

600V Si Super junction MOSFET with Fast Recovery Diode

MAIN CHARACTERISTICS

I_D	47A
V_{DSS}	600V
R_{DS(on)-typ(@V_{GS}=10V)}	<75mΩ(Type:68mΩ)

FEATURES

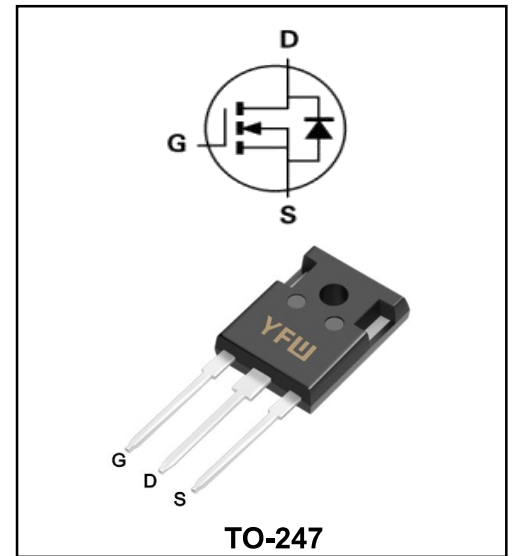
- Fast Switching
- Low ON Resistance
- Low Gate Charge
- 100% Single Pulse avalanche energy Test

APPLICATIONS

- Solar inverters
- LCD/LED/PDP TV
- Telecom/Server Power supplies
- AC-DC Power Supply

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



Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value	Unit
		247	
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	±30	V
Continue Drain Current	I_D	47	A
Pulsed Drain Current (Note1)	I_{DM}	141	A
Power Dissipation	P_D	342	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	1040	mJ
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.36	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62	°C/W

