

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

MAIN CHARACTERISTICS

I_D	10A
V_{DSS}	800V
$R_{DS(on)-typ}(@V_{GS}=10V)$	0.92Ω

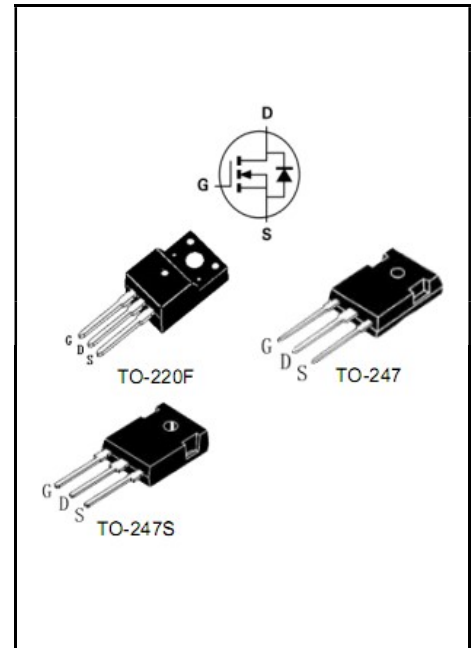


FEATURES

- ◆Fast Switching
- ◆Low ON Resistance
- ◆Low Gate Charge
- ◆100% Single Pulse avalanche energy Test
- ◆LeadfreeincomplywithEUROHS2011/65/EUdirectives

MECHANICAL DATA

- ◆Case: Molded plastic
- ◆Mounting Position: Any
- ◆Molded Plastic: UL Flammability Classification Rating 94V-0
- ◆Solder bath temperature275℃ maximum,10s per JESD22-106
- ◆Case: TO-220F, TO-247,TO-247S



PRODUCT SPECIFICATION CLASSIFICATION

Part Number	Package	Marking	Pack
YFW10N80A8	TO-220F(1.3 mm)	10N80AF	50PCS/Tube
YFW10N80A6	TO-247	10N80AP	30PCS/Tube
YFW10N80A7	TO-247S	10N80APS	30PCS/Tube

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value		Units
		220F	247/247S	
Drain-Source Voltage	V_{DS}	800		V
Gate-Source Voltage	V_{GS}	±30		V
Continue Drain Current-Continuous (TC = 25°C)	I_D	10		A
-Continuous (TC = 100°C)		6		
Pulsed Drain Current (Note1)	I_{DM}	40		A
Power Dissipation	P_D	60	160	W
-Derate above 25°C		0.5	1.33	W/°C
Single Pulse Avalanche Energy (Note2)	E_{AS}	700		mJ
Avalanche Current (Note 1)	I_{AR}	10		A
Repetitive Avalanche Energy (Note 1)	E_{AS}	24		mJ
Operating Temperature Range	T_J	150		°C
Storage Temperature Range	T_{STG}	-55 to +150		°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.08	0.78	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	45	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS} = 0 V, I_D = 250 \mu A$	BV_{DSS}	800	-	-	V
Drain-Source Leakage Current	$V_{DS} = 800 V, V_{GS} = 0 V$	I_{DSS}	-	-	1	UA
	$V_{DS} = 640 V, T_c = 125^\circ C$		-	-	10	
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	$V_{GS} = 10 V, I_D = 5 A$	$R_{DS(on)}$	-	0.92	1.15	Ω
Forward Transconductance	$V_{DS} = 40 V, I_D = 10 A$	g_{fs}	-	20	-	S
Input Capacitance	$V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz$	C_{iss}	-	1979	-	pF
Output Capacitance		C_{oss}	-	200	-	
Reverse Transfer Capacitance		C_{rss}	-	25	-	
Turn-on Delay Time(Note2)	$I_D = 10, V_{DD} = 400V, R_G = 10\Omega (Note3,4)$	$td(ON)$	-	19	-	nS
Rise Time(Note2)		tr	-	10	-	
Turn-Off Delay Time(Note2)		$td(OFF)$	-	68	-	
Fall Time(Note2)		tf	-	23	-	
Total Gate Charge(Note2)	$I_D = 10 A, V_{DD} = 640 V, V_{GS} = 10 V (Note3,4)$	Q_G	-	58	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	13	-	
Gate to Drain Charge(Note2)		Q_{GD}	-	25	-	

