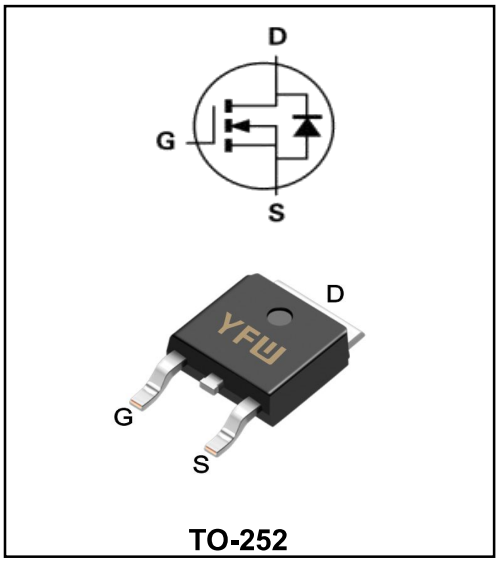
650V N-channel Super Junction MOSFET

MAIN CHARACTERISTICS

I_D	15A
V_{DSS}	650V
R_{DSON}-typ(@V_{GS}=10V)	＜280mΩ(Typ:238mΩ)



TO-252

FEATURES

- Low gate charge
- Low RDS(on) per chip area(Low FOM)
- Very low switching and conduction loss
- Extremely high commutation ruggedness

Application

- 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℃ maximum,10s per JESD 22-B106

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	650	V
Gate - Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	15	A
Pulsed Drain Current(note1)	I_{DM}	45	A
Power Dissipation	P_D	104	W
Single Pulse Avalanche Energy(note1)	E_{AS}	290	mJ
Operating Temperature Range	T_J	-50 to +150	°C
Storage Temperature Range	T_{STG}	-50 to +150	°C
Thermal Resistance, Junction-to-case	$R_{\theta JC}$	1.2	°C/W
Thermal Resistance, Junction ambient	$R_{\theta JA}$	62	°C/W

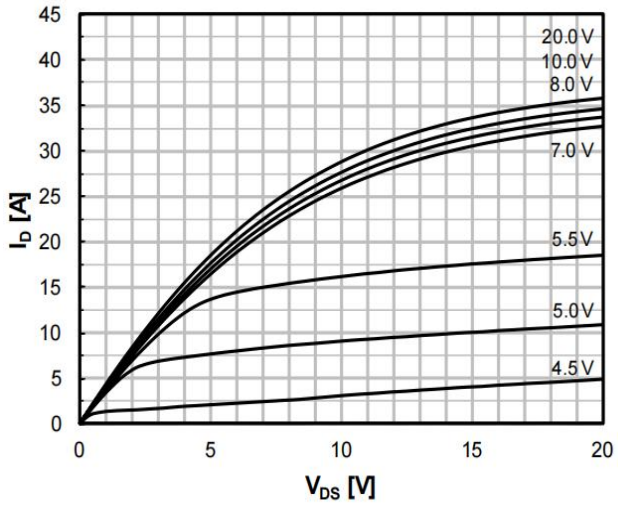
Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

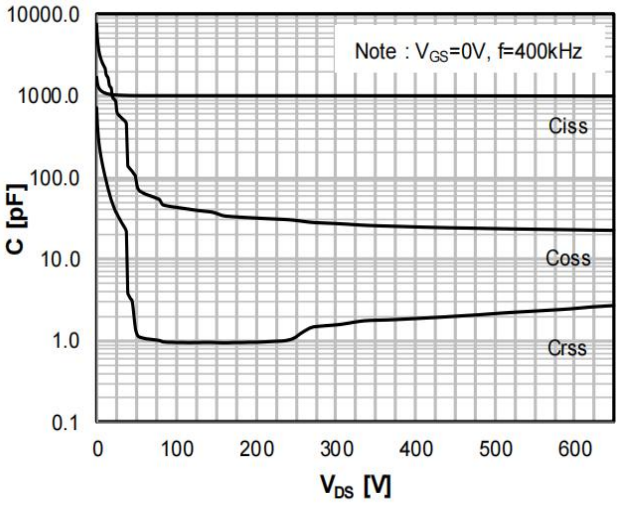
Maximum Ratings at Tc=25°C unless otherwise specified

