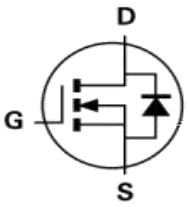
650V N-channel Super Junction MOSFET

MAIN CHARACTERISTICS

I_D	4A
V_{DSS}	650V
R_{DSON}-typ(@V_{GS}=10V)	＜1000mΩ(Type:800mΩ)





TO-252

FEATURES

Adopt advanced trench technology to provide excellent Rdson, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

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℃ maximum,10s per JESD 22-B106

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	±30	V
Continue Drain Current	I_D	4	A
Pulsed Drain Current (Note1)	I_{DM}	20	A
Power Dissipation	P_D	56	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	27	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.2	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	55	°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 μA	BV_{DSS}	650	-	-	V
Drain-Source Leakage Current	V_{DS} =650 V, V_{GS} = 0 V	I_{DSS}	-	-	1	**μA**
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	$V_{GS(th)}$	2.5	-	4.5	**V**
Drain-Source On-State Resistance	VGS=10V, ID=2 A	RDS(on)	-	800	1000	**mΩ**
Gate Resistance	VGS = 0V f = 1.0MHz	Rg	-	8.5	-	**Ω**
Input Capacitance	VDS=100V , VGS=0V , f=1MHz	C_{iss}	-	295	-	**pF**
Output Capacitance		C_{oss}	-	15	-	**pF**
Reverse Transfer Capacitance		C_{rss}	-	0.5	-	**pF**
Turn-on Delay Time(Note2)		$t_{d(ON)}$	-	9.5	-	**ns**
Rise Time(Note2)		t_r	-	22	-	**ns**
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	35	-	**ns**
Fall Time(Note2)		t_f	-	25	-	**ns**
Total Gate Charge(Note2)	VDS = 520V, VGS = 10V, ID = 2 A	Q_G	-	9.2	-	**nC**
Gate to Source Charge(Note2)		Q_{GS}	-	2.1	-	**nC**
Gate to						

RATINGS AND CHARACTERISTIC CURVES

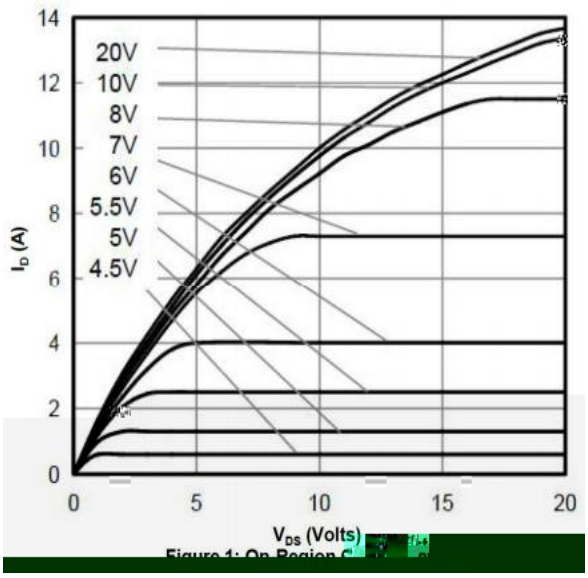
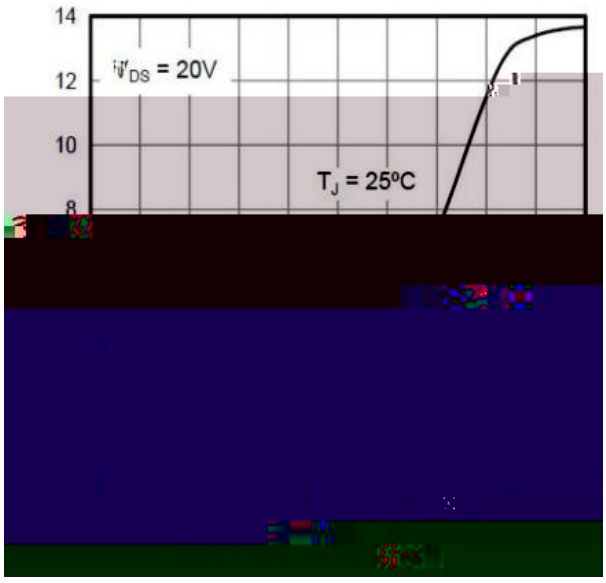


