

650V N-channel Super Junction MOSFET

MAIN CHARACTERISTICS

I_D	11A
V_{DSS}	650V
$R_{DS(on)-typ}(@V_{GS}=10V)$	<380m Ω (Type:340m Ω)



APPLICATIONS

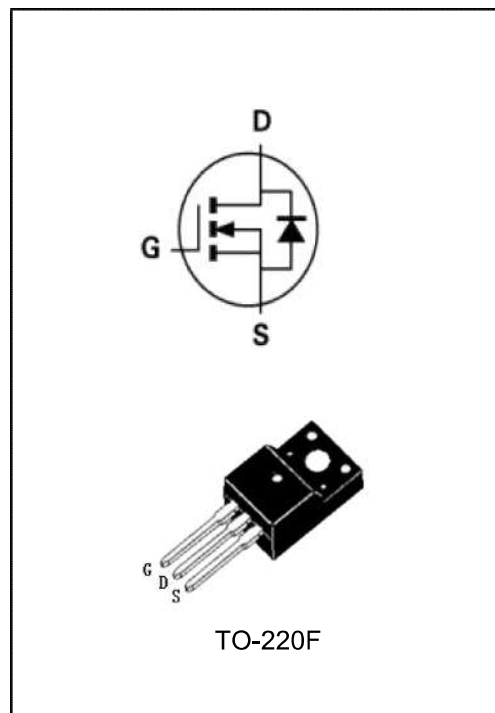
- ✦ Solar inverters
- ✦ LCD/LED/PDP TV
- ✦ Telecom/Server Power supplies
- ✦ AC-DC Power Supply

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

Product Specification Classification

Part Number	Package	Marking	Pack
YFW65R380AF	TO-220F	YFW 65R380AF XXXXX	1000pcs/Tube



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
Continue Drain Current	I_D	11	A
Pulsed Drain Current (Note1)	I_{DM}	31.8	A
Power Dissipation	P_D	84.5	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	220	mJ
Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.48	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62	°C/W