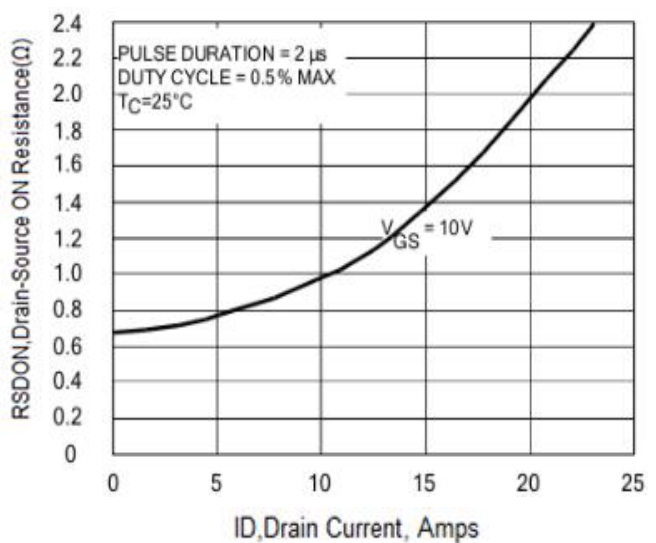
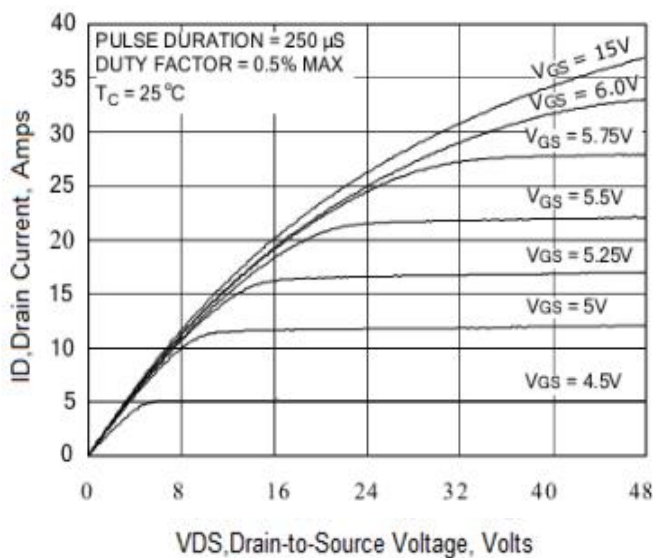
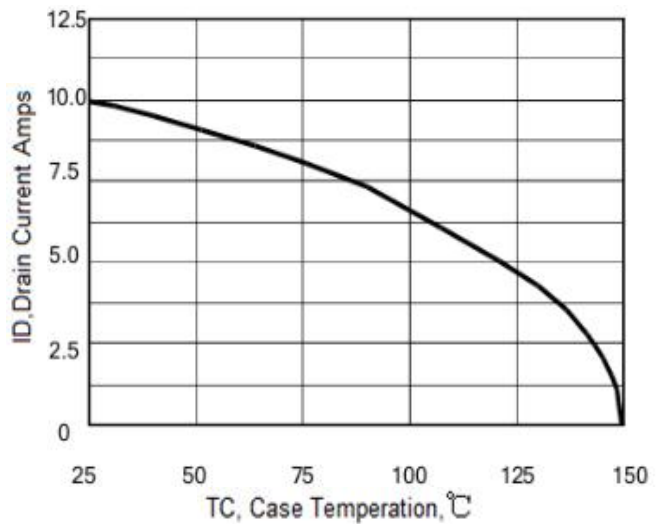
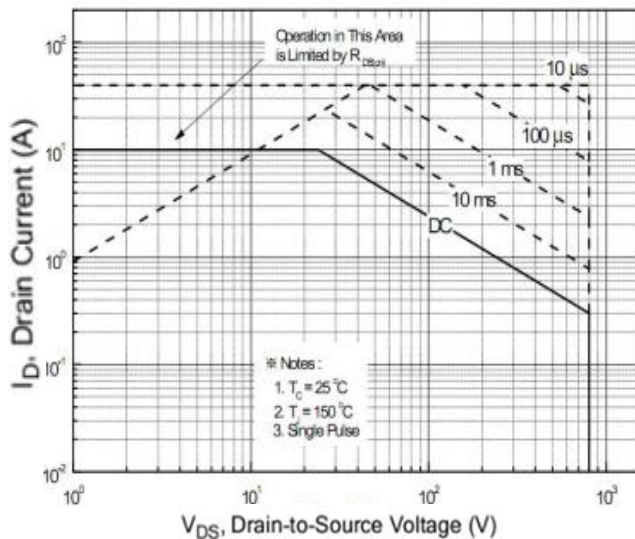
Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

