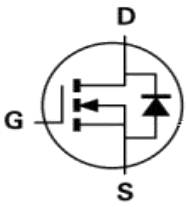
650V N-channel Super Junction MOSFET

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

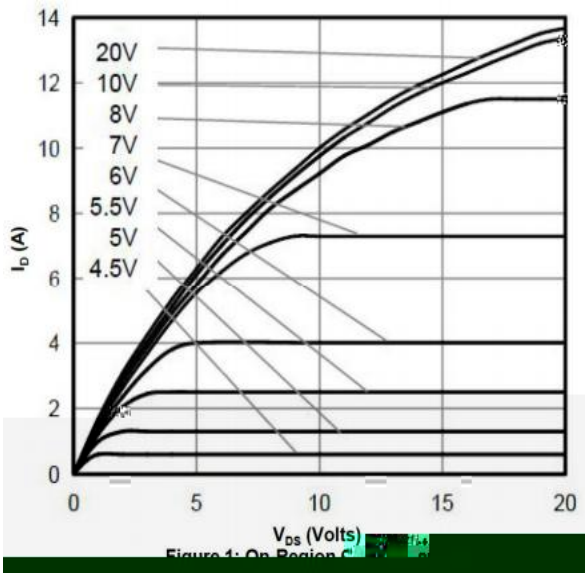
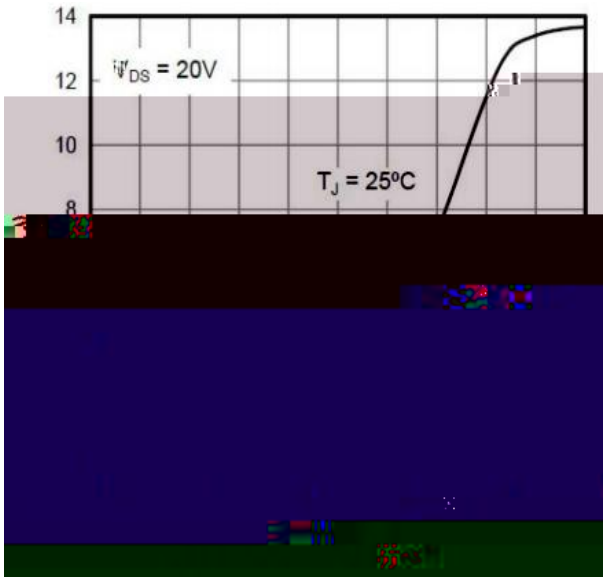


Figure 1: On-Region C



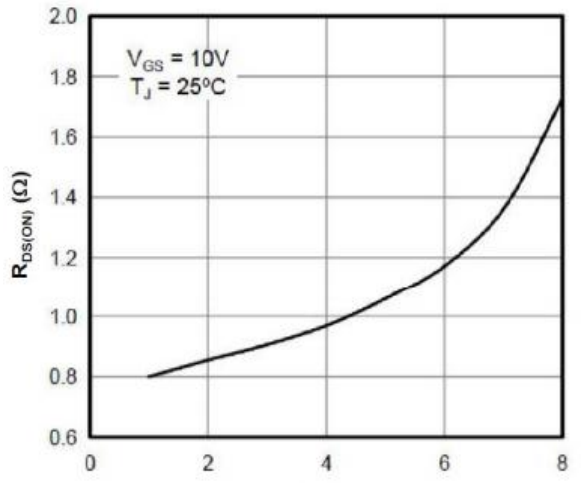
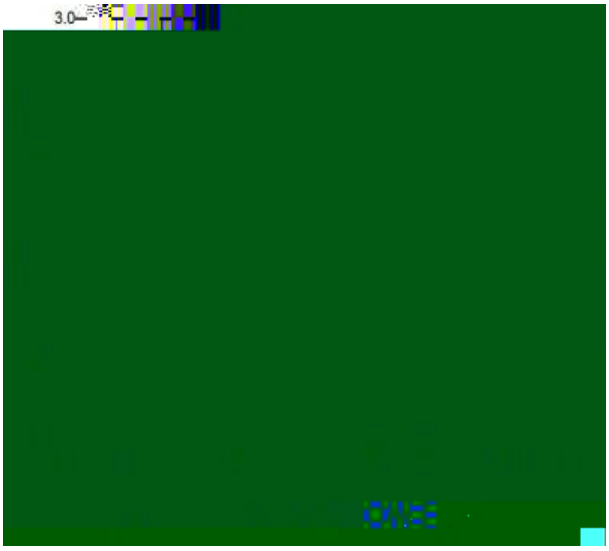