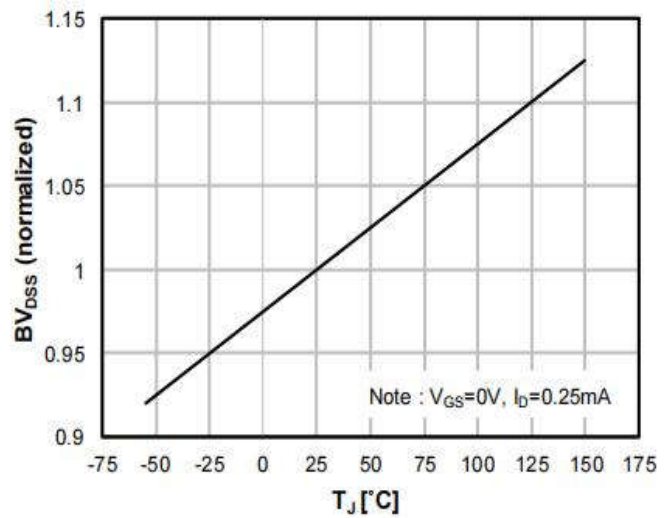
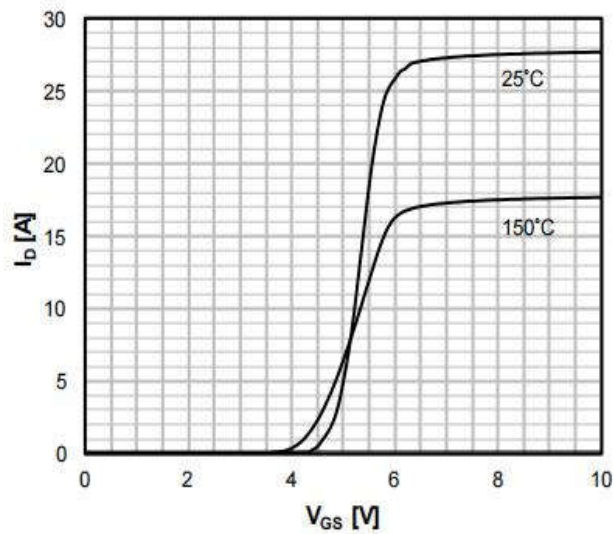
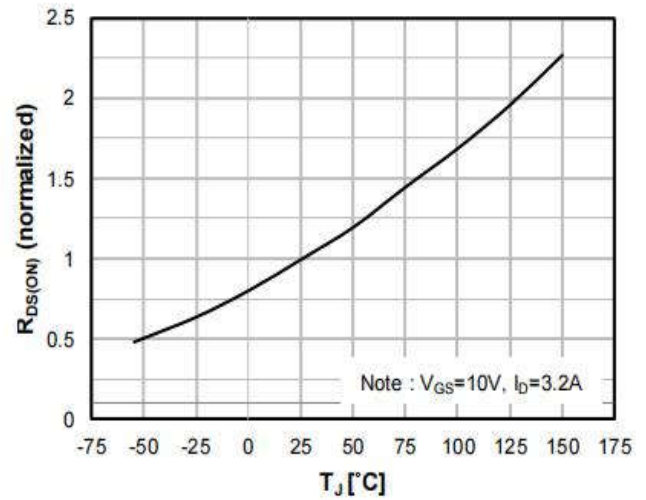
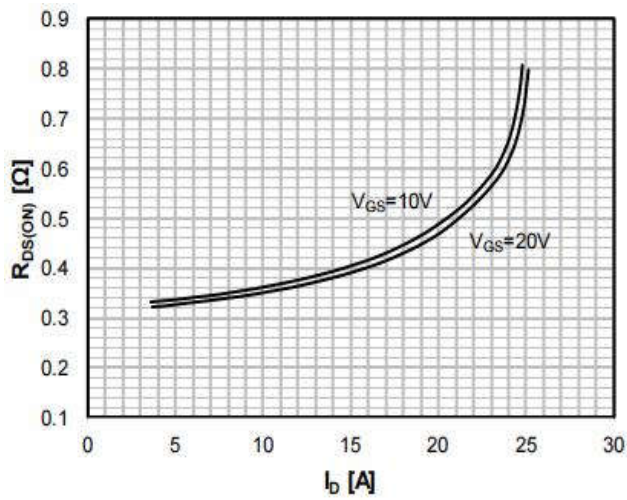
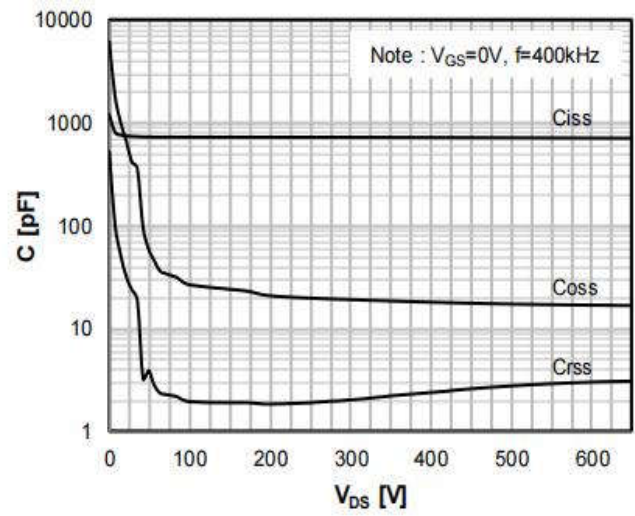
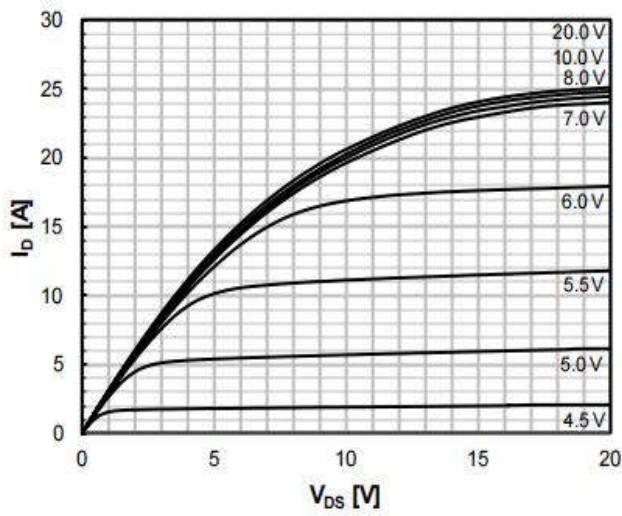
Note1:Pulse test: 300 μ s pulse width, 2 % duty cycle

