

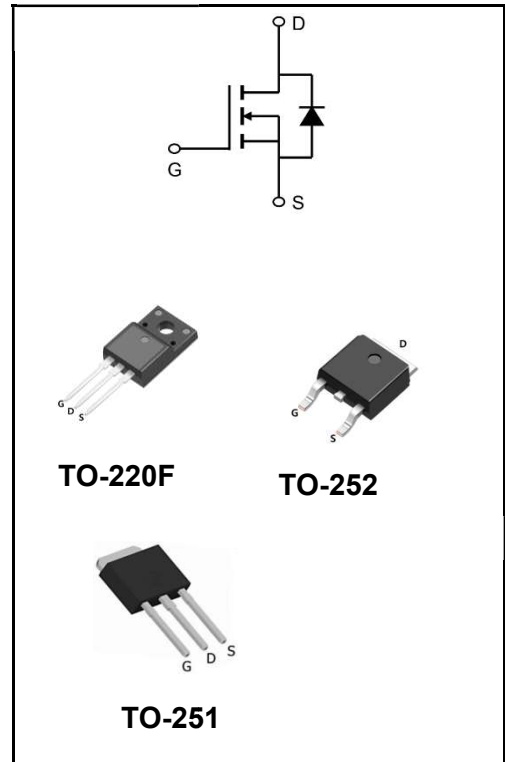
**650V N-Channel Super Junction MOSFE**

**MAIN CHARACTERISTICS**

$I_D$	7 A
$V_{DSS}$	650V
$R_{DS(on)-typ}(@V_{GS}=10V)$	< 600m $\Omega$ ( <b>Type:530m<math>\Omega</math></b> )

**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°C maximum, 10s per JESD 22-B106

**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW65R600AF	TO-220F	YFW 65R600AF XXXXX	1000PCS/Tape
YFW65R600AD	TO-252	YFW 65R600AD XXXXX	2500PCS/Tape
YFW65R600AMJ	TO-251	YFW 65R600AMJ XXXXX	4000PCS/Tape

**Maximum Ratings at Tc=25°C unless otherwise specified**

Characteristics	Symbols	Value		Units
		220F	252/251	
Drain-Source Voltage	$V_{DS}$	650		V
Gate - Source Voltage	$V_{GS}$	±30		V
Continuous Drain Current	$I_D$	7		A
Pulsed Drain Current(note1)	$I_{DM}$	24		A
Power Dissipation	$P_D$	28	64	W
Single Pulse Avalanche Energy(note1)	$E_{AS}$	129		mJ
Operating Temperature Range	$T_J$	-50 to +150		°C
Storage Temperature Range	$T_{STG}$	-50 to +150		°C
Thermal Resistance, Junction-to-case	$R_{\theta JC}$	4.8	1.97	°C/W
Thermal Resistance, Junction ambient	$R_{\theta JA}$	62		°C/W