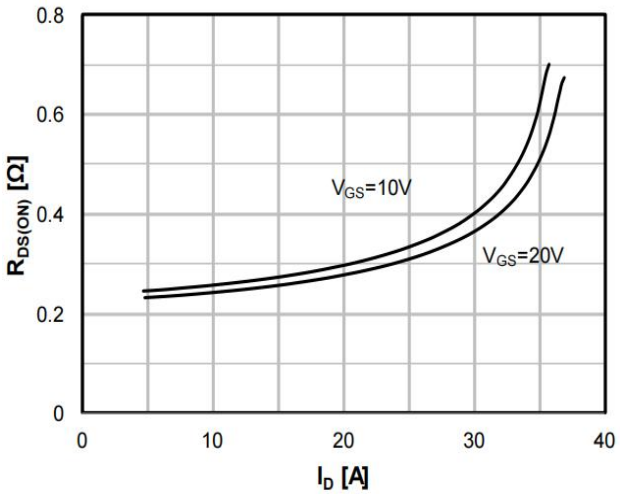
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	BV_{DSS}	650	-	-	V
Drain-Source Leakage Current	V_{DS}=650V , V_{GS}=0V	I_{DSS}	-	-	1	μA
Gate-Source Leakage	V_{GS}=±30V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Gate- Source Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	$V_{GS(th)}$	2.5	-	4.5	V
Drain-Source On State Resistance	V_{GS}=10V, I_D=4.4A	$R_{DS(ON)}$	-	238	280	mΩ
Input Capacitance	V_{DS}=50V V_{GS}=0V f=400KHz	C_{iss}	-	1720	-	pF
Output Capacitance		C_{oss}	-	79	-	
Reverse Transfer Capacitance		C_{rss}	-	5	-	
Turn-on delay time(note2)	V_{DD}=325V I_D=13.8A V_{GS}=10V R_G=25Ω	$t_{d(on)}$	-	19	-	nS
Rise Time(note2)		T_r	-	34	-	
Turn-Off Delay Time(note2)		$t_{d(OFF)}$	-	76	-	
Fall Time(note2)		t_f	-	27	-	
Total Gate Charge(note2)	V_{DS}=520V I_D=13.8A V_{GS}=10V	Q_g	-	23	-	nC
Gate-Source Charge(note2)		Q_{gs}	-	5	-	
Gate-Drain Charge(note2)		Q_{gd}	-	9	-	
Reverse Recovery Time	I_{SD} = 13.8A, V_{DD} = 100V, di/dt = 100A/us	t_{rr}	-	300	-	nS
Reverse recovery current		I_{rr}	-	24	-	A
Reverse Recovery Charge		Q_{rr}	-	3.6	-	uC
Drain-Source Diode Forward Voltage	V_{GS}=0V , I_S=13.8A , T_J=25℃	V_{SD}	-	1.4	-	V

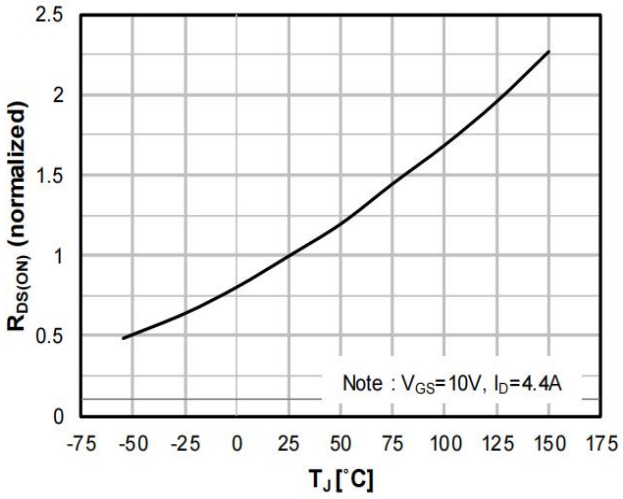
Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