Maximum Ratings at Tc=25°C unless otherwise specified

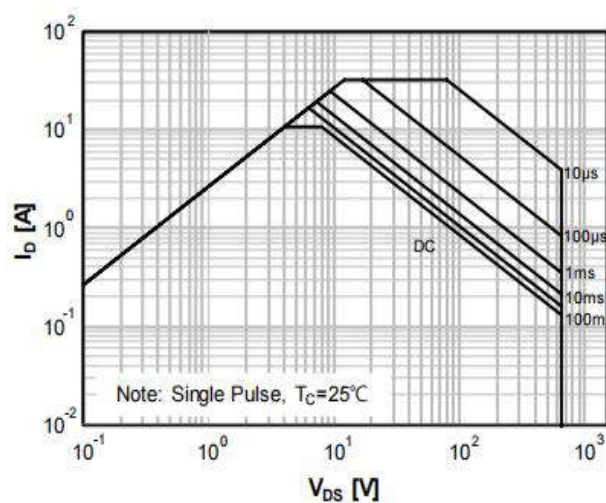
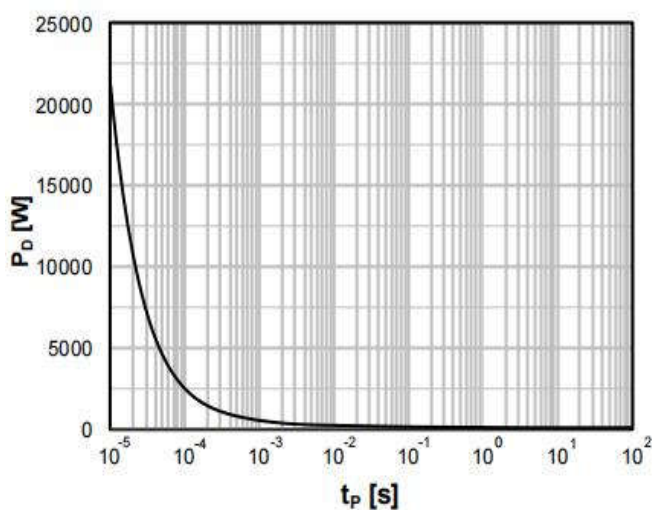
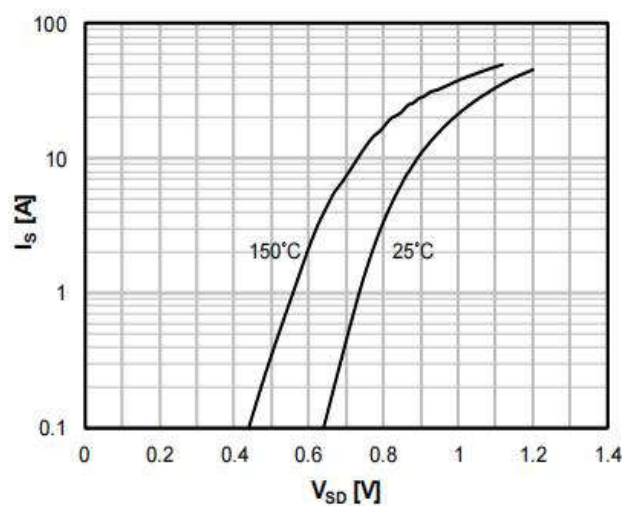
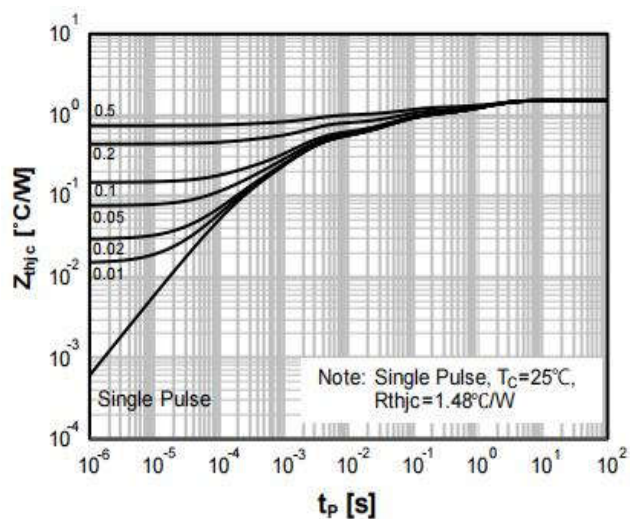
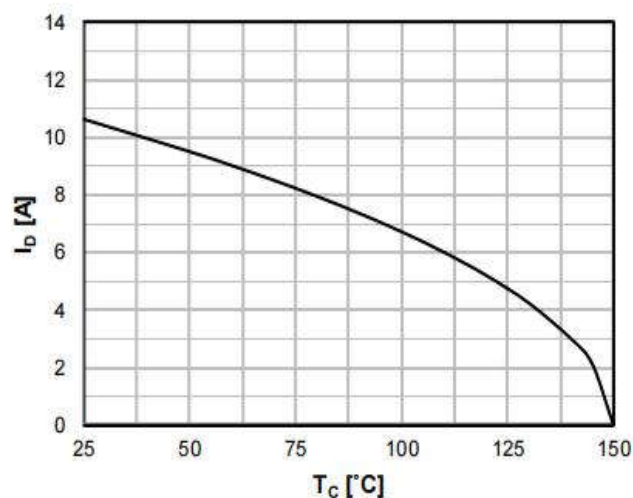
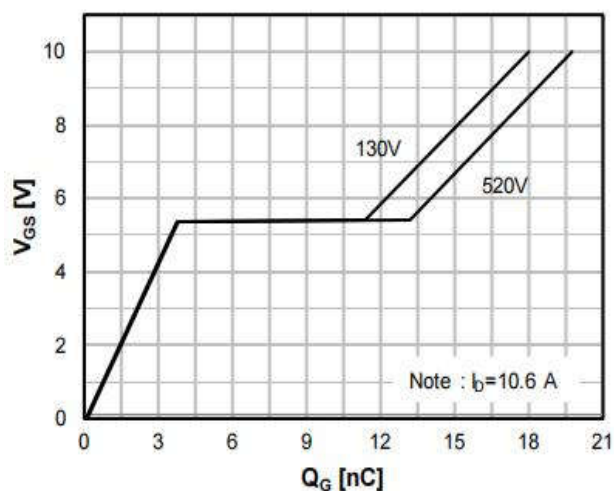
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	BV_{DSS}	650	-	-	V
Drain-Source Leakage Current	$V_{DS} = 650\text{ V}, V_{GS} = 0\text{ V}$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 30\text{ V}, V_{DS} = 0\text{ V}$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	$V_{GS} = 10\text{ V}, I_D = 1\text{ A}$	$R_{DS(on)}$	-	340	380	m Ω
Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 50\text{ V}, f = 400\text{ KHz}$	C_{iss}	-	747	-	pF
Output Capacitance		C_{oss}	-	55	-	
Reverse Transfer Capacitance		C_{rss}	-	3.3	-	
