

600V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

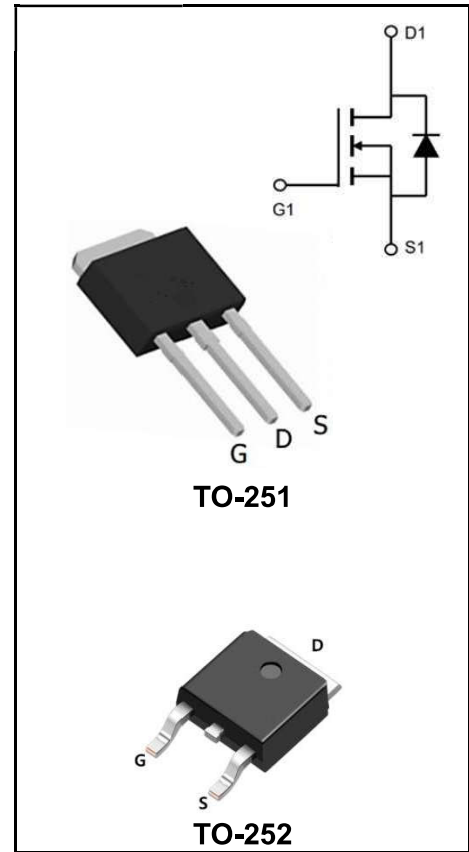
I_D	1A
V_{DSS}	600V
R_{DS(on)-typ}(@V_{GS}=10V)	<10Ω (Type:8.5 Ω)

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



Product Specification Classification

Part Number	Package	Marking	Pack
YFW1N60AMJ	TO-251	YFW 1N60AMJ XXXXX	80PCS/Tube
YFW1N60AD	TO-252	YFW 1N60AD XXXXX	2500PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
		251/252	
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	±30	V
Continue Drain Current	I_D	1	A
Continuous(Tc=100°C)		0.6	
Pulsed Drain Current (Note1)	I_{DM}	4	A
Power Dissipation	P_D	30	W
-Derate above 25°C		0.22	W/°C
Single Pulse Avalanche Energy (Note2)	E_{AS}	28	mJ
Avalanche Current (Note 1)	I_{AR}	1	A
Repetitive Avalanche Energy (Note 1)	E_{AR}	2.6	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	R_{θJC}	4.17	°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} = 0 V, I _D = 250 μA	BV_{DSS}	600	-	-	V
Breakdown Voltage Temperature Coefficient	I _D =250μA (Referenced to 25°C)	$\frac{\Delta BV_{DSS}}{\Delta T_J}$	-	0.5	-	V/°C
Drain-Source Leakage Current	V _{DS} = 600 V, V _{GS} = 0 V	I_{BSS}	-	-	1	uA
	V _{DS} =480V, Tc=125°C		-	-	10	uA
Gate Leakage Current	V _{GS} = ± 30 V, V _{DS} = 0 V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	V _{DS} = V _{GS} , I _D = 250 μA	V_{GS(th)}	3	-	5	V
Drain-Source On-State Resistance	V _{GS} = 10 V, I _D = 0.5 A	R_{DS(on)}	-	8.5	10	Ω
Forward Transconductance	V _{DS} = 15 V, I _D = 1 A	g_{fs}	-	0.8	-	S
Input Capacitance	V _{GS} = 0 V, V _{DS} = 25V, f = 1MHz	C_{iss}	-	170	-	pF
Output Capacitance		C_{oss}	-	14.5	-	
Reverse Transfer Capacitance		C_{rss}	-	2.9	-	
Turn-on Delay Time	I _D = 2 A, V _{DD} = 300 V, R _G = 10 Ω(Note3,4)	td(ON)	-	8	-	nS
Rise Time		tr	-	5	-	
Turn-Off Delay Time		td(OFF)	-	24	-	
Fall Time		tf	-	15.3	-	
Total Gate Charge	I _D = 1 A, V _{DD} = 480 V, V _{GS} = 10 V(Note3,4)	Q_G	-	5	-	nC
Gate to Source Charge		Q_{GS}	-	0.8	-	
Gate to Drain Charge		Q_{GD}	-	2.4	-	

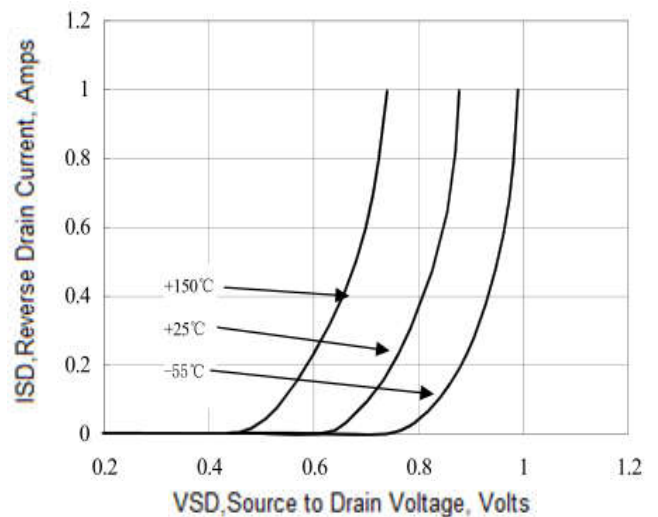
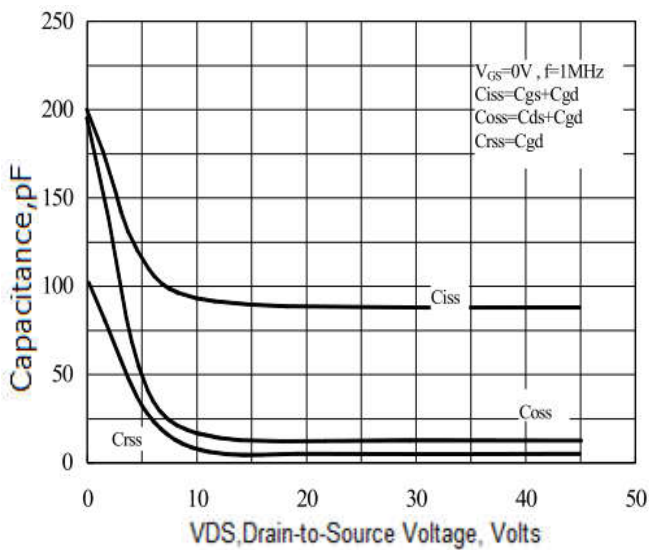
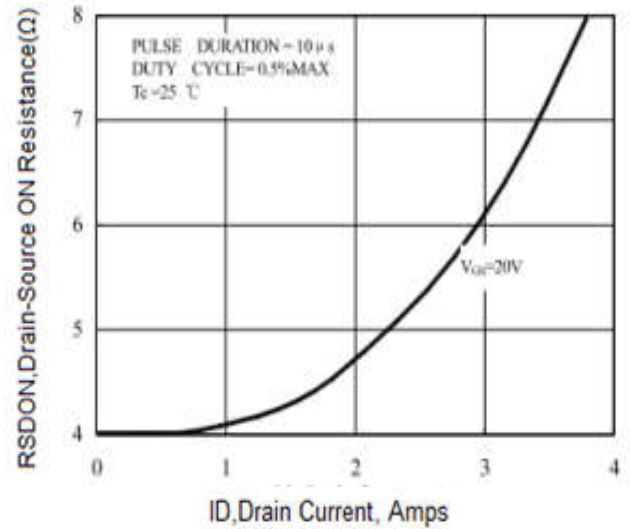
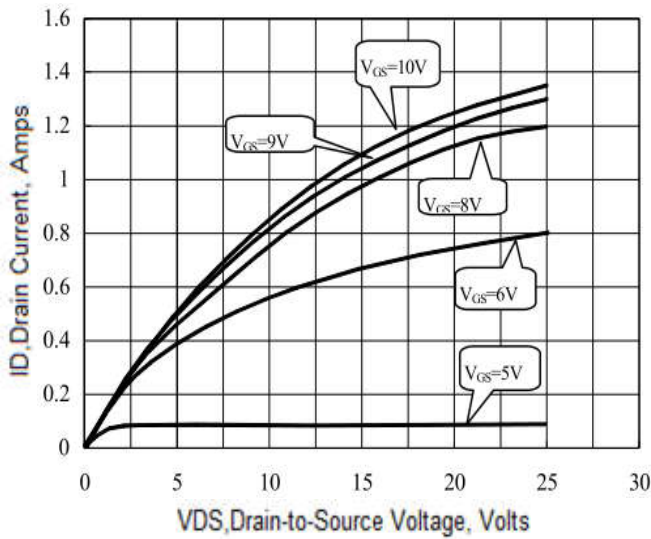
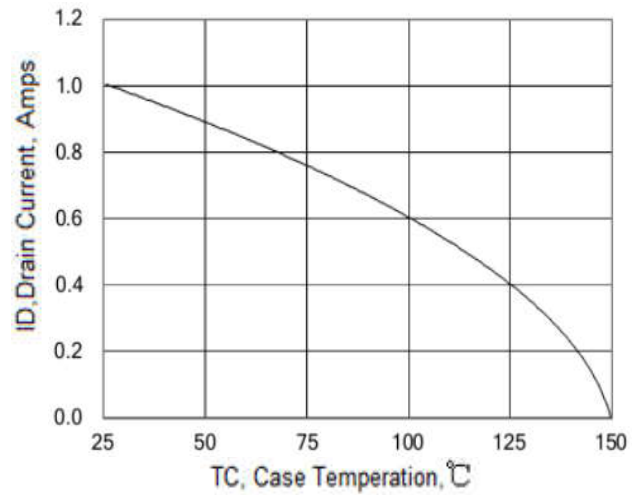
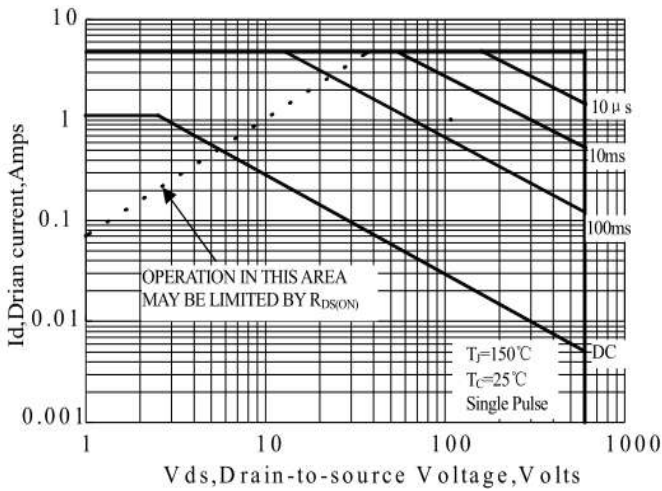
Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Maximun Body-Diode Continuous Current		I_S	-	-	2	A
Maximun Body-Diode Pulsed Current		I_{SM}	-	-	8	A
Drain-Source Diode Forward Voltage	I_{SD} = 1 A	V_{SD}	-	-	1.5	V
Reverse Recovery Time	I_{SD} = 1 A, V_{GS} = 0 V, dI_F / dt = 100 A/μs	trr	-	374	-	nS
Reverse Recovery Charge		Qrr	-	0.7	-	uC

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. IAS = 1A, VDD = 50 V, L =59mH, RG = 25Ω, starting TJ = 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-252

	Dim.	Min.	Typ.	Max.
	A	2.10	-	2.50
	A2	0	-	0.10
	B	0.66	-	0.86
	B2	5.18	-	5.48
	C	0.40	-	0.60
	C2	0.44	-	0.58
	D	5.90	-	6.30
	D1	5.30REF		
	E	6.40	-	6.80
	E1	4.63	-	-
	G	4.47	-	4.67
	H	9.50	-	10.70
	L	1.09	-	1.21
	L2	1.35	-	1.65
V1	-	7°	-	
V2	0°	-	6°	
All Dimensions in millimeter				

TO-251

	Dim.	Min.	Max.
	A	2.2	2.4
	A2	0.95	1.15
	A3	0.45	0.65
	b	0.65	0.85
	c	0.45	0.55
	D	6.45	6.75
	D2	5.2	5.4
	E	5.8	6
	E2	0.95	1.25
	e	Typ 2.3	
	e1	Typ 4.6	
	L	4	4.2
L1	1.2	1.5	
All Dimensions in millimeter			