Figure 3: On-Resis nce vs. Drain Current and Gat
e Voltage



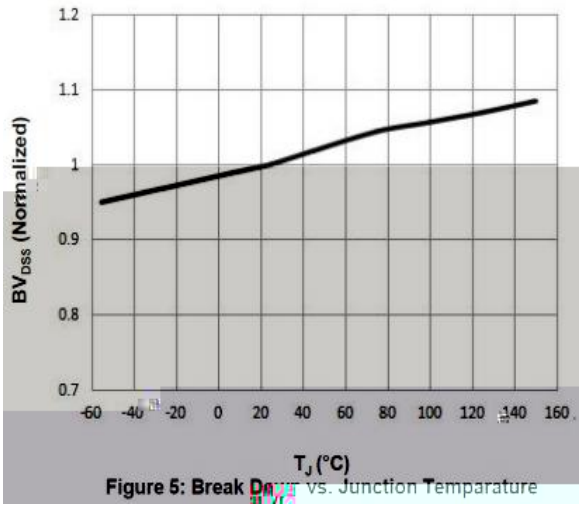


Figure 5: Break Do r vs. Junction Temparature

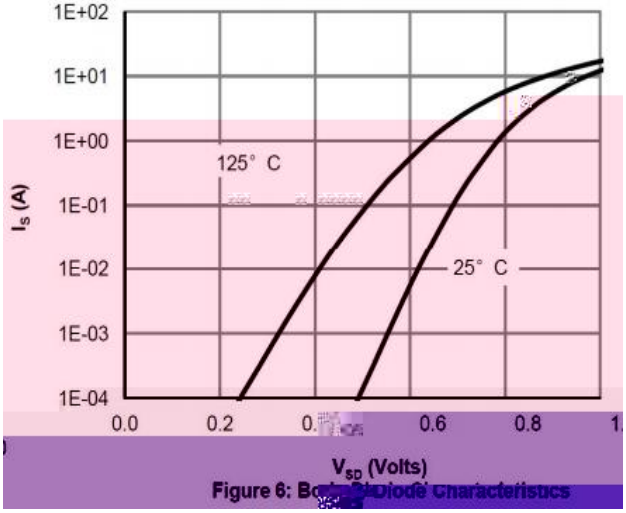
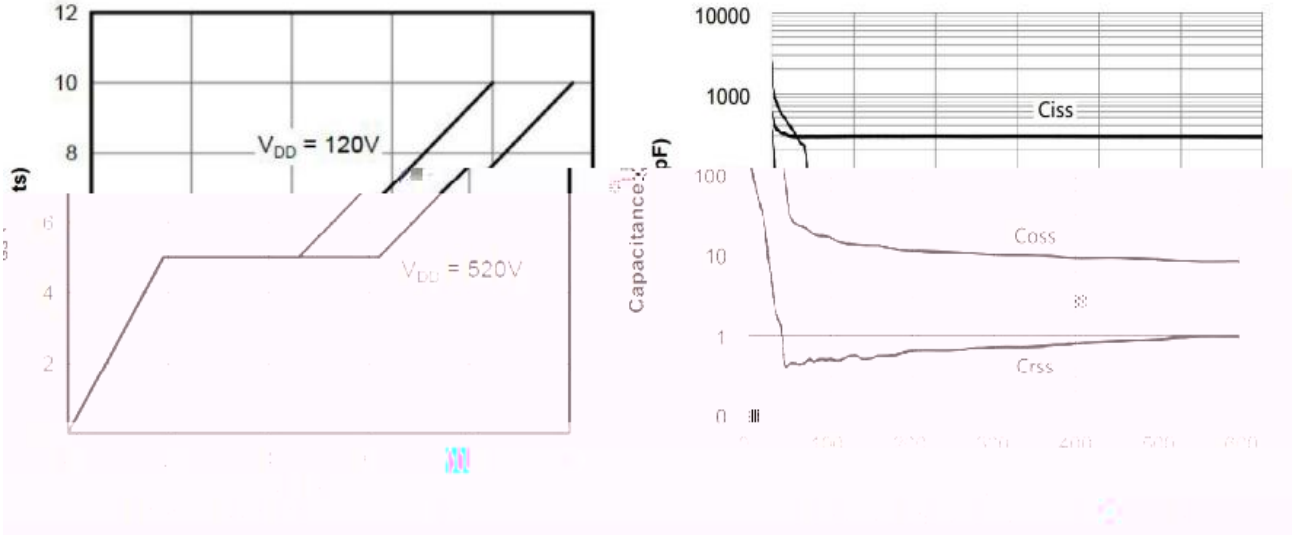