Turn-on Delay Time	$I_D = 10.6\text{ A}, V_{DD} = 325\text{ V}, V_{GS} = 10\text{ V}, R_G = 25\text{ }\Omega$	$t_{d(ON)}$	-	18	-	nS
Rise Time		t_r	-	31	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	65	-	
Fall Time		t_f	-	28	-	
Total Gate Charge	$I_D = 10.6\text{ A}, V_{DS} = 520\text{ V}, V_{GS} = 10\text{ V}$	Q_G	-	20	-	nC
Gate to Source Charge		Q_{GS}	-	3.7	-	
Gate to Drain Charge		Q_{GD}	-	9	-	
Reverse recovery time	$I_{SD} = 10.6\text{ A}, V_{DD} = 100\text{ V}, di/dt = 100\text{ A}/\mu\text{s}$	t_{rr}	-	323	-	ns
Reverse recovery current		I_{rr}	-	17.5	-	A
Reverse recovery charge		Q_{rr}	-	2.8	-	μC
Drain-Source Diode Forward Voltage	$V_{GS} = 0\text{ V}, I_S = 10.6\text{ A}, T_J = 25^\circ\text{C}$	V_{SD}	-	1.4	-	v

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

Ratings and Characteristic Curves

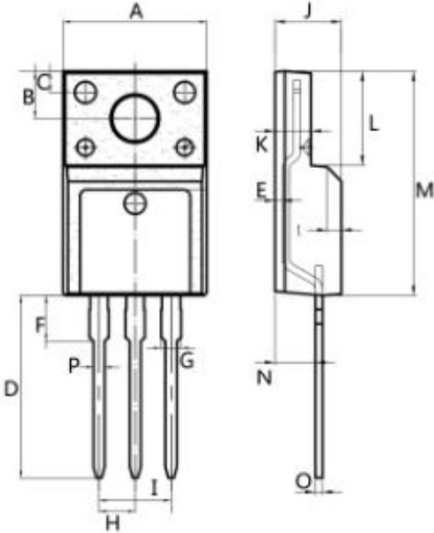


Ratings and Characteristic Curves



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			