_{DM}	92	A
Total Power Dissipation	P_D	185	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	1000	mJ
Operating Temperature Range	T_J	175	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C
Thermal Resistance Junction to Case	R_{θJC}	0.7	°C/W
Thermal Resistance Junction to Ambient	R_{θJA}	100	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	100	-	-	V
Drain -Source Leakage Current	$V_{DS}=100V, V_{GS}=0V$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	± 100	nA
Gate - Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance (Note 3)	$V_{GS}=10V, I_D=40A$	$R_{DS(ON)}$	-	3.5	4.4	m Ω
Forward Transconductance	$V_{DS}=10V, I_D=60A$	g_{FS}	60	-	-	S
Input Capacitance	$V_{DS}=50V$ $V_{GS}=0V$ $f=1MHz$	C_{iss}	-	5600	-	μF
Output Capacitance		C_{oss}	-	641	-	
Reverse Transfer Capacitance		C_{rss}	-	28	-	
Turn-on delay time(Note 2)	$V_{DD}=50V$ $R_G=4.7\Omega$ $I_D=50A$	$t_{d(on)}$	-	16	-	ns
Rise Time(Note 2)		T_r	-	67	-	
Turn-Off Delay Time(Note 2)		$t_{d(OFF)}$	-	45	-	
Fall Time(Note 2)		t_f	-	14	-	
Total Gate Charge(Note2)	$V_{GS}=10V, I_D=60A, V_{DS}=50V$	Q_G	-	84.7	-	nC
Gate to Source Charge(Note2)		Q_{gs}	-	30.6	-	
Gate to Drain Charge(Note2)		Q_{gd}	-	18.3	-	
Maximun Body-Diode Continuous Current		I_S	-	-	129	A
Drain-Source Diode Forward Voltage	$I_S=129A$	V_{SD}	-	-	1.2	V
Reverse Recovery Time(Note2)	$T_J = 25^\circ C, I_F = I_S, di / dt = 100 A/\mu s$	t_{rr}	-	60	-	ns
Reverse Recovery Charge(Note2)		Q_{rr}	-	140	-	nC