Figure 1: On-Region C



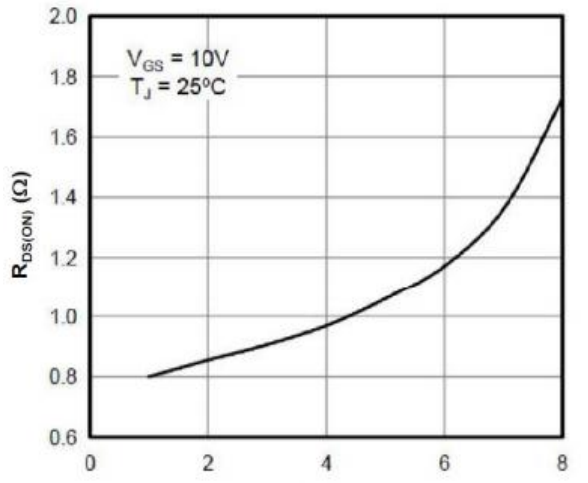
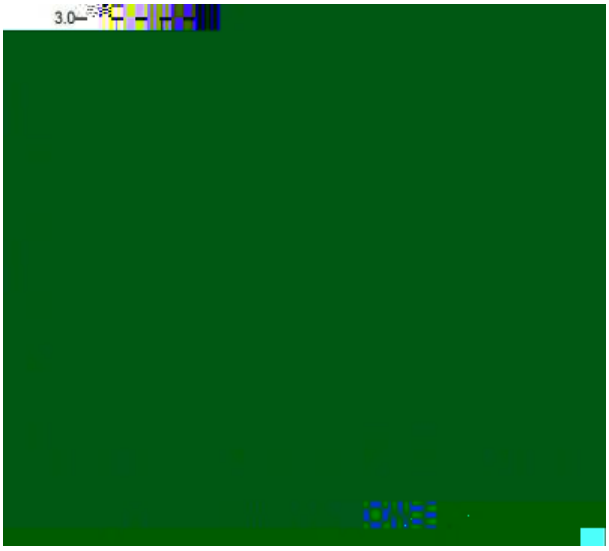


