

650V N-Channel Enhancement Mode Power MOSFET

MAIN CHARACTERISTICS

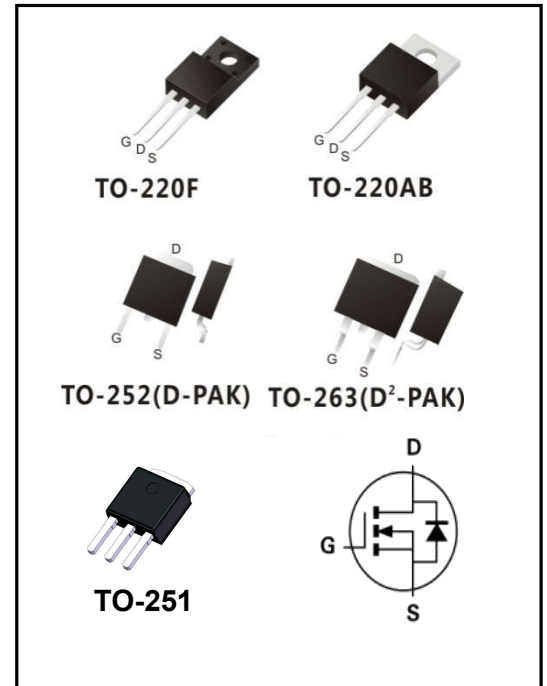
I_D	8A
V_{DSS}	650V
R_{DS(on)-typ(@V_{GS}=10V)}	<1.35Ω (Type:1.1 Ω)

Features

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

APPLICATIONS

- ◆Power switch circuit of adaptor and charger.



MECHANICAL DATA

- ◆Case: Molded plastic
- ◆Mounting Position: Any
- ◆Molded Plastic: UL Flammability Classification Rating 94V-0
- ◆Lead free in compliance with EU RoHS 2011/65/EU directive
- ◆Solder bath temperature 275°C maximum,10s per JESD 22-B106

Product Specification Classification

Part Number	Package	Marking	Pack
YFW8N65AT	TO-220AB	YFW 8N65AT XXXXX	1000PCS/Box
YFW8N65AF	TO-220F	YFW 8N65AF XXXXX	1000PCS/Box
YFW8N65AS	TO-263	YFW 8N65AS XXXXX	800PCS/Reel
YFW8N65AMJ	TO-251	YFW 8N65AMJ XXXXX	1000PCS/Box
YFW8N65AD	TO-252	YFW 8N65AD XXXXX	2500PCS/Reel

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value			Unit
		220AB/263	220F	251/252	
Drain-Source Voltage	V_{DS}	650			V
Gate-Source Voltage	V_{GS}	±30			V
Continue Drain Current	I_D	8			A
Pulsed Drain Current (Note1)	I_{DM}	28			A
Power Dissipation	P_D	100	30	100	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	350			mJ
Operating Temperature Range	T_J	150			°C
Storage Temperature Range	T_{STG}	-55 to +150			°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.25	3.57	1.25	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	62.5	100	°C/W