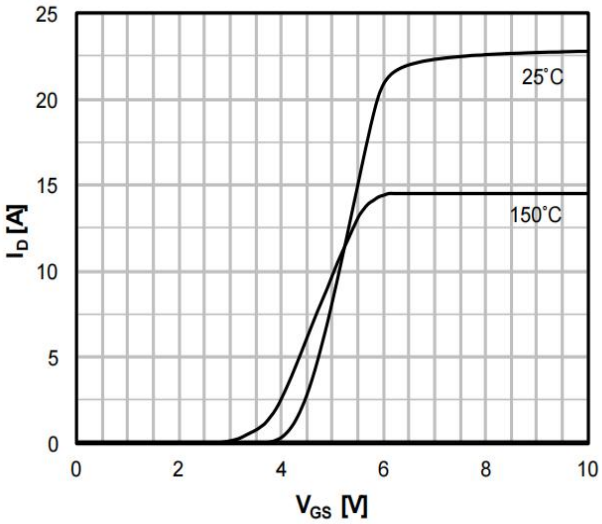
Ratings and Characteristic Curves

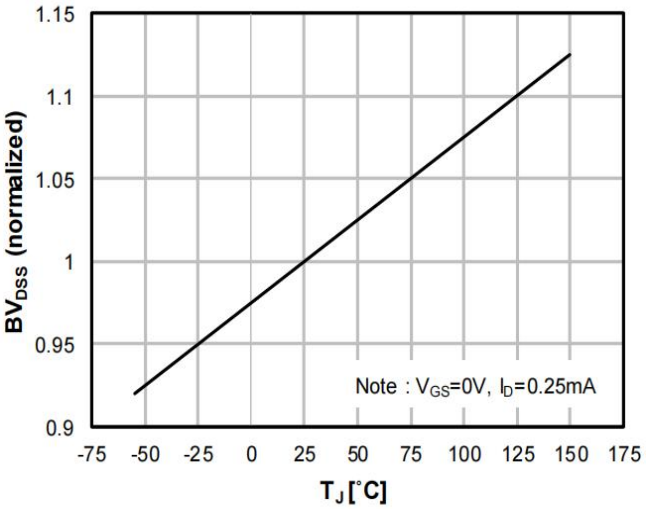




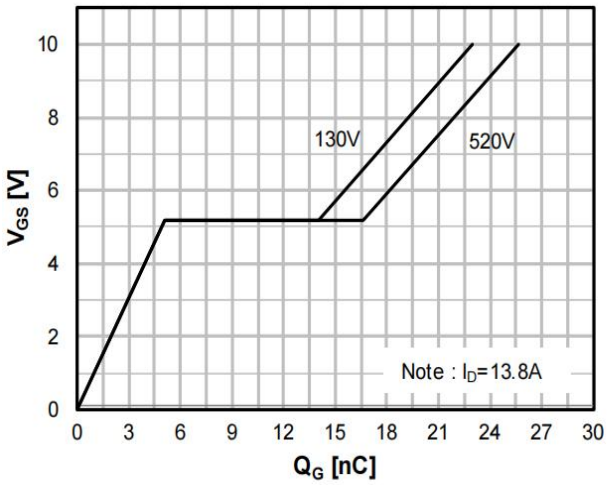


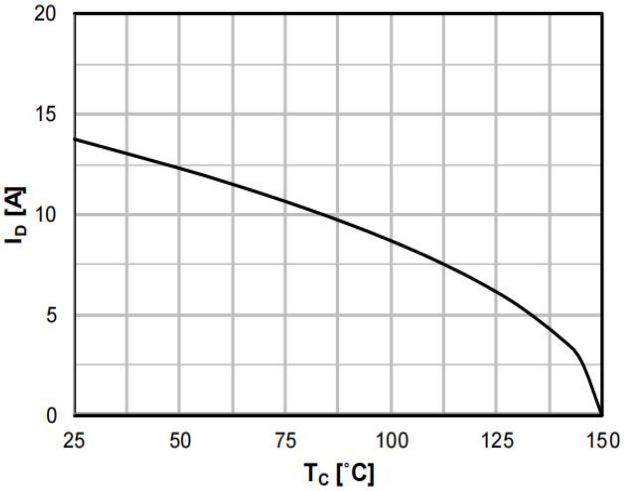


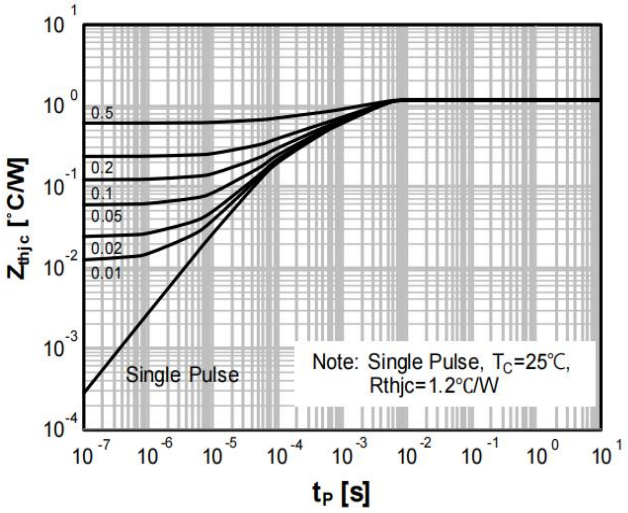


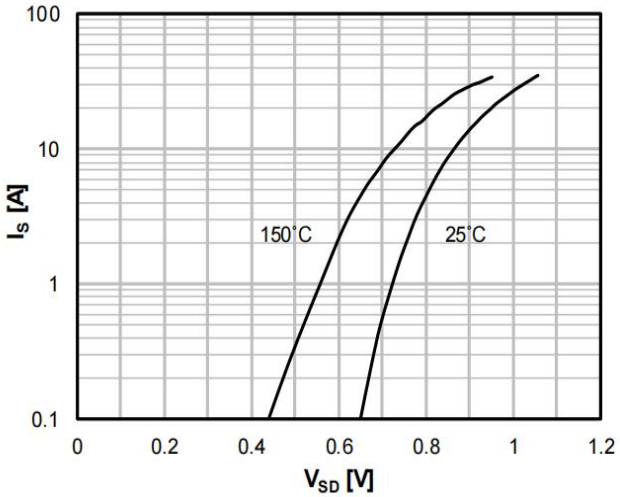


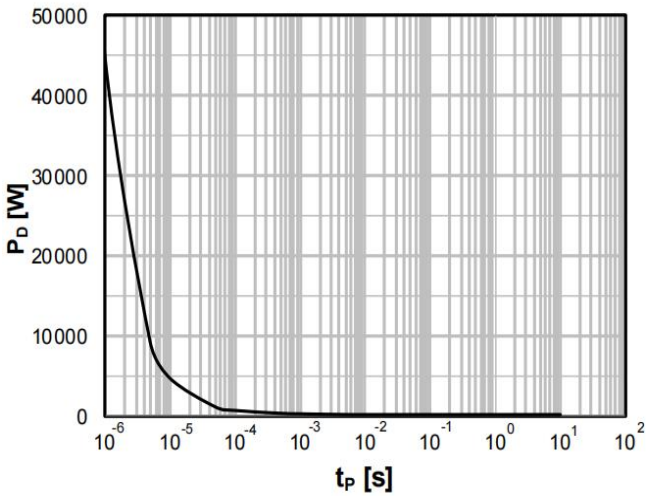
Ratings and Characteristic Curves

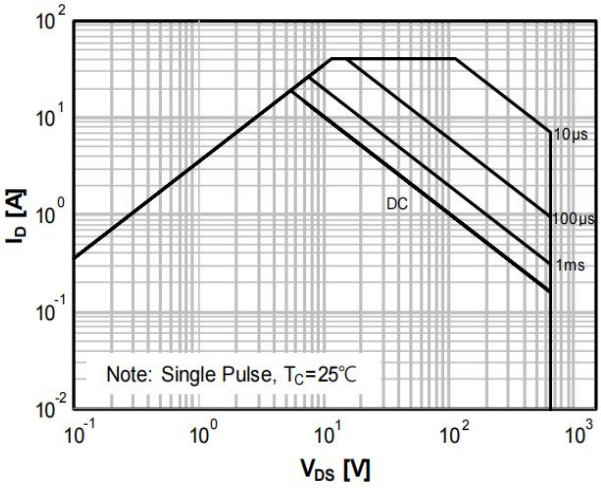