Figure 3: On-Resis nce vs. Drain Current and Gat
e Voltage



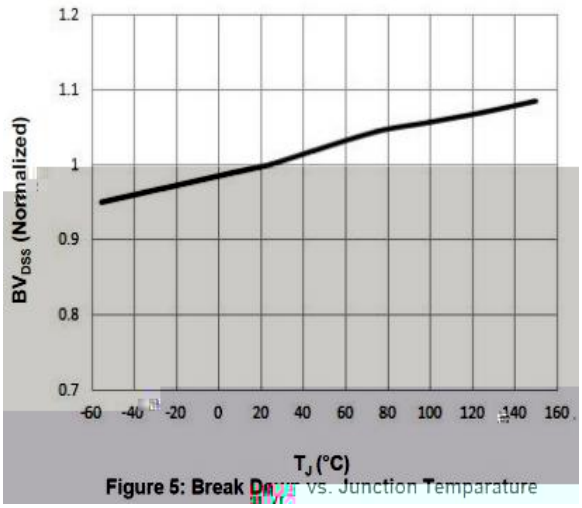


Figure 5: Break Do r vs. Junction Temparature

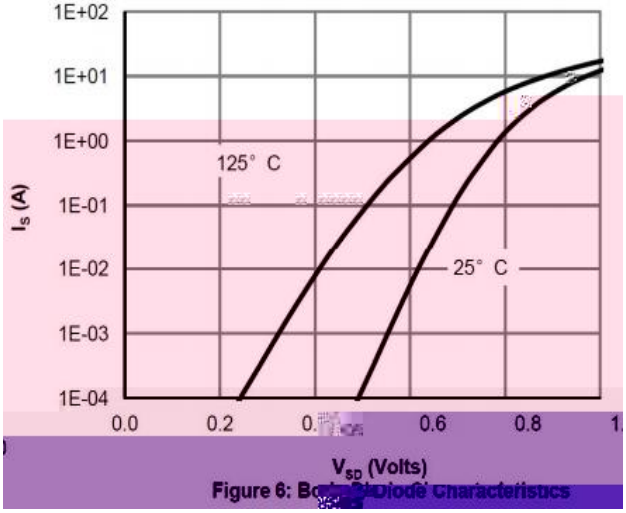
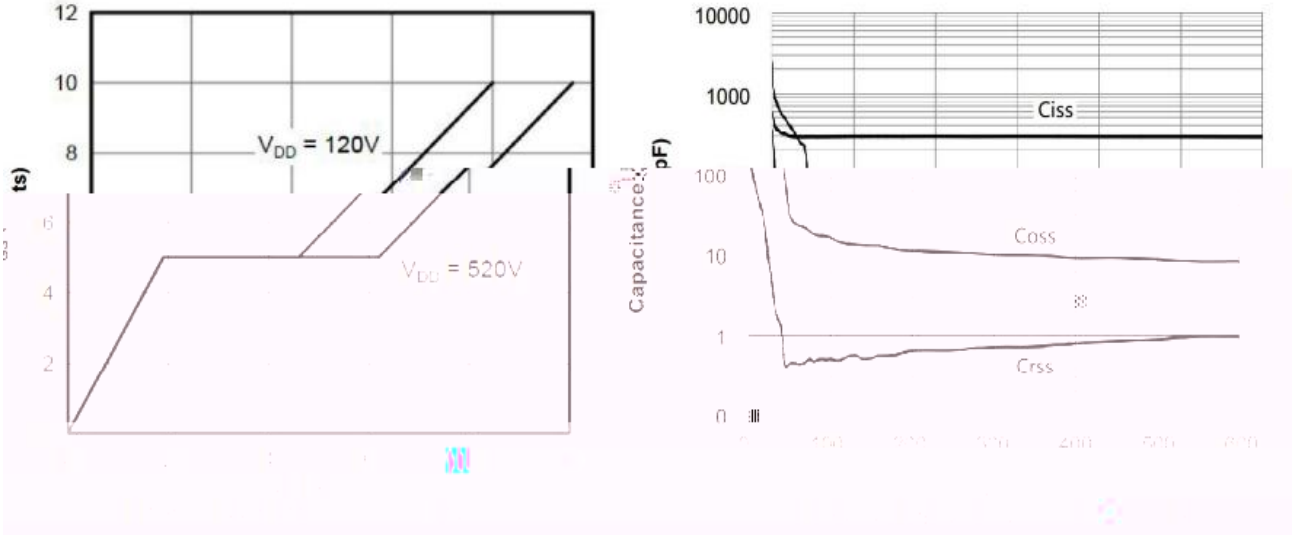
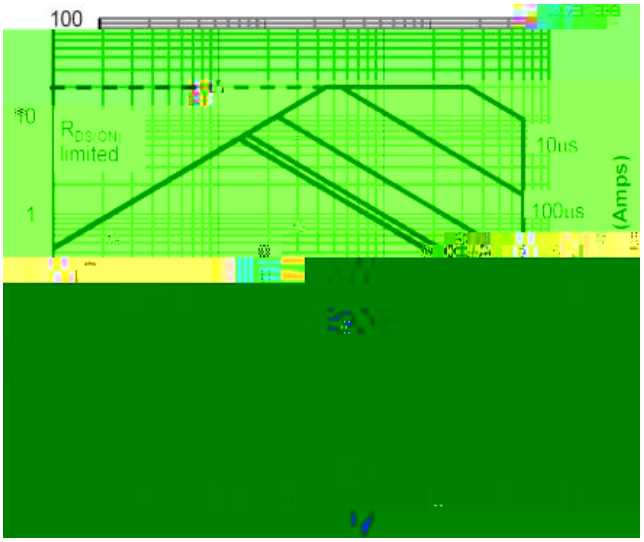
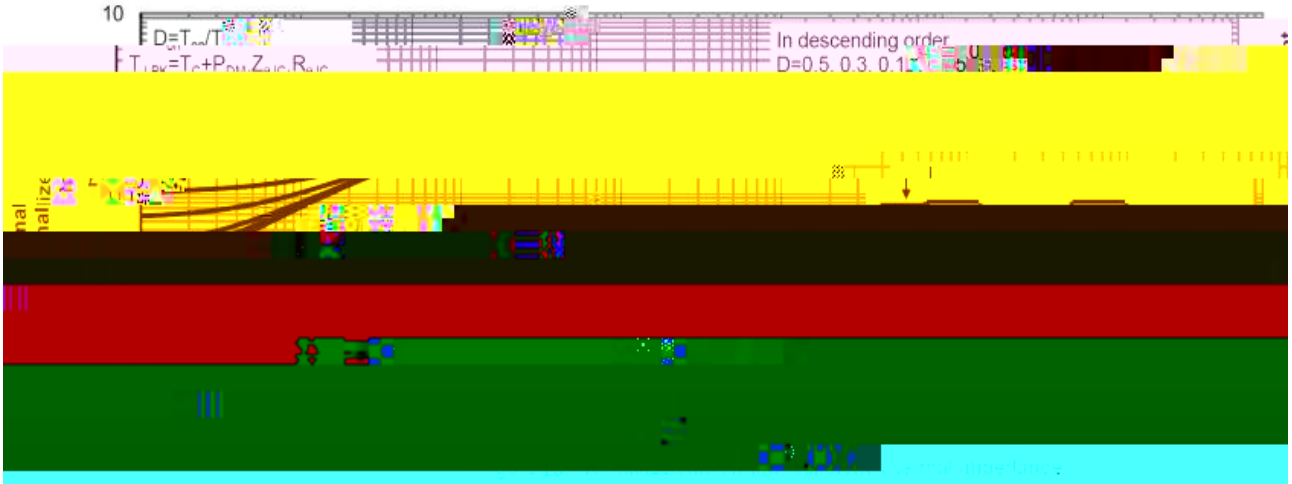


Figure 6: Bo Diode Characteristics

RATINGS AND CHARACTERISTIC CURVES







Marking Diagram

Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW65R1K0AD	TO-252	0.011oz(0.32g)	2500pcs/reel	5000pcs/box 25000pcs/Carton

Package Dimensions

TO-252

	Dim	Millimeter		Inches	
		Min.	Max.	Min.	Max.
	A	10.00			
		10.00	11.00	0.393	0.433

The information presented in this document is for reference only. GuangDong Youfeng Microelectronics Co.,Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise. The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices),YFW or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale. This publication supersedes & replaces all information previously supplied. For additional information, please visit our website https://www.yfwdiode.com, or consult YFW sales office for further assistance.