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

Electrical Characteristics at Tc=25°C unless otherwise specified

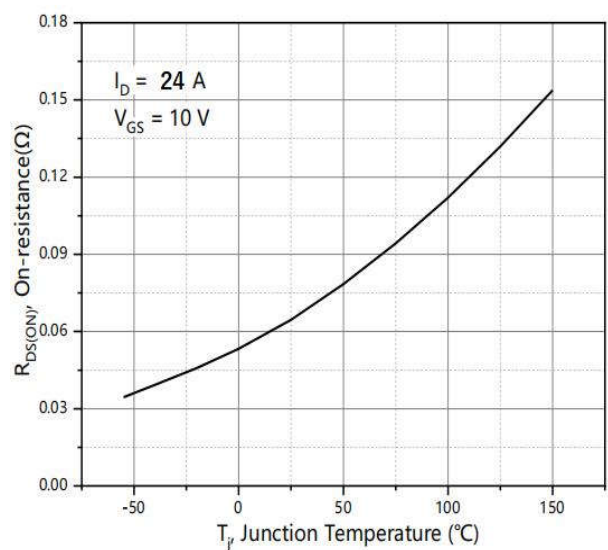
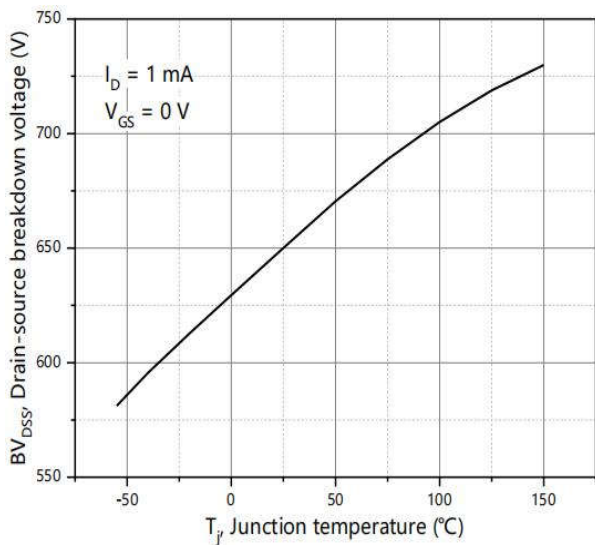
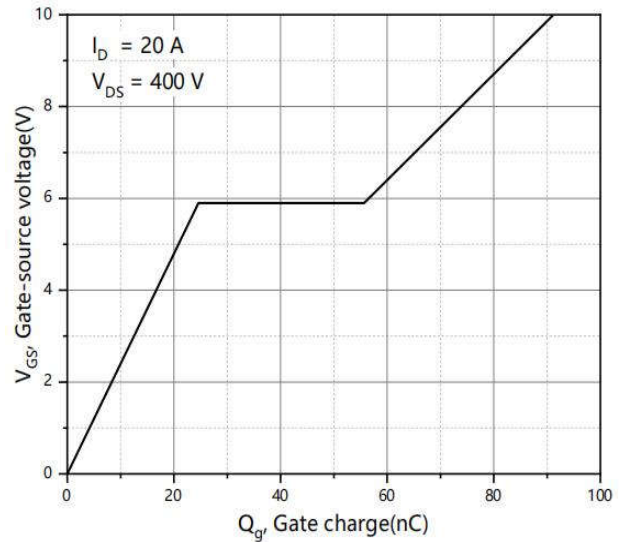
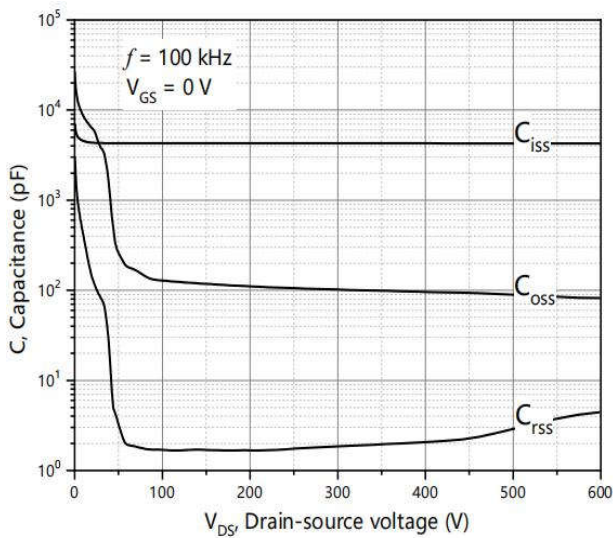
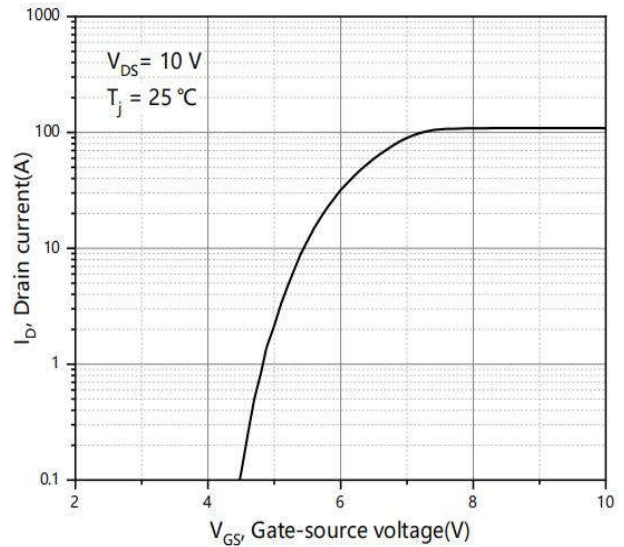
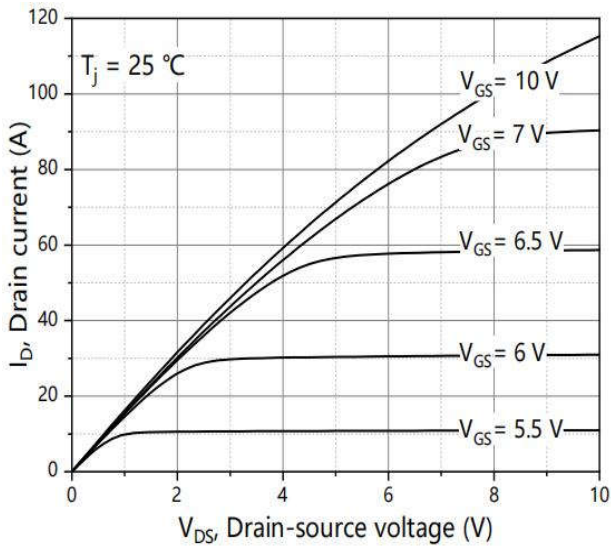
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0 V, I_D = 250 \mu A$	BV_{DSS}	600	-	-	V
Drain-Source Leakage Current	$V_{DS} = 600 V, V_{GS} = 0 V$	I_{DSS}	-	-	6	μA
Gate Leakage Current	$V_{GS} = \pm 30 V, V_{DS} = 0 V$	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu A$	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	$V_{GS}=10V, I_D=24A$	$R_{DS(on)}$	-	68	75	mΩ
Input Capacitance	$V_{DS}=50V, V_{GS}=0V, f=100KHz$	C_{iss}	-	4285	-	pF
Output Capacitance		C_{oss}	-	266	-	pF
Reverse Transfer Capacitance		C_{rss}	-	3.2	-	pF
Turn-on Delay Time(Note2)	$V_{GS} = 10V, R_G = 2\Omega, V_{DS} = 400V, I_D = 20A$	$t_{d(ON)}$	-	35	-	ns
Rise Time(Note2)		t_r	-	7	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	115	-	ns
Fall Time(Note2)		t_f	-	68.5	-	ns
Total Gate Charge(Note2)	$V_{GS} = 10V, V_{DS} = 400V, I_D = 20A$	Q_G	-	91.5	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	25	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	31	-	nC