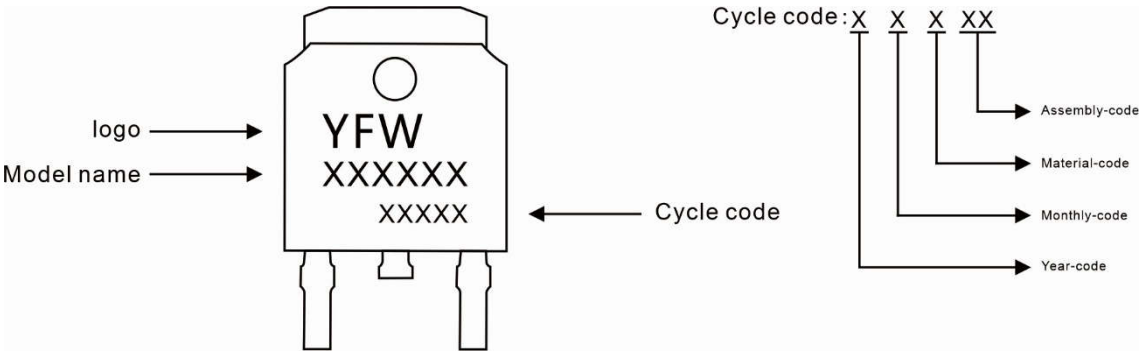








Marking Diagram

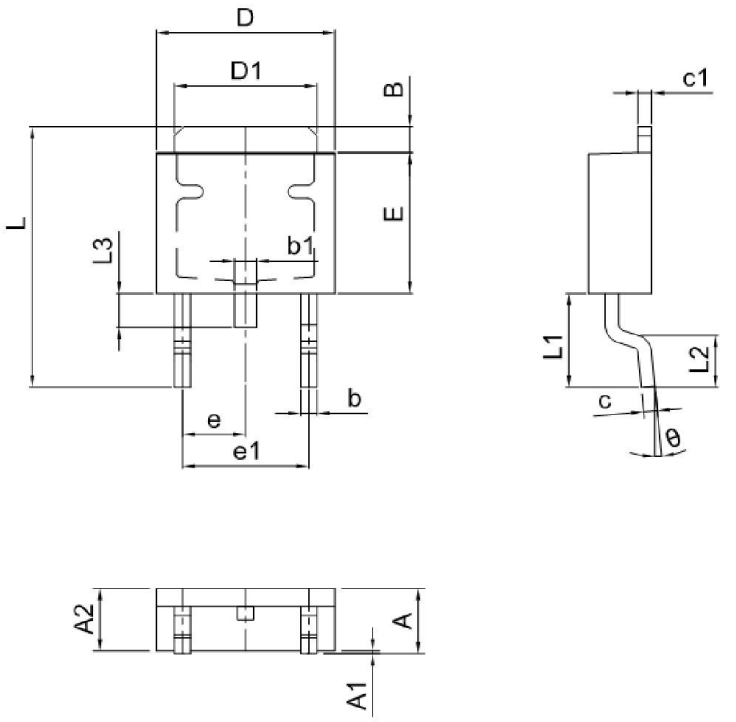


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW65R280AD	TO-252	0.011oz(0.32g)	2500pcs/reel	5000pcs/box 25000pcs/Carton

Package Dimensions

TO-252



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.50	0.087	0.098
A1	0.00	0.12	0.000	0.005
A2	2.20	2.40	0.087	0.094
B	1.20	1.60	0.047	0.063
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
c1	0.40	0.60	0.016	0.024
D	6.35	6.65	0.250	0.262
D1	5.20	5.40	0.205	0.213
E	5.40	5.70	0.213	0.224
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	10.00	11.00	0.393	0.433
L1	2.70	3.10	0.106	0.122
L2	1.40	1.80	0.055	0.071
L3	0.90	1.50	0.035	0.059

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