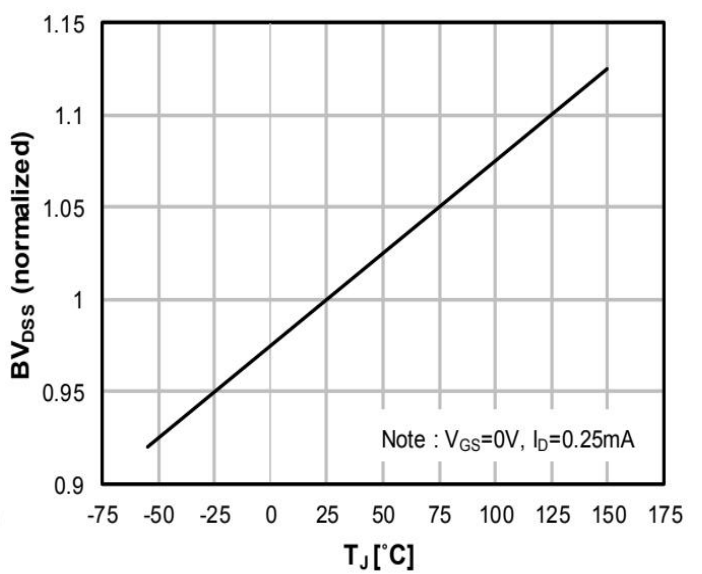
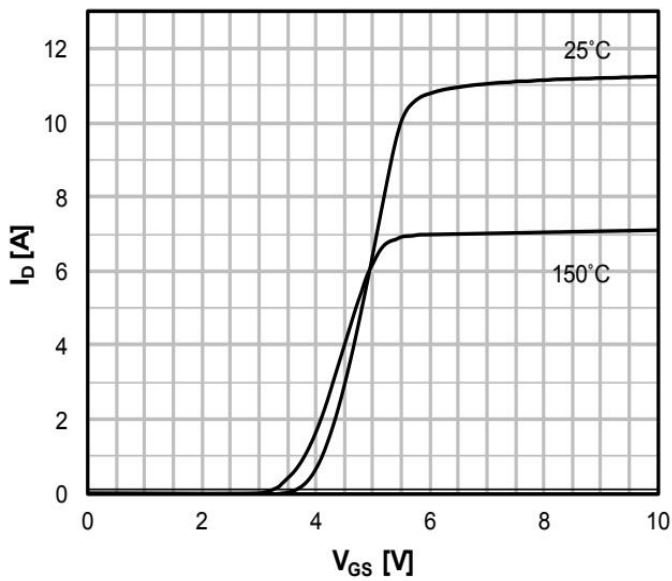
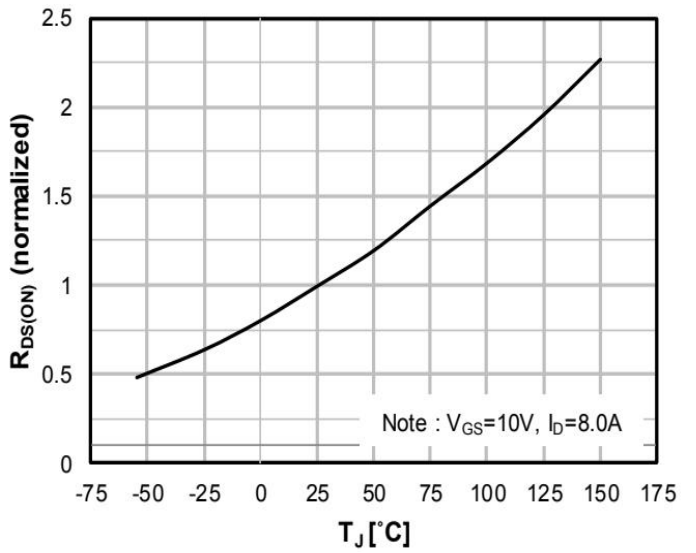
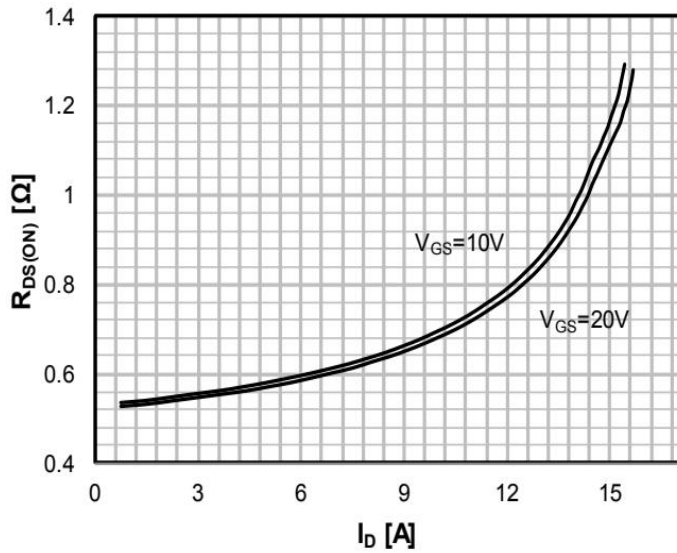