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

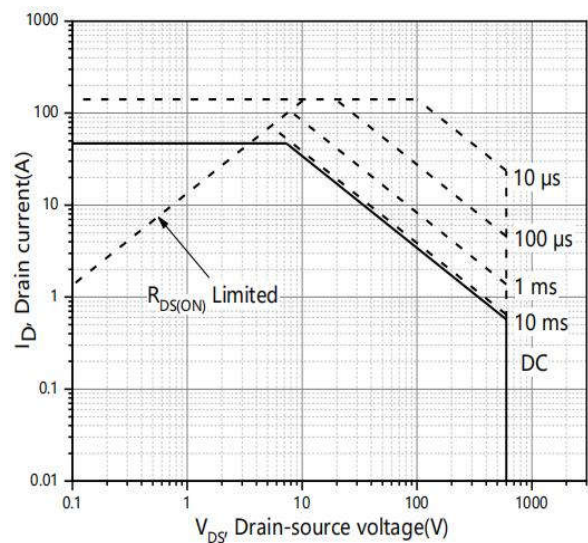
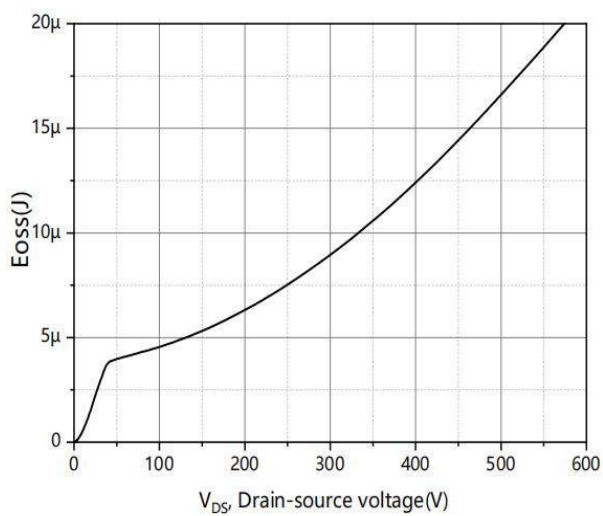
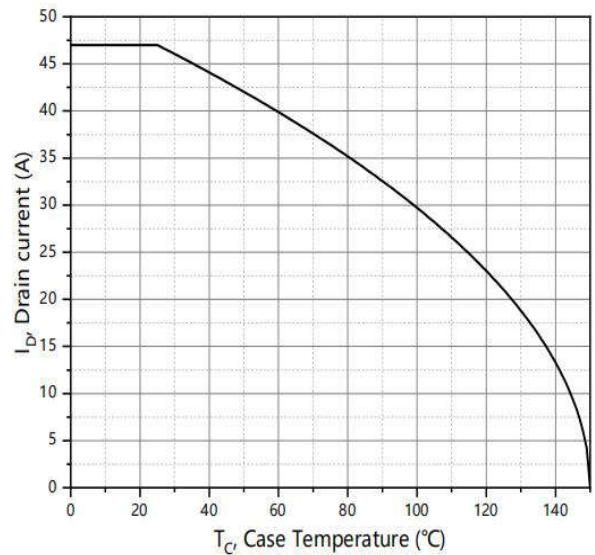
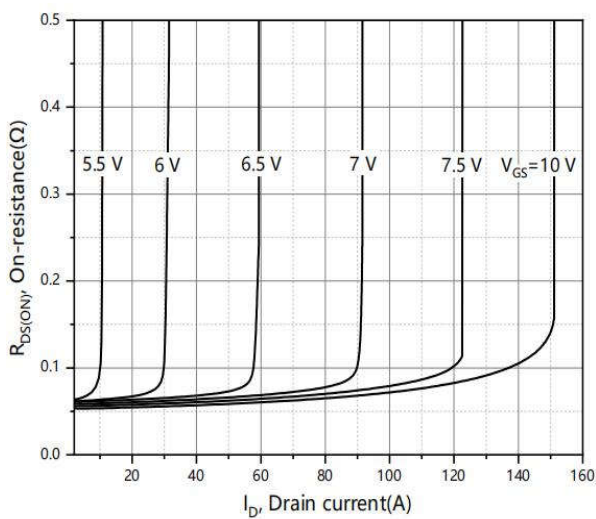
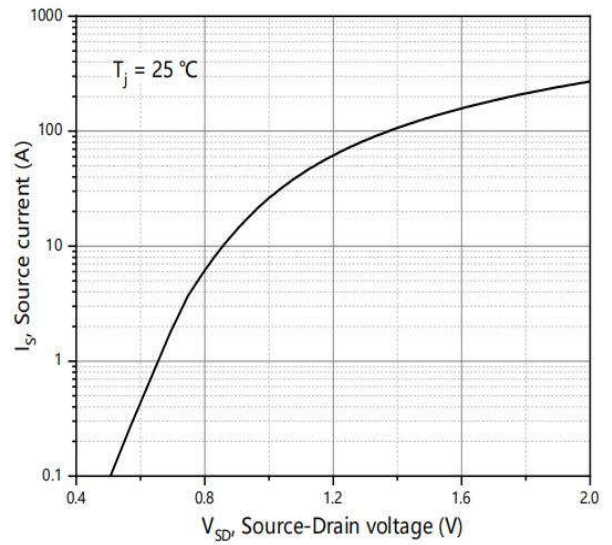
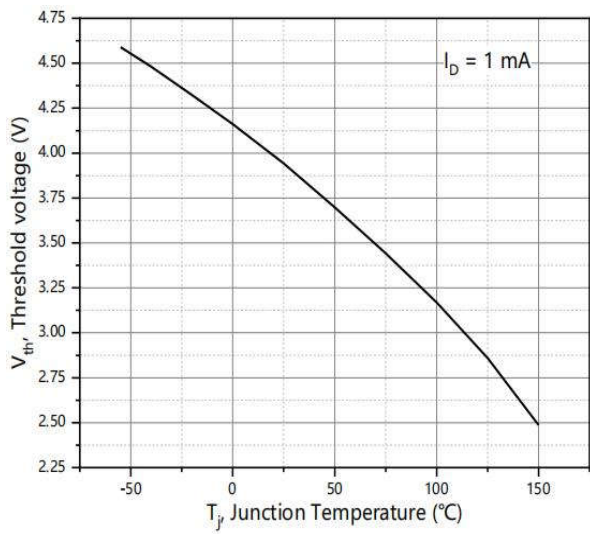
Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	47	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	141	A
Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=47A, T_J=25^\circ C$	V_{SD}	-	-	1.2	V
Reverse Recovery Time	$I_S = I_F, I_{SD}=20A, V_{GS} = 0 V, dI / dt = 100 A/\mu s$ (Note3)	t_{rr}	-	150	-	ns
Reverse Recovery Charge		Q_{rr}	-	805	-	nC

