KJC65R550CF

Super-Junction Power Mosfet

1. Product Information

Features

- Super Junction technology
- Low FOM $R_{DS(ON)}$ × Q_G
- Lead free product is acquired

Applications

- Charger
- Power Supply
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)

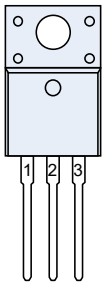
Quick reference

- V_{DS} ⩾ 650 V
- I_D ⩽ 8 A
- $R_{DS(ON)}$ ⩽ 550 mΩ @V_{GS}=10 V (Type 420 mΩ)

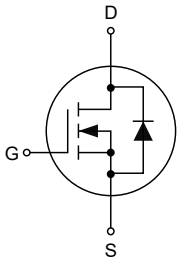
Pin Description

Pin	Description
1	Gate(G)
2	Drain(D)
3	Source(S)

Simplified Outline	Symbol



Top View
TO-220F



Package Marking and Ordering Information

Part number	Marking	Package	Packaging	Quantity	Reel size	Tape width
KJC65R550CF	KJC65R550CF	TO-220F	☐ Tape & Reel	N/A	N/A	N/A
			☑ Tube	1000 PCS	N/A	N/A

2. Absolute Maximum Ratings (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Values	Unit
V_{DS}	Drain-Source Voltage	650	V
V_{GS}	Gate-Source Voltage	±30	V
I_D	Continuous Drain Current (T_C=25℃)	8	A
	Continuous Drain Current (T_C=100℃)	5	A
I_{DM}	Pulsed Drain Current	32	A
E_{AS}	Single Pulsed Avalanche Energy	66	mJ
I_{AR}	Avalanche Current	2.1	A
P_D	Power Dissipation	73	W
T_J, T_{stg}	Operating Junction and Storage Temperature Range	-55 to 150	℃
$R_{\theta JA}$	Thermal Resistance, Junction-Ambient	140	℃/W
$R_{\theta JC}$	Thermal Resistance, Junction-Case	1.7	℃/W

3. Electrical Characteristics (T_J=25℃, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Type	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0 V, I_D=250 μA	650	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=650 V, V_{GS}=0 V	-	-	1	μA
		V_{DS}=650 V, T_C=150℃	-	1	-	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±30 V, V_{DS}=0 V	-	-	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250 μA	3	-	4	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=10 V, I_D=4 A	-	420	550	mΩ
R_g	Gate resistance	f=1 MHz	-	15	-	Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=100 V, V_{GS}=0 V, F=1 MHz	-	490	-	pF
C_{oss}	Output Capacitance		-	25	-	pF
C_{rss}	Reverse Transfer Capacitance		-	0.65	-	pF
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=400 V, I_D=4 A, R_G=27 Ω, V_{GS}=10 V	-	15	-	ns
t_r	Turn-on Rise Time		-	17.5	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	82	-	ns
t_f	Turn-off Fall Time		-	16	-	ns
Q_g	Total Gate Charge	V_{DS}=480 V, I_D=4 A, V_{GS}=10 V	-	16	-	nC
Q_{gs}	Gate-Source Charge		-	3.5	-	nC
Q_{gd}	Gate-Drain Charge		-	7	-	nC
Source-Drain Diode Characteristics						
V_{SD}	Drain-Source Diode Forward Voltage	V_{GS}=0 V, I_F=3.5 A	-	0.85	1.1	V
I_S	Diode Continuous Forward Current		-	-	8	A
I_{SM}	Maximum Pulsed Body-Diode Forward Current		-	-	32	A
Q_{rr}	Reverse Recovery Time	V_{DS}=400 V, I_{SD}=4 A, di/dt=100 A/μs	-	1.8	-	μC
T_{rr}	Reverse Recovery Charge		-	210	-	ns