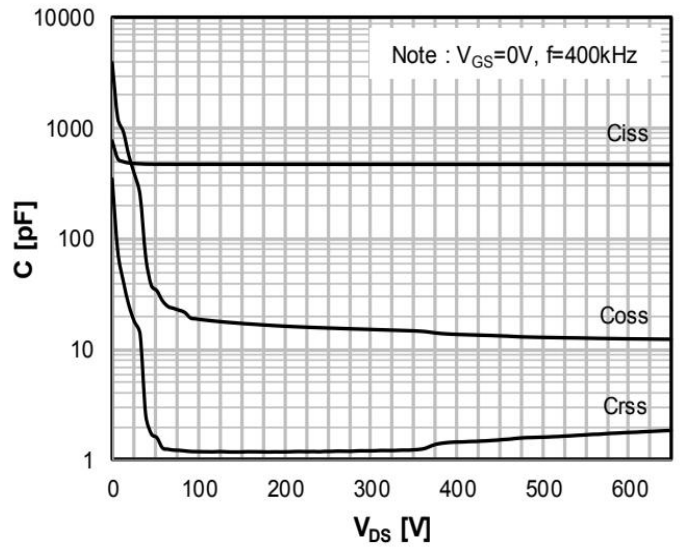
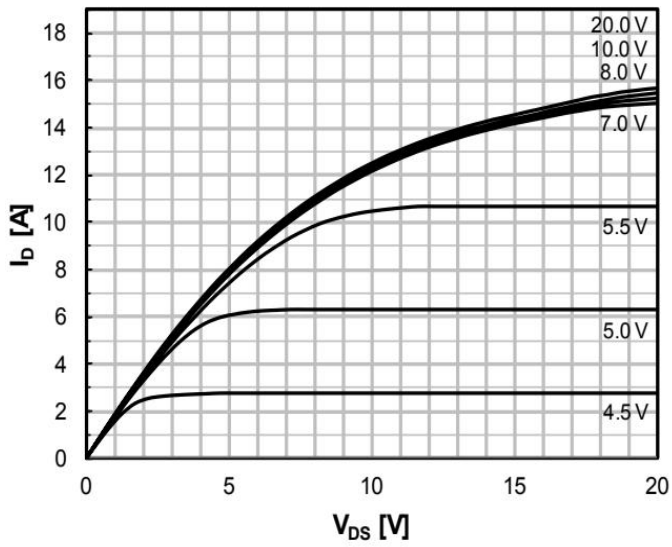
Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