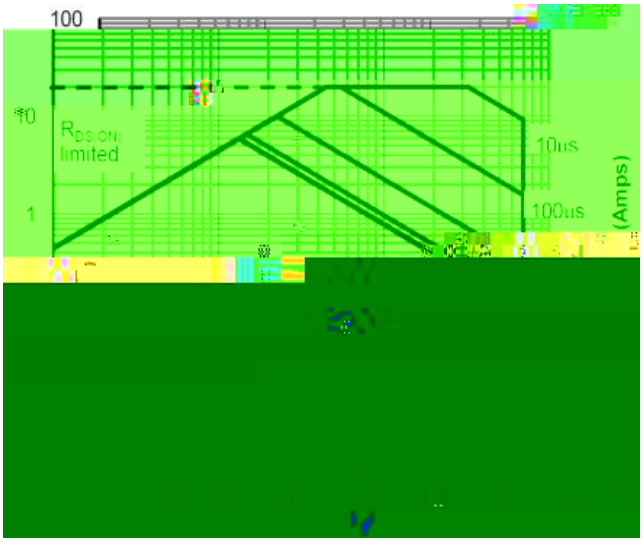
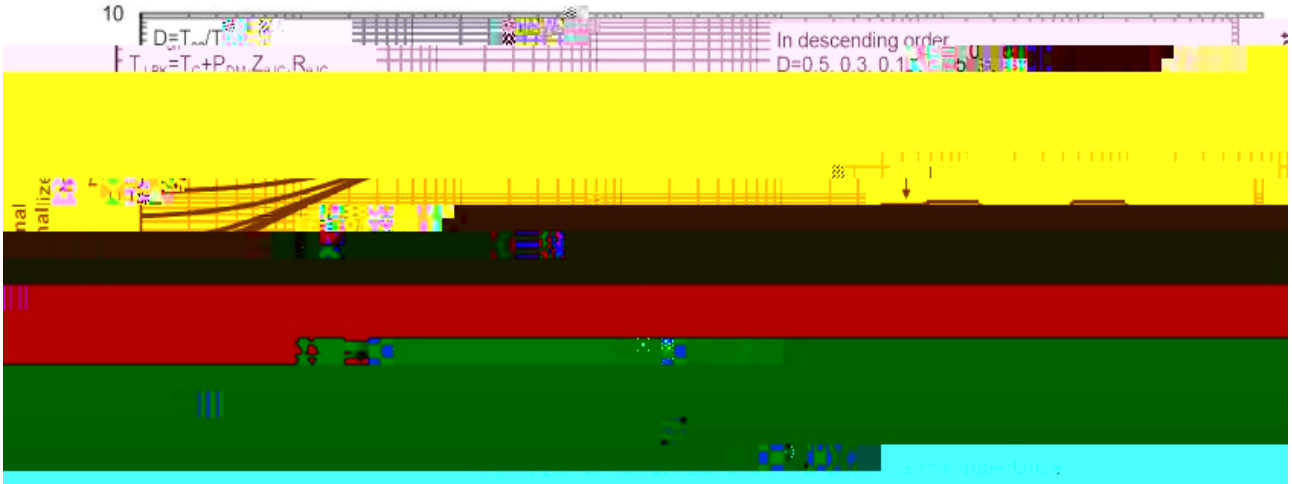


Figure 6: Bo Diode Characteristics

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

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