4. Electrical Characteristics

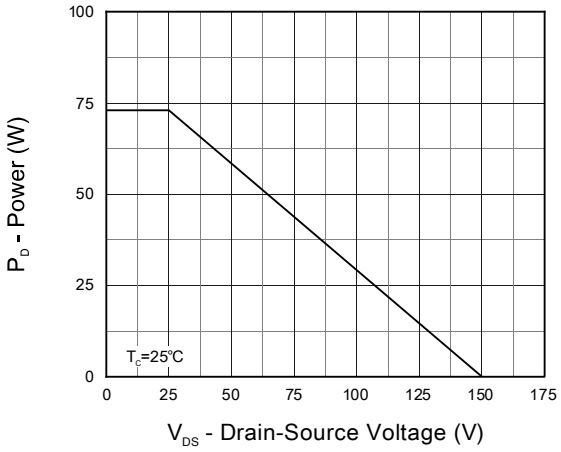


Fig 1. Power Characteristics

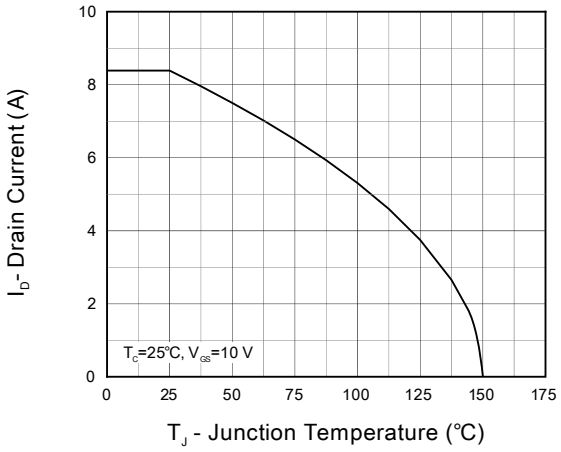


Fig 2. Current Capability

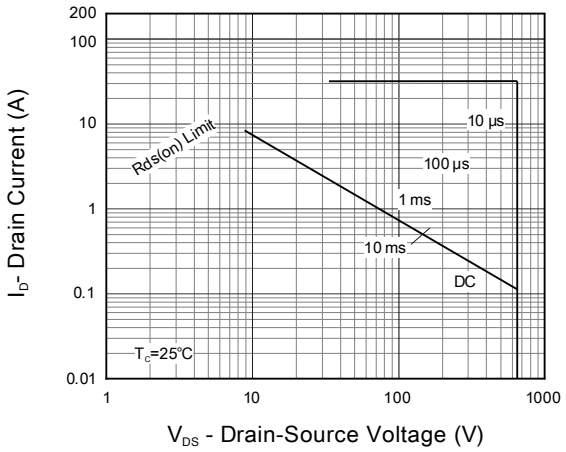


Fig 3. Safe Operation Area

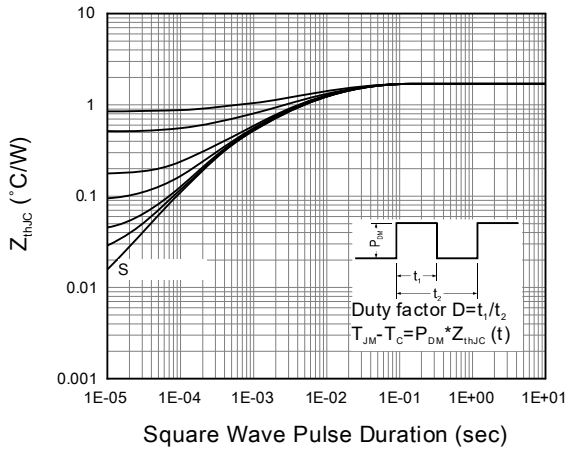


Fig 4. Transient Thermal Impedance

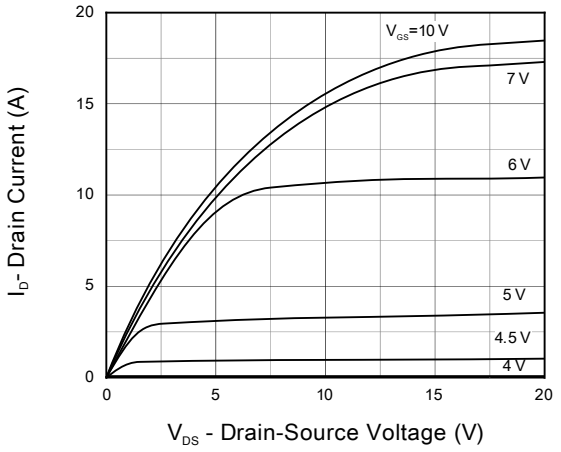


Fig 5. Output Characteristics
T J=25℃