**Maximum Ratings at Tc=25°C unless otherwise specified**

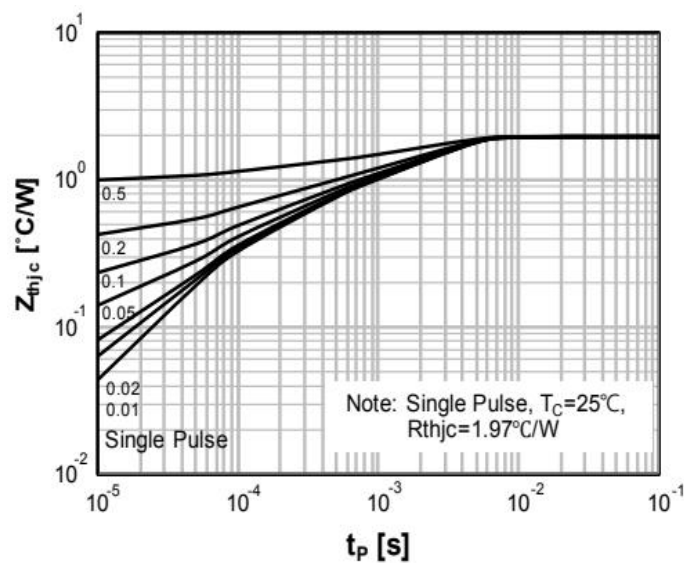
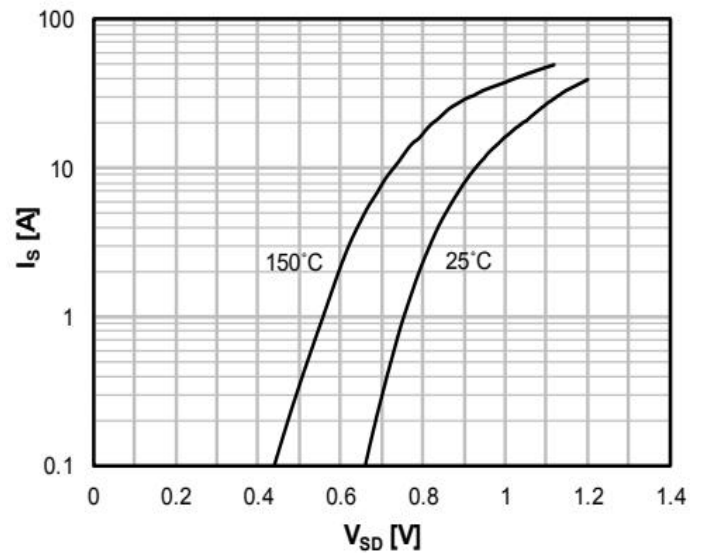
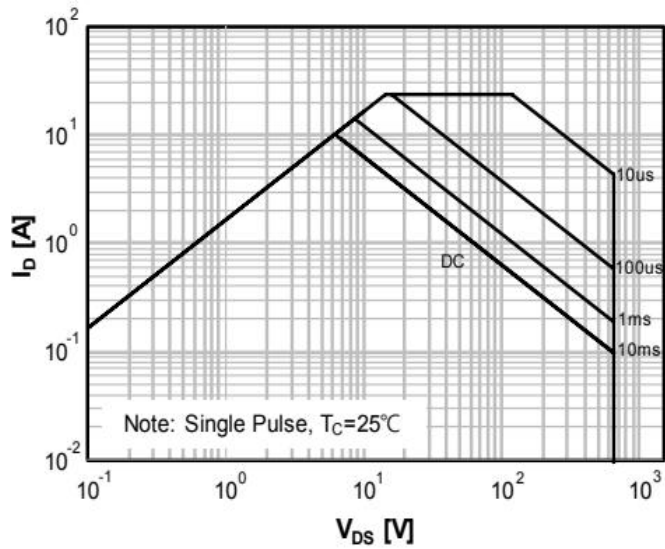
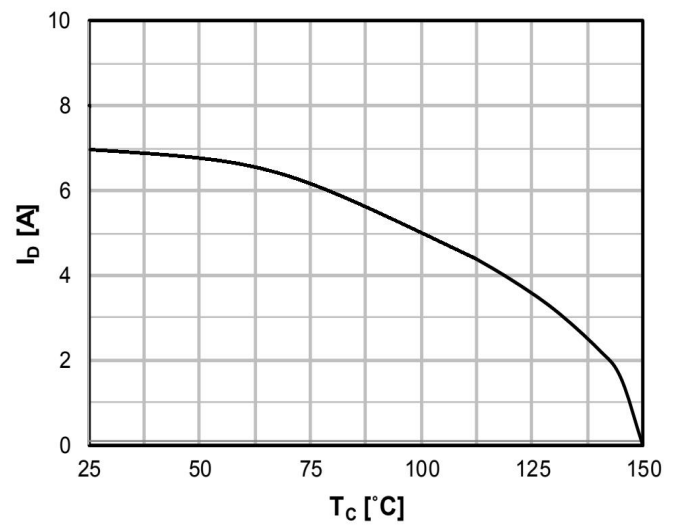
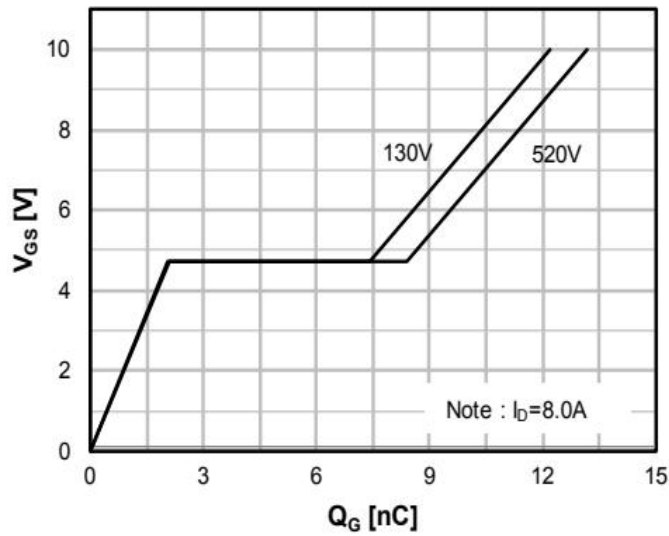
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$BV_{DSS}$	650	-	-	V
Drain-Source Leakage Current	$V_{DS}=650V, V_{GS}=0V$	$I_{DSS}$	-	-	1	μA
Gate-Source Leakage	$V_{GS}=\pm 30V, V_{DS}=0V$	$I_{GSS}$	-	-	±100	nA
Gate- Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	2	-	4	V
Drain-Source On State Resistance	$V_{GS}=10V, I_D=3.5A$	$R_{DS(ON)}$	-	530	600	mΩ
Forward Transconductance	$V_{DS}=5V, I_D=2A$	$g_{fs}$	-	-	8	S
Input Capacitance	$V_{DS}=50V$ $V_{GS}=0V$ $f=1MHz$	$C_{iss}$	-	471	-	PF
Output Capacitance		$C_{oss}$	-	35	-	
Reverse Transfer Capacitance		$C_{rss}$	-	1.7	-	
Turn-on delay time(note2)	$V_{DD}=325V$ $V_{GS}=10V$ $R_G=25\Omega$ $I_D=7A$	$t_{d(on)}$	-	17	-	nS
Rise Time(note2)		$T_r$	-	26	-	
Turn-Off Delay Time(note2)		$t_{d(OFF)}$	-	53	-	
Fall Time(note2)		$t_f$	-	38	-	
