



JCS55N06H

主要参数 MAIN CHARACTERISTICS

I_D	55 A
V_{DSS}	60V
$R_{dson-max}$ (@ $V_{gs}=10V$)	18 m Ω
Q_g-typ	43nC

用途

- 高频开关电源
- UPS 电源

APPLICATIONS

- High frequency switch mode power supplies
- UPS

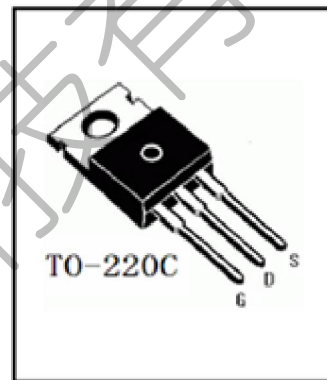
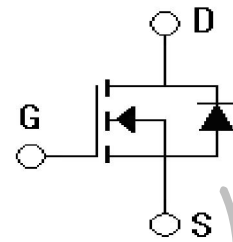
产品特性

- 低栅极电荷
- 低 C_{rss}
- 开关速度快
- 产品全部经过雪崩测试
- 高抗 dv/dt 能力
- RoHS 产品

FEATURES

- Low gate charge
- Low C_{rss}
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS product

封装 Package



订货信息 ORDER MESSAGE

订货型号 Order codes	印记 Marking	封装 Package	无卤素 Halogen Free	包装 Packaging	器件重量 Device Weight
JCS55N06CH-O-C-N-B	JCS55N06CH	TO-220C	否 NO	条管 Tube	2.06 g(typ)





绝对最大额定值 ABSOLUTE RATINGS (Tc=25℃)

项 目 Parameter	符 号 Symbol	数 值 Value	单 位 Unit
		JCS55N06CH	
最高漏极-源极直流电压 Drain-Source Voltage	V _{DSS}	60	V
连续漏极电流 Drain Current -continuous	I _D T=25℃ T=100℃	55	A
		39	A
最大脉冲漏极电流(注 1) Drain Current – pulse (note 1)	I _{DM}	220	A
最高栅源电压 Gate-Source Voltage	V _{GSS}	±20	V
单脉冲雪崩能量(注 2) Single Pulsed Avalanche Energy (note 2)	E _{AS}	756	mJ
雪崩电流(注 1) Avalanche Current (note 1)	I _{AR}	55	A
重复雪崩能量 (注 1) Repetitive Avalanche Energy (note 1)	E _{AR}	10.4	mJ
二极管反向恢复最大电压变化速率 (注 3) Peak Diode Recovery dv/dt (note 3)	dv/dt	7	V/ns
耗散功率 Power Dissipation	P _D T _C =25℃ -Derate above 25℃	103.8	W
		0.83	W/℃
最高结温及存储温度 Operating and Storage Temperature Range	T _J , T _{STG}	-55~+150	℃
引线最高焊接温度 Maximum Lead Temperature for Soldering Purposes	T _L	300	℃

*漏极电流由最高结温限制

*Drain current limited by maximum junction temperature





电特性 ELECTRICAL CHARACTERISTICS

项 目 Parameter	符 号 Symbol	测试条件 Tests conditions	最小 Min	典型 Typ	最大 Max	单位 Units
关态特性 Off –Characteristics						
漏—源击穿电压 Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	60	-	-	V
击穿电压温度特性 Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	$I_D=250\mu A$, referenced to $25^\circ C$	-	0.6	-	V/ $^\circ C$
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V, T_C=25^\circ C$	-	-	1	μA
		$V_{DS}=48V, T_C=125^\circ C$	-	-	10	μA
正向栅极体漏电流 Gate-body leakage current, forward	I_{GSSF}	$V_{DS}=0V, V_{GS}=30V$	-	-	100	nA
反向栅极体漏电流 Gate-body leakage current, reverse	I_{GSSR}	$V_{DS}=0V, V_{GS}=-30V$	-	-	-100	nA
通态特性 On-Characteristics						
阈值电压 Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D=250\mu A$	2.0	-	4.0	V
静态导通电阻 Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=27.5A$	-	15.5	18	m Ω
正向跨导 Forward Transconductance	g_{fs}	$V_{DS}=30V, I_D=27.5A$ (note 4)	-	34.7	-	S
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{iss}	$V_{DS}=25V,$ $V_{GS}=0V,$ $f=1.0MHz$	-	1536	-	pF
输出电容 Output capacitance	C_{oss}		-	397	-	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	98.6	-	pF





电特性 ELECTRICAL CHARACTERISTICS

开关特性 Switching Characteristics						
延迟时间 Turn-On delay time	$t_d(\text{on})$	$V_{DD}=30V, I_D=55A, R_G=50\Omega$ $V_{GS}=10V$ (note 4, 5)	-	30.7	-	ns
上升时间 Turn-On rise time	t_r		-	164	-	ns
延迟时间 Turn-Off delay time	$t_d(\text{off})$		-	220	-	ns
下降时间 Turn-Off Fall time	t_f		-	160	-	ns
栅极电荷总量 Total Gate Charge	Q_g	$V_{DS}=48V,$ $I_D=55A$ $V_{GS}=10V$ (note 4, 5)	-	43	55	nC
栅-源电荷 Gate-Source charge	Q_{gs}		-	6.7	-	nC
栅-漏电荷 Gate-Drain charge	Q_{gd}		-	19	-	nC
漏-源二极管特性及最大额定值 Drain-Source Diode Characteristics and Maximum Ratings						
正向最大连续电流 Maximum Continuous Drain -Source Diode Forward Current		I_S	-	-	55	A
正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current		I_{SM}	-	-	220	A
正向压降 Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V,$ $I_S=55A$	-		1.6	V
反向恢复时间 Reverse recovery time	t_{rr}	$V_{GS}=0V, I_S=55A$ $di/dt=100A/\mu s$ (note 4)	-	50	-	ns
反向恢复电荷 Reverse recovery charge	Q_{rr}		-	80	-	nC

热特性 THERMAL CHARACTERISTIC

项 目 Parameter	符 号 Symbol	最大 Max		单 位 Unit
		JCS55N06CH		
结到管壳的热阻 Thermal Resistance, Junction to Case	$R_{th(j-c)}$	1.20		$^{\circ}C/W$
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	62.5		$^{\circ}C/W$

注释:

- 1: 脉冲宽度由最高结温限制
- 2: $L=0.5mH, I_{AS}=55A, V_{DD}=25V, R_G=25\Omega$, 起始结温 $T_J=25^{\circ}C$
- 3: $I_{SD} \leq 55A, di/dt \leq 300A/\mu s, V_{DD} \leq BV_{DSS}$, 起始结温 $T_J=25^{\circ}C$
- 4: 脉冲测试: 脉冲宽度 $\leq 300\mu s$, 占空比 $\leq 2\%$
- 5: 基本与工作温度无关

Notes:

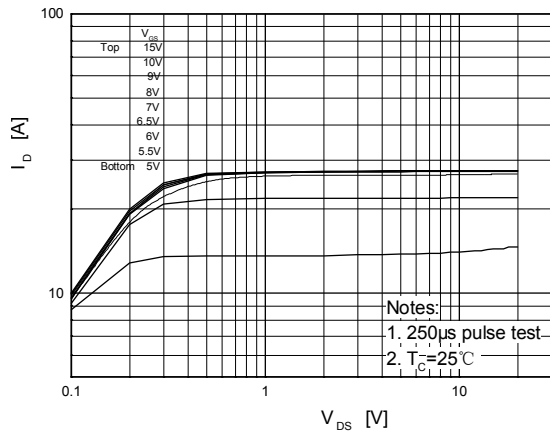
- 1: Pulse width limited by maximum junction temperature
- 2: $L=0.5mH, I_{AS}=55A, V_{DD}=25V, R_G=25\Omega$, Starting $T_J=25^{\circ}C$
- 3: $I_{SD} \leq 55A, di/dt \leq 300A/\mu s, V_{DD} \leq BV_{DSS}$, Starting $T_J=25^{\circ}C$
- 4: Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycles $\leq 2\%$
- 5: Essentially independent of operating temperature



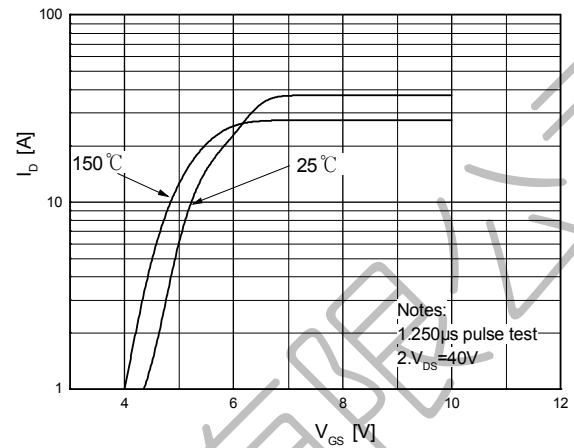


特征曲线 ELECTRICAL CHARACTERISTICS (curves)

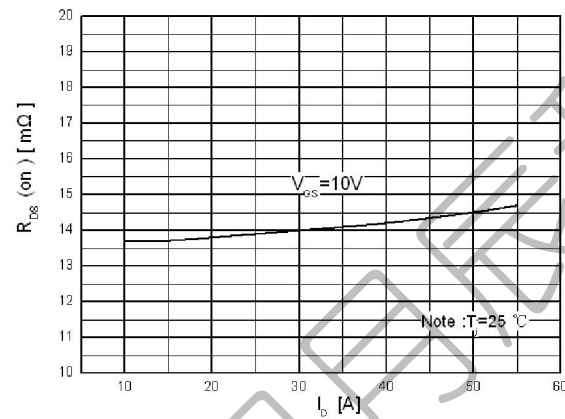
On-Region Characteristics



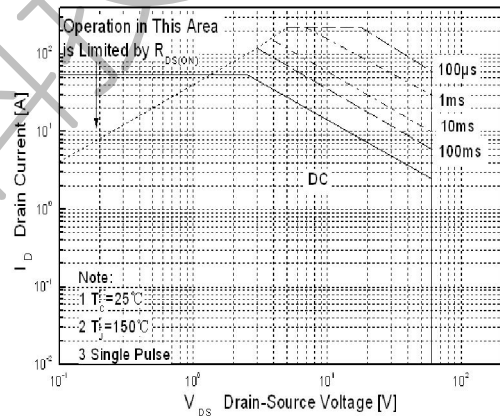
Transfer Characteristics



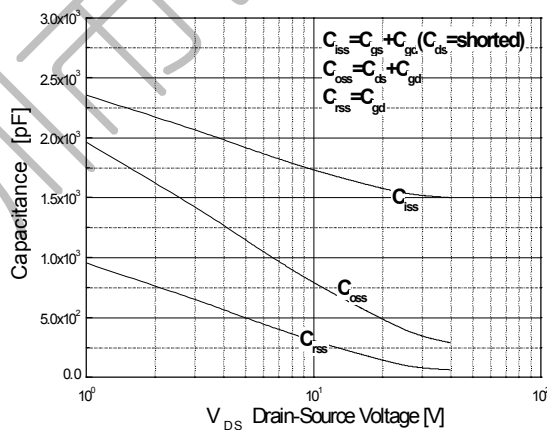
On-Resistance Variation vs. Drain Current and Gate Voltage



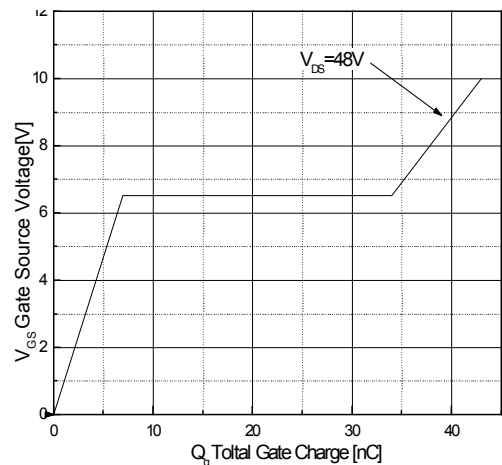
Maximum Safe Operating Area



Capacitance Characteristics