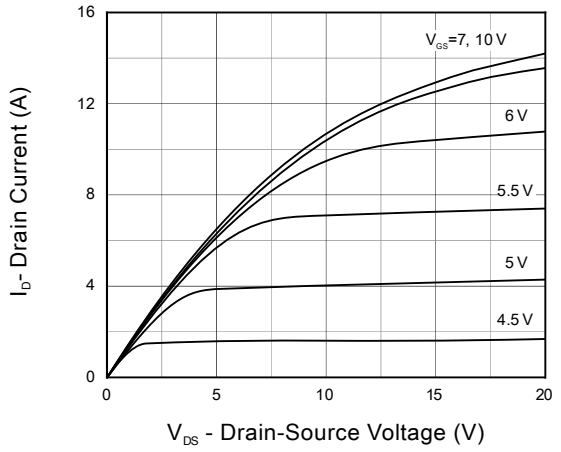


Fig 6. Output Characteristics
T J=150℃

5. Electrical Characteristics (cont.)

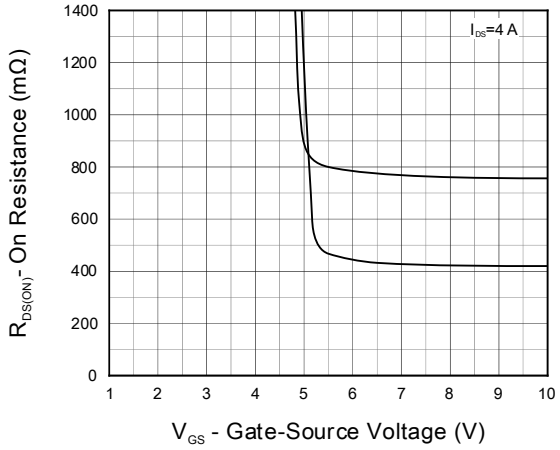


Fig 7. Transfer Characteristics

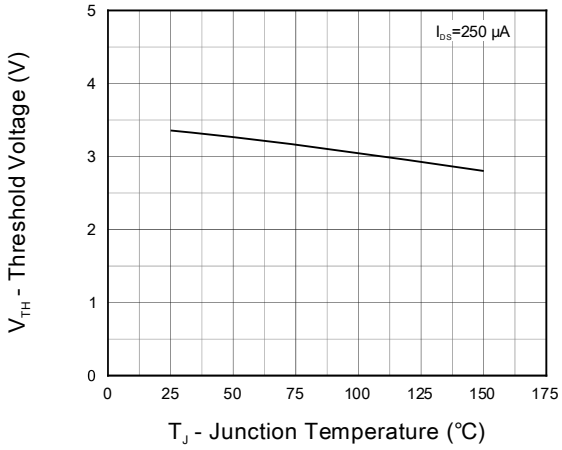


Fig 8. Normalized Threshold Voltage

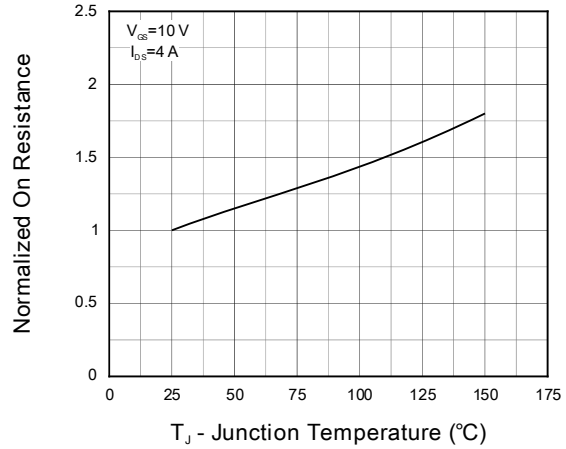


Fig 9. Normalized On Resistance

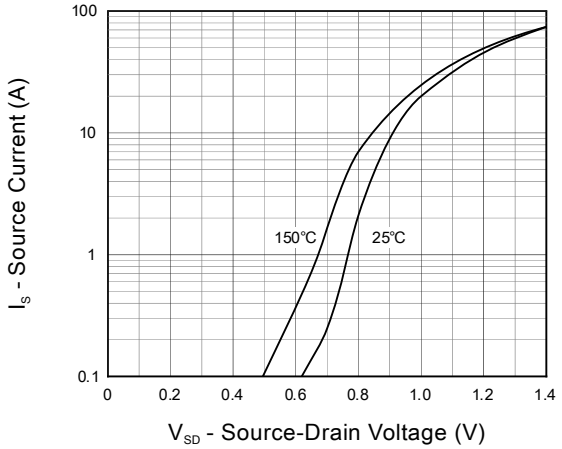


Fig 10. Diode Forward Current