Note1: Pulse test: 300 μs pulse width, 2 % duty cycle

Note 2: Pulse test: 300 μs pulse width, 2 % duty cycle

Ratings and Characteristic Curves

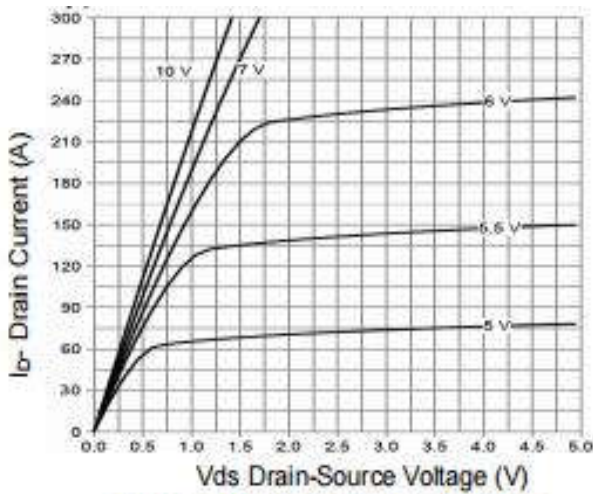


Figure 1 Output Characteristics

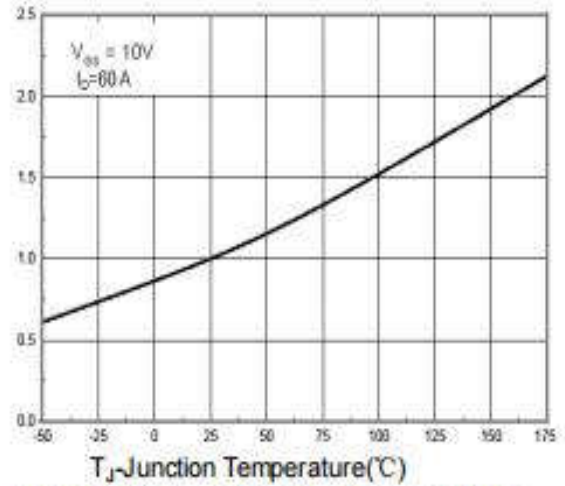


Figure 4 $R_{DS(on)}$ -Junction Temperature

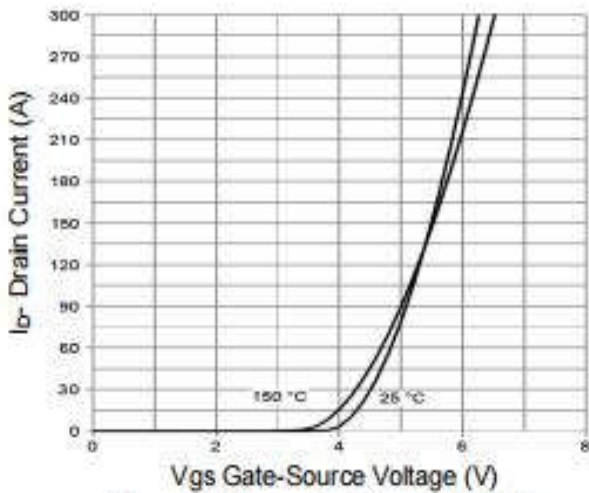


Figure 2 Transfer Characteristics

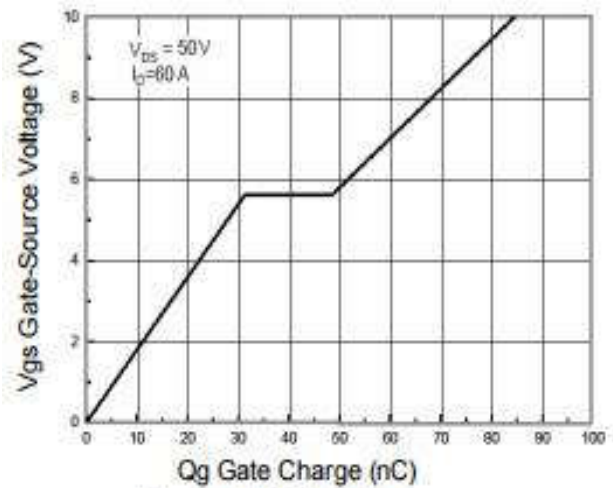


Figure 5 Gate Charge

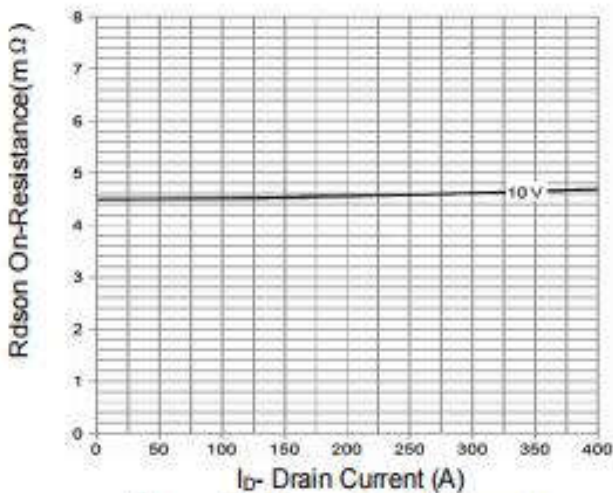


Figure 3 $R_{DS(on)}$ - Drain Current

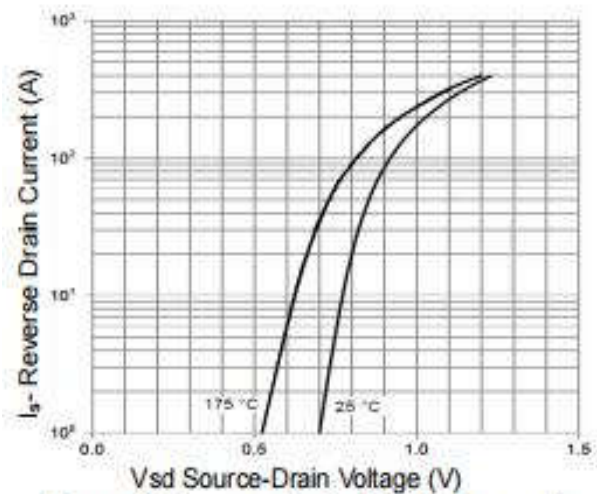


Figure 6 Source- Drain Diode Forward

Ratings and Characteristic Curves

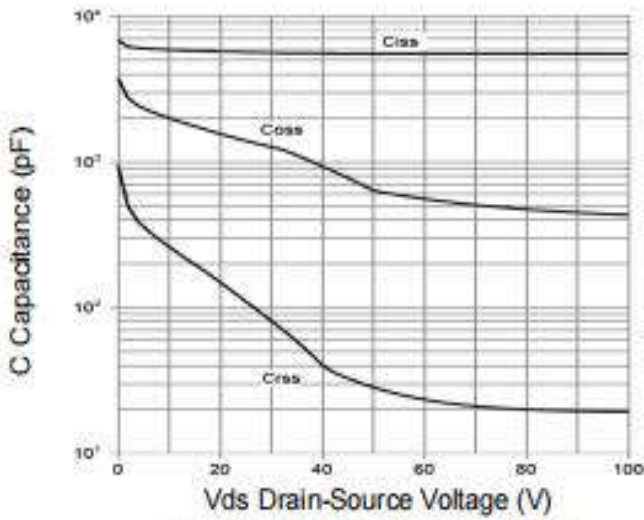


Figure 7 Capacitance vs Vds

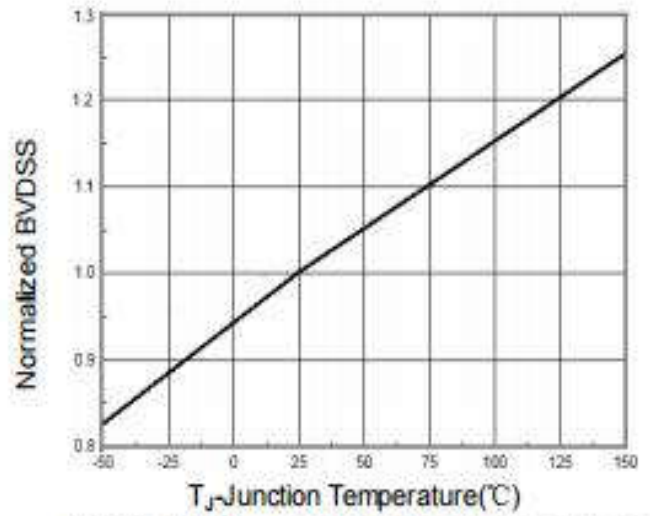


Figure 9 BV_{DSS} vs Junction Temperature

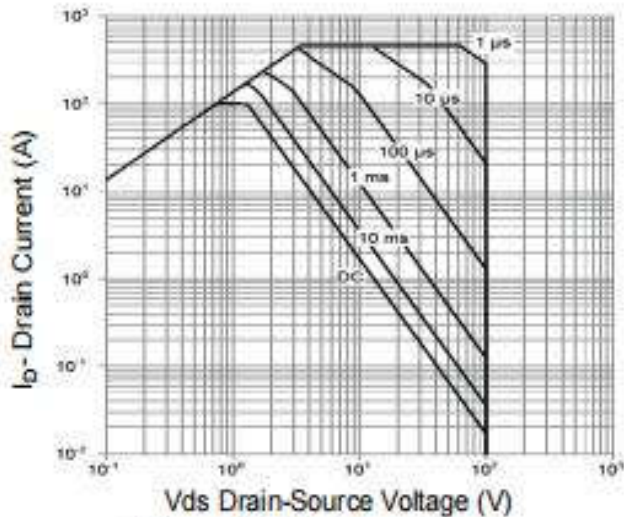


Figure 8 Safe Operation Area

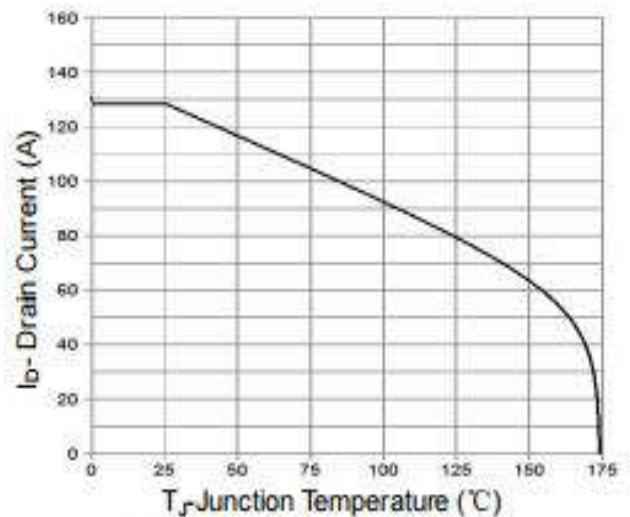


Figure 10 Current De-rating

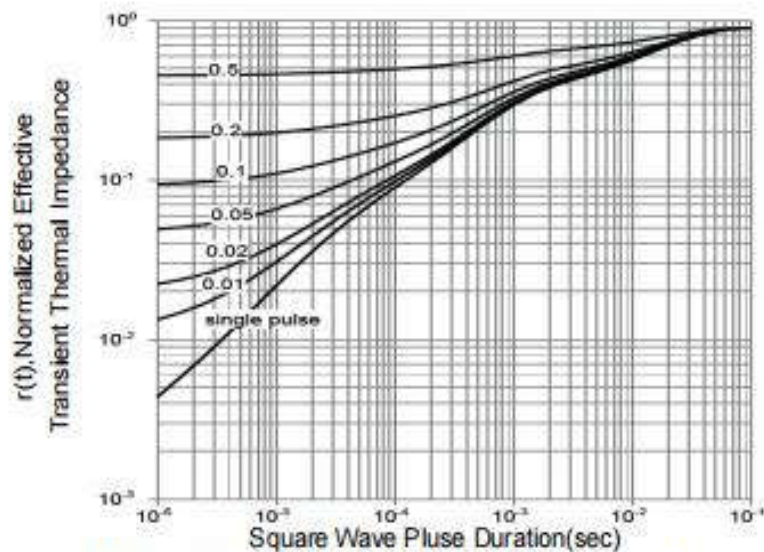


Figure 11 Normalized Maximum Transient Thermal Impedance

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		