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

Electrical Characteristics at Tc=25°C unless otherwise specified

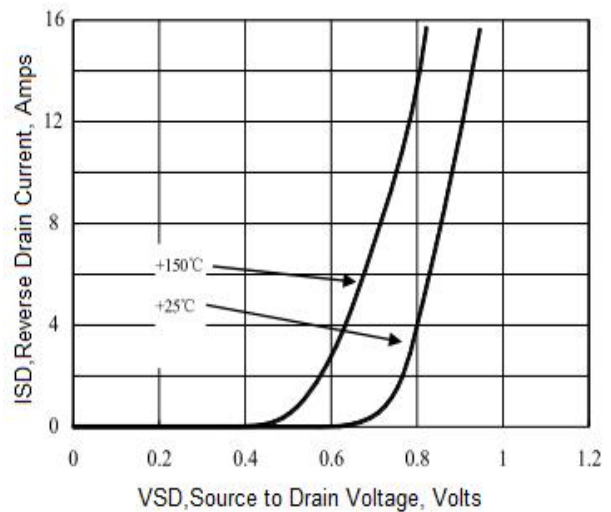
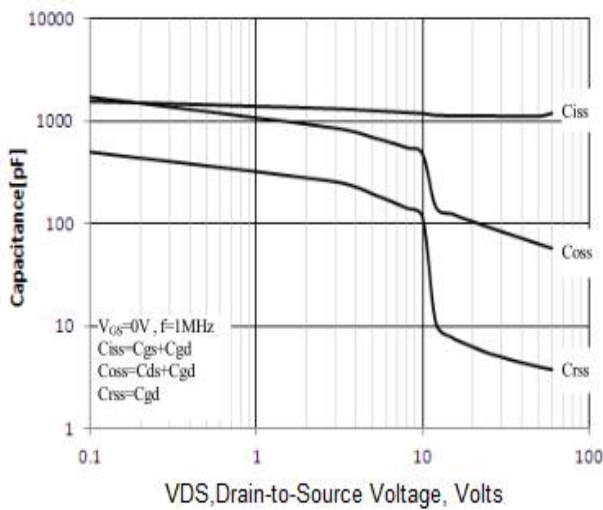
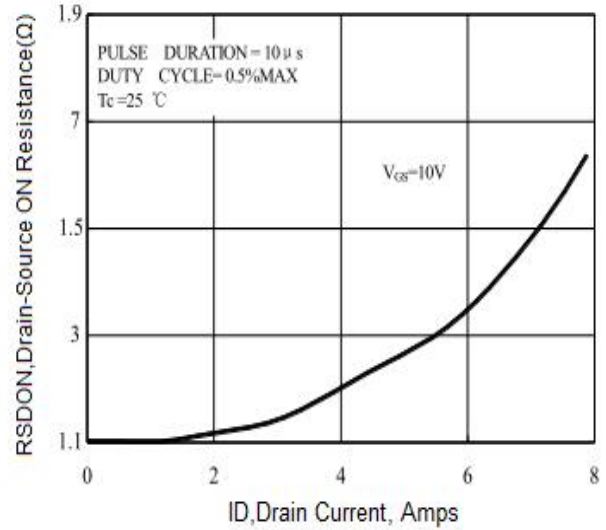
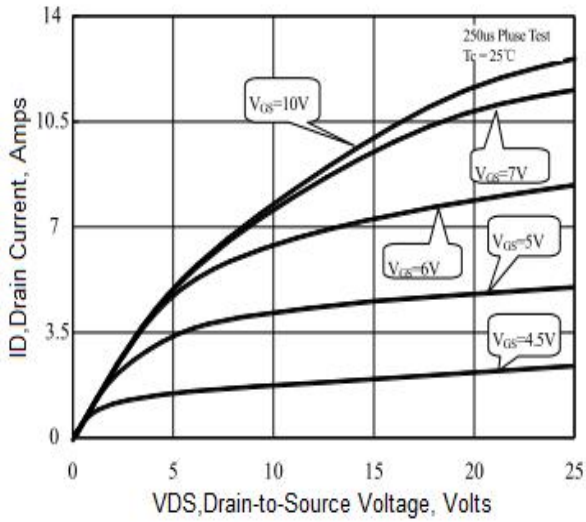
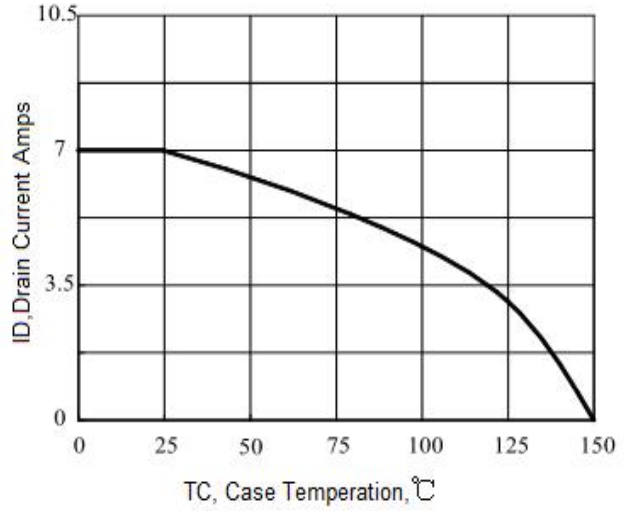
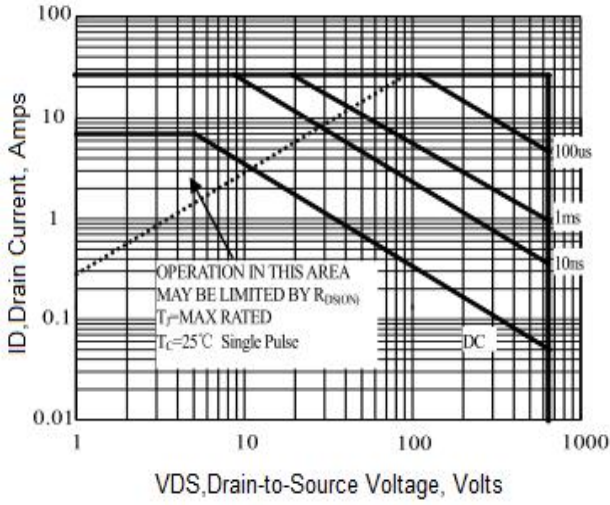
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0 V, I_D = 250 \mu A$	BV_{DSS}	655	-	-	V
Drain-Source Leakage Current	$V_{DS} = 655 V, V_{GS} = 0 V$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 30 V, V_{DS} = 0 V$	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu A$	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	$V_{GS} = 10 V, I_D = 3.5 A$	$R_{DS(on)}$	-	1.1	1.35	Ω
Forward Transconductance	$V_{DS} = 15 V, I_D = 3.5 A$	g_{fs}	-	6.5	-	S
Input Capacitance	$V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz$	C_{iss}	-	981	-	pF
Output Capacitance		C_{oss}	-	85	-	pF
Reverse Transfer Capacitance		C_{rss}	-	4	-	pF
Turn-on Delay Time(Note2)	$I_D = 7 A, V_{DD} = 325 V, R_G = 10 \Omega$	$t_{d(ON)}$	-	18	-	ns
Rise Time(Note2)		t_r	-	19	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	39	-	ns
Fall Time(Note2)		t_f	-	18	-	ns
Total Gate Charge(Note2)	$I_D = 7 A, V_{DD} = 520 V, V_{GS} = 10 V$	Q_G	-	18	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	4.3	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	7.6	-	nC

Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current	$T_J = 25^\circ C$	I_S	-	-	8	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	28	A
Drain-Source Diode Forward Voltage	$I_{SD} = 7 A$	V_{SD}	-	-	1.4	V
Reverse Recovery Time(Note2)	$I_{SD} = 7 A, V_{GS} = 0 V, dl_F / dt = 100 A/\mu s$	t_{rr}	-	370	-	ns
Reverse Recovery Charge(Note2)		Q_{rr}	-	1.9	-	μC

Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

RATINGS AND CHARACTERISTIC CURVES



Package Outline Dimensions Millimeters

TO-220AB

Dim.	Min.	Max.
A	10.15	10.35
B	2.5	2.95
C	3.7	3.9
D	28.5	29.5
E	1.2	1.4
F	6.2	6.55
G	2.85	3.25
H	15	16
I	0.35	0.42
J	4.3	4.55
K	1.2	1.4
L	Typ5.08	
L1	13	14
L2	8.5	9.5
M	Typ2.54	
N	2.8	3.5
O	0.7	0.9
All Dimensions in millimeter		

TO-220F

Dim.	Min.	Max.
A	9.95	10.35
B	2.95	3.25
C	1.25	1.45
D	12.65	12.95
E	0.4	0.6
F	2.8	3.5
G	1.3	1.45
H	Typ 2.54	
I	Typ 5.08	
J	4.6	4.75
K	2.45	2.65
L	6.45	6.85
M	15.4	16
N	2.75	3.05
O	0.45	0.55
P	0.7	0.9
All Dimensions in millimeter		

Package Outline Dimensions Millimeters

TO-263

	Dim.	Min.	Max.
	A	10.1	10.35
	B	6	8
	C	1.2	1.5
	D	0.55	1
	E	4.3	5.3
	F	1.4	1.6
	G	0.75	0.85
	H	1.2	1.5
	I	Typ2.54	
	J	8.5	9.5
	K	4.3	4.55
	L	1.25	1.35
	M	0.02	0.23
	N	2.2	2.8
O	0.3	0.4	
All Dimensions in millimeter			

TO-252

	Dim.	Min.	Max.
	A	2.1	2.5
	A1	6.3	6.9
	B	0.95	1.55
	B1	0.6	0.8
	B2	0.75	0.95
	C	Typ0.5	
	D	5.3	5.5
	D1	3.65	4.05
	E	5.8	6.4
	E1	Typ2.3	
	E2	Typ4.6	
	O	0	0.15
	L1	9	11
	L2	Typ1.5	
L3	0.7	1	
All Dimensions in millimeter			

Package Outline Dimensions Millimeters

TO-251

	Dim.	Min.	Max.
	A	2.1	2.5
	A1	6.3	6.9
	A2	0.9	1.1
	A3	Typ0.5	
	b	0.6	0.8
	c	0.4	0.5
	D	5.3	5.5
	D2	3.65	4.05
	E	5.8	6.4
	E2	0.9	1.4
	e	Typ2.29	
	e1	Typ4.58	
	L	3.7	4.3
All Dimensions in millimeter			