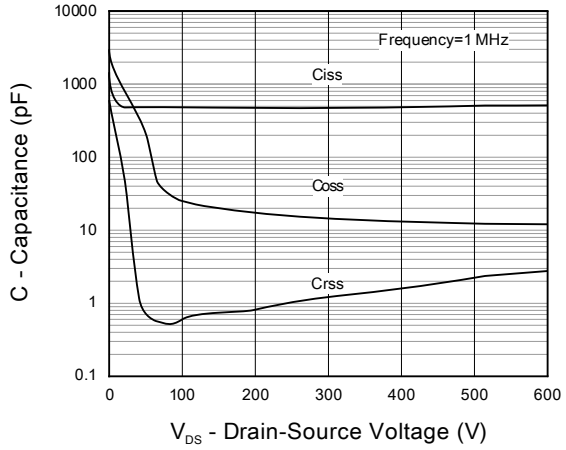


Fig 11. Capacitance

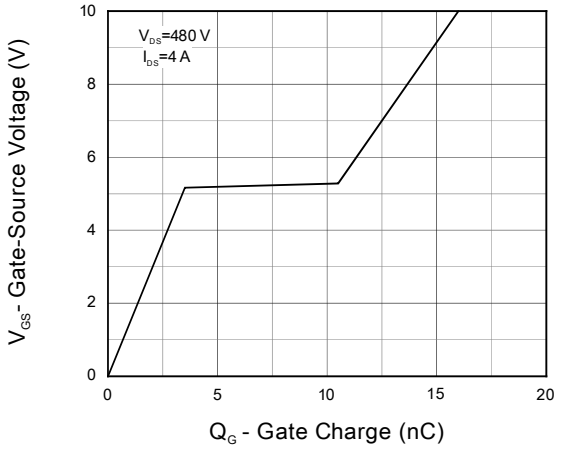
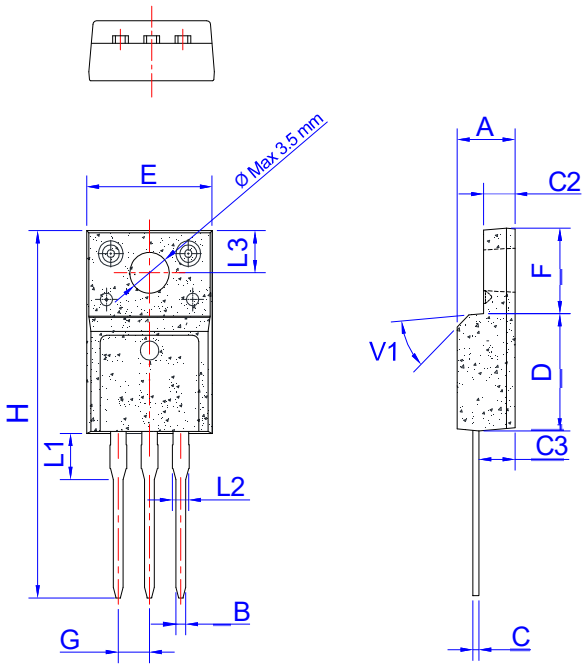


Fig 12. Gate Charge

5. Package Mechanical Data

TO-220F Package



Symbol	Dimensions in Millimeters		
	MIN	NOM	MAX
A	4.50		4.90
B	0.74	0.80	0.83
C	0.47		0.65
C2	2.45		2.75
C3	2.60		3.00
D	8.80		9.30
E	9.80		10.4
F	6.40		6.80
G		2.54	
H	28.0		29.8
L1		3.63	
L2	1.14		1.70
L3		3.30	
V1		45°	