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

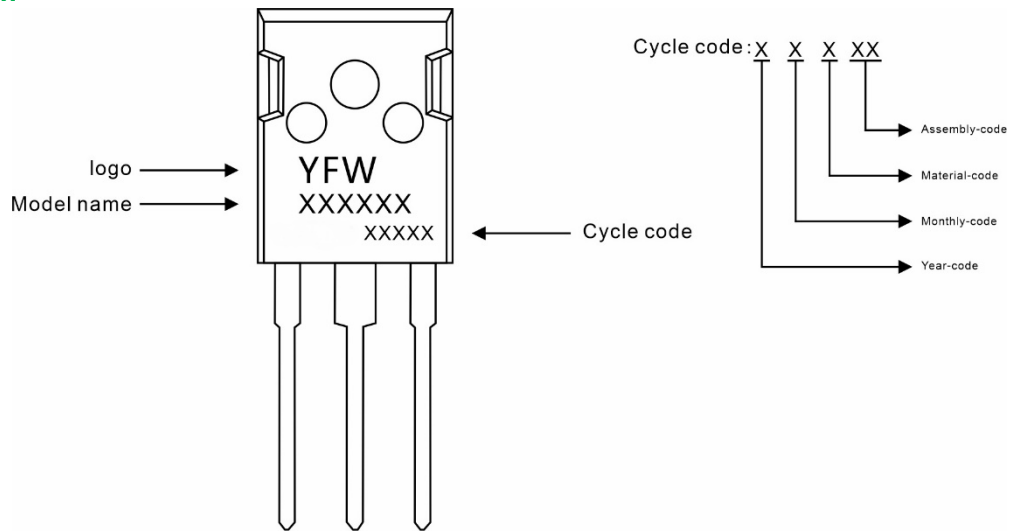
RATINGS AND CHARACTERISTIC CURVES



RATINGS AND CHARACTERISTIC CURVES



Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW60R075AP	TO-247	0.209oz(5.93g)	30pcs/tube	600PCS/Box 2400PCS/Carton

Package Dimensions

TO-247

Symbol	Dimensions in mm		Dimensions in Inch	
	Min.	Max.	Min.	Max.
A	4.90	5.10	0.193	0.201
A1	1.90	2.10	0.075	0.083
A2	2.29	2.54	0.090	0.100
b	1.00	1.40	0.039	0.055
b1	2.00	2.20	0.079	0.087
b2	3.00	3.20	0.118	0.126
c	0.50	0.70	0.020	0.028
D	15.75	16.05	0.620	0.632
E	20.20	20.80	0.795	0.819
e	5.45 (BSC)		0.215 (BSC)	
e1	10.90 (BSC)		0.429 (BSC)	
F	6.05	6.25	0.238	0.246
F1	5.80	6.00	0.228	0.236
L	20.10	20.40	0.791	0.803
L1	4.05	4.35	0.159	0.171
Φ	3.50	3.70	0.138	0.146

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