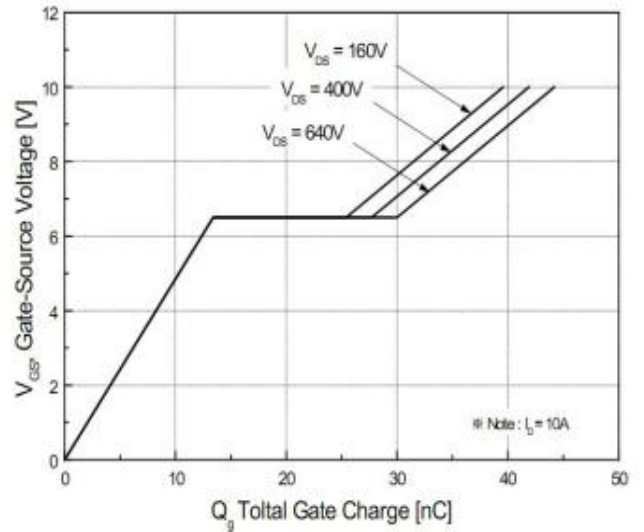
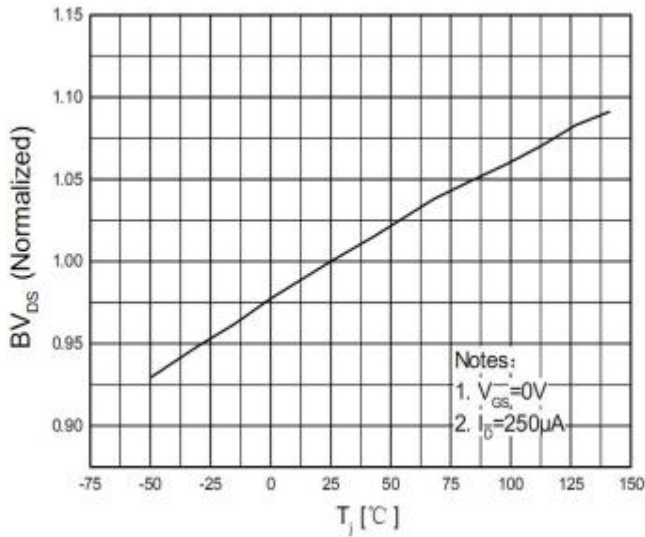
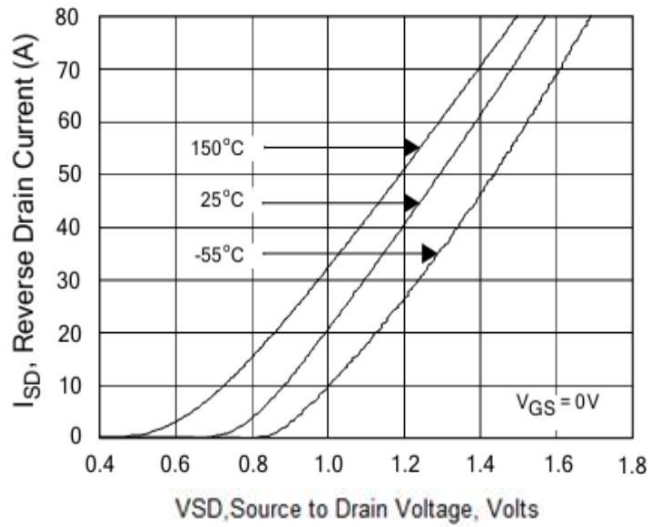
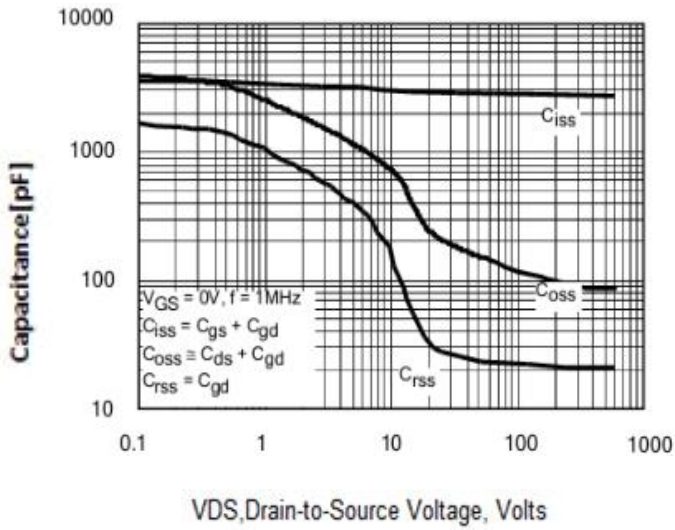
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Maximun Body-Diode Continuous Current		I_S	-	-	10	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	40	A
Drain-Source Diode Forward Voltage	I _{SD} = 10A	V_{SD}	-	-	1.5	V
Reverse Recovery Time(Note2)	I _{SD} = 10A, V _{GS} = 0 V, dI _F / dt = 100 A/μs	trr	-	200	-	nS
Reverse Recovery Charge(Note2)		Qrr	-	2.2	-	uC

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. I_{AS} = 10A, V_{DD} = 50 V, L = 14mH, R_G = 25Ω, starting T_J = 25°C.
3. ulse test: Pulse Width ≤ 300 μ s, Duty Cycle ≤ 2%.
4. Essentially Independent of Operating Temperature.

RATINGS AND CHARACTERISTIC CURVES





Package Outline Dimensions millimeters

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			

TO-247

	Dim.	Min.	Max.
	A	15	16
	B	20	21
	C	41	42
	D	5	6
	E	4	5
	F	2.5	3.5
	G	1.75	2.5
	H	3	3.5
	I	8	10
	J	4.9	5.1
	K	1.9	2.1
	L	3.5	4
	M	4.75	5.25
	N	2	3
O	0.55	0.75	
P	Typ 5.08		
Q	1.2	1.3	
All Dimensions in millimeter			

Package Outline Dimensions millimeters

TO-247S

	Dim.	Min.	Max.
	A	15	16
	B	19.5	20.5
	C	33.5	35.5
	D	5	6
	E	3.5	4.5
	F	2.5	3.5
	G	1.75	2.5
	H	3	4
	I	9	11
	J	4.9	5.1
	K	1	1.3
	L	3.75	4.25
	M	4.75	5.25
N	1.8	2.2	
O	0.45	0.6	
P	Typ 5.08		
Q	1.2	1.3	
All Dimensions in millimeter			