Total Gate Charge(note2)	$V_{DS}=520V$ $V_{GS}=10V$ $I_D=7A$	$Q_g$	-	13	-	nC
Gate-to Source Charge(note2)		$Q_{gs}$	-	2.1	-	
Gate-Drain Charge(note2)		$Q_{gd}$	-	6.9	-	
Maximun Body-Diode Continuous Current		$I_S$	-	-	7	A
Maximun Body-Diode Pulsed Current(Note2)		$I_{SM}$	-	-	24	A
Drain-Source Diode Forward Voltage	$T_J = 25^\circ C, I_S = 3.5A, V_{GS} = 0V$	$V_{SD}$	-	-	1.4	V

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

Ratings and Characteristic Curves



Package Outline Dimensions Millimeters



Package Outline Dimensions Millimeters

**TO-220F**

Dim.	Min.	Max.
A	9.95	10.25
B	2.95	3.25
C	1.25	1.45
D	12.95	13.25
E	0.50	0.65
F	3.1	3.3
G	1.30	1.45
H	Typ 2.54	
I	Typ 5.08	
J	4.60	4.75
K	2.50	2.65
L	6.35	6.55
M	15.4	16.0
N	2.75	3.05
O	0.48	0.52
P	0.76	0.84
All Dimensions in millimeter		

**TO-251**

Dim.	Min.	Max.
A	2.2	2.4
A2	0.95	1.15
A3	0.45	0.65
B	0.65	0.85
C	0.45	0.55
D	6.45	6.75
D2	5.2	5.4
E	5.8	6
E2	0.95	1.25
E	Typ 2.3	
E1	Typ 4.6	
L	4	4.2
L1	1.2	1.5
All Dimensions in millimeter		

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				