

60V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

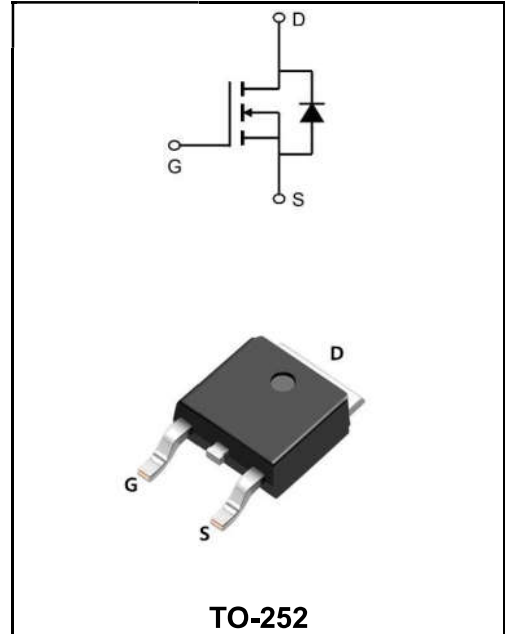
I_D	110A
V_{DSS}	60V
R_{DS(on)-typ(@V_{GS}=10V)}	< 3.6mΩ (Type:3.0 mΩ)

Features

- ◆ Low RDS(on) & FOM
- ◆ Extremely low switching loss
- ◆ Excellent stability and uniformity or Invertors
- ◆ **YFW-SGT technology**

Applications

- ◆ Consumer electronic power supply
- ◆ Motor control
- ◆ Synchronous-rectification
- ◆ Isolated DC
- ◆ Synchronous-rectification applications



Product Specification Classification

Part Number	Package	Marking	Pack
YFWG110N06AD	TO-252	YFW 110N06AD XXXXX	2500PCS/Tape

Maximum Ratings at T_c=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	60	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current ^{1,6} @T _c =25°C	I_D	110	A
Continuous Drain Current ^{1,6} @T _c =100°C	I_D	66	A
Pulsed Drain Current ²	I_{DM}	240	A
Single Pulse Avalanche Energy ³	E_{AS}	101	mJ
Avalanche Current	I_{AS}	45	A
Total Power Dissipation ⁴ @T _c =25°C	P_D	83	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating and Storage Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction-Ambient ¹	R_{θJA}	55	°C/W
Thermal Resistance Junction-Case ¹	R_{θJC}	1.5	°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}	60	-	-	V
Static Drain-Source On-Resistance ²	$V_{GS}=10V, I_D=20A$	$R_{DS(ON)}$	-	3.0	3.6	mΩ
	$V_{GS}=4.5V, I_D=15A$		-	4.4	5.4	
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1.2	-	2.3	V
Drain-Source Leakage Current	$V_{DS}=48V, V_{GS}=0V, T_J=25^\circ C$	I_{DSS}	-	-	1	μA
	$V_{DS}=48V, V_{GS}=0V, T_J=55^\circ C$		-	-	5	
Gate- Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	±100	nA
Forward Transconductance	$V_{DS}=5V, I_D=20A$	g_{fs}	-	65	-	S
Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	R_g	-	0.7	-	Ω
Total Gate Charge(10V)	$V_{DS}=30V$ $V_{GS}=10V$ $I_D=20A$	Q_g	-	58	-	nC
Gate-Source Charge		Q_{gs}	-	16	-	
Gate-Drain Charge		Q_{gd}	-	4	-	
Turn-on delay time	$V_{DD}=30V$ $V_{GS}=10V$ $R_G=3$ $I_D=20A$	$t_{d(on)}$	-	18	-	ns
Rise Time		T_r	-	8	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	50	-	
Fall Time		t_f	-	10.5	-	
Input Capacitance	$V_{DS}=30V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	3458	-	pF
Output Capacitance		C_{oss}	-	1522	-	
Reverse Transfer Capacitance		C_{rss}	-	22	-	
Continuous Source Current ^{1,5}	$V_G=V_D=0V, \text{ Force Current}$	I_S	-	-	55	A
Diode Forward Voltage ²	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	V_{SD}	-	-	1.2	V
Reverse Recovery Time	$I_F=20A, di/dt=100A/\mu s, T_J=25^\circ C$	t_{rr}	-	24	-	ns
Reverse Recovery Charge		Q_{rr}	-	85	-	nC

Ratings and Characteristic Curves

Typical Characteristics

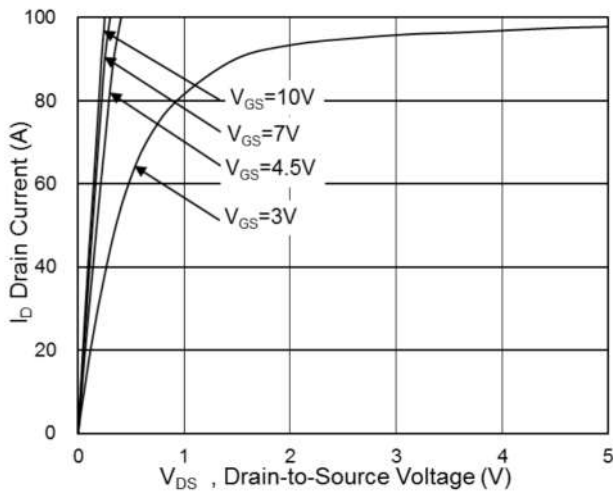


Fig.1 Typical Output Characteristics

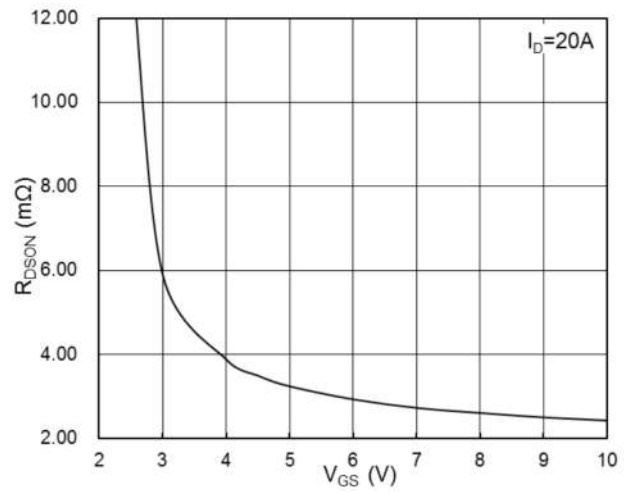


Fig.2 On-Resistance vs G-S Voltage

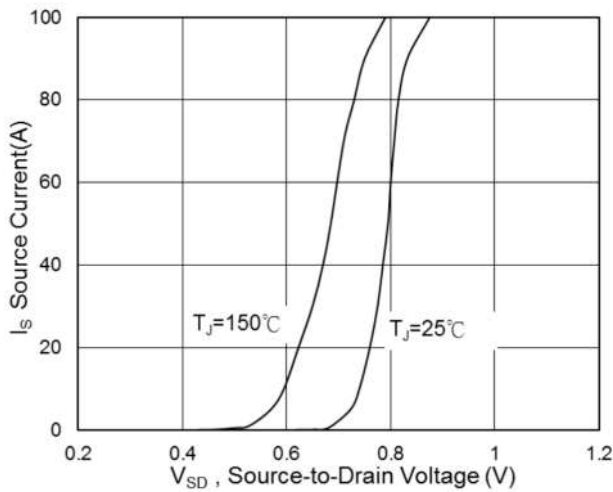


Fig.3 Diode Forward Voltage vs. Current

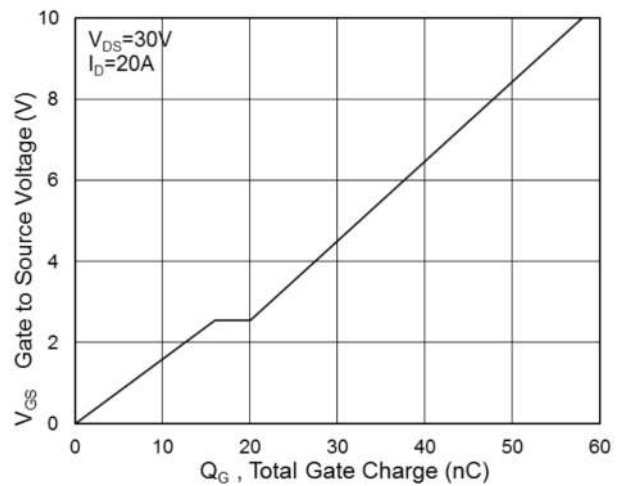


Fig.4 Gate-Charge Characteristics

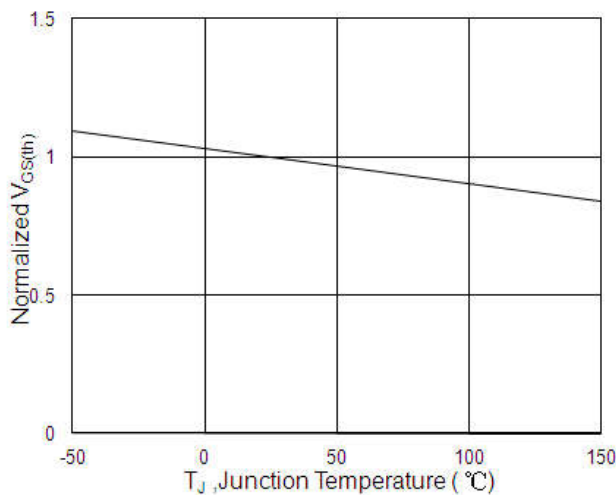


Fig.5 Normalized $V_{GS(th)}$ vs T_J

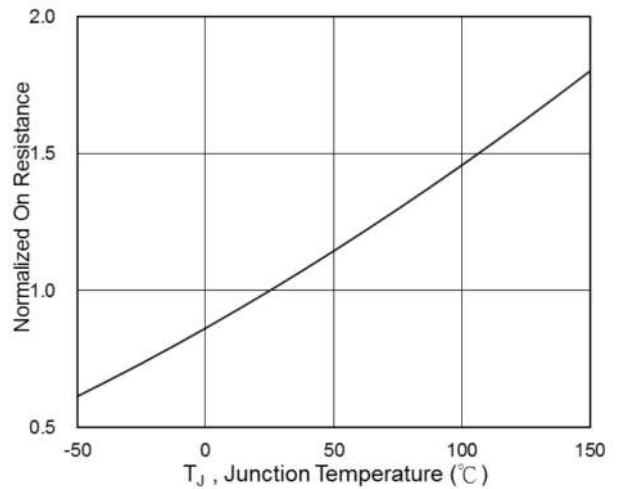


Fig.6 Normalized $R_{DS(on)}$ vs T_J

Ratings and Characteristic Curves

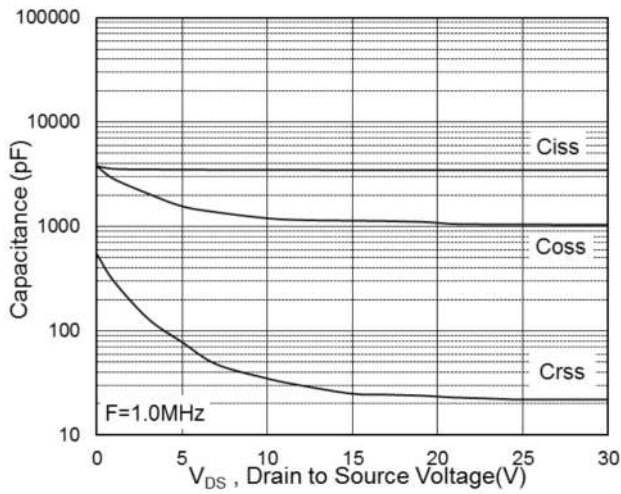


Fig.7 Capacitance

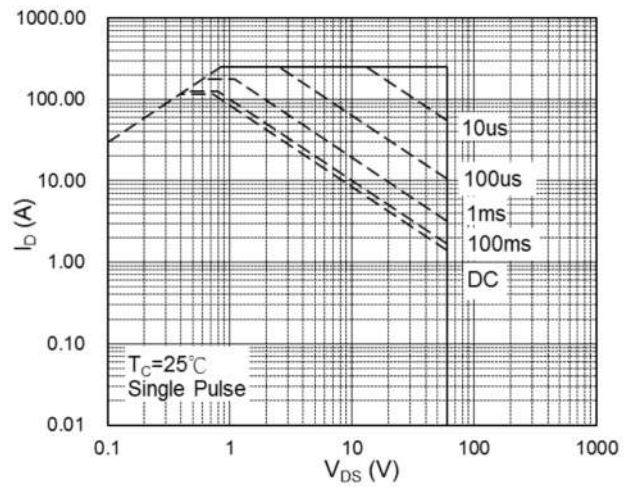


Fig.8 Safe Operating Area

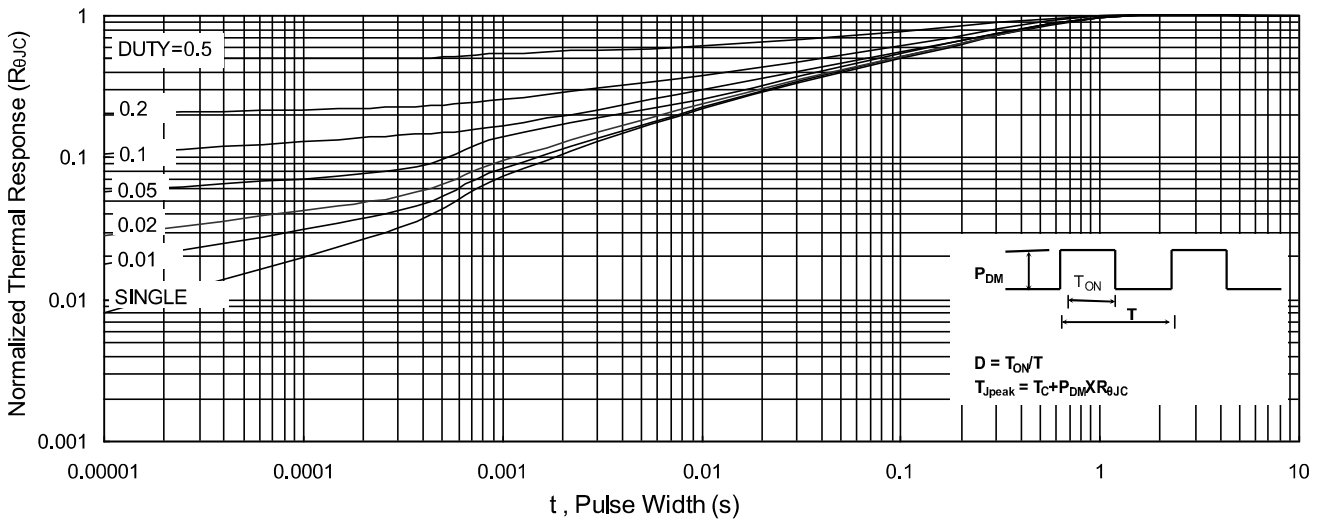


Fig.9 Normalized Maximum Transient Thermal Impedance

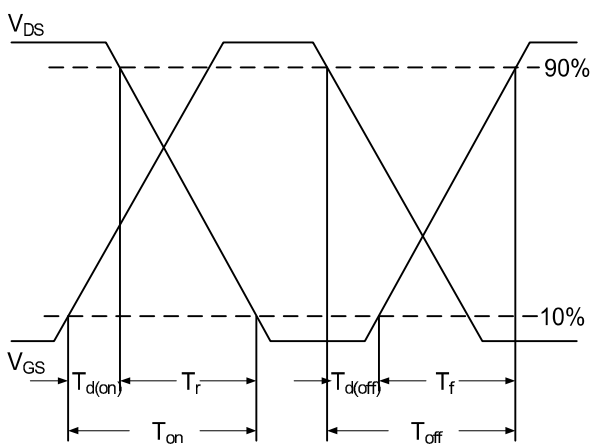


Fig.10 Switching Time Waveform

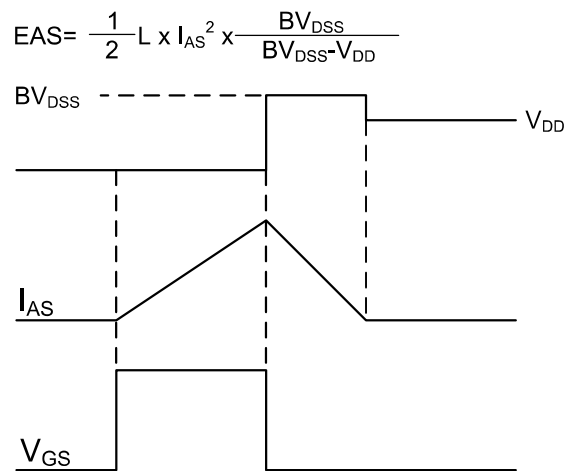


Fig.11 Unclamped Inductive Switching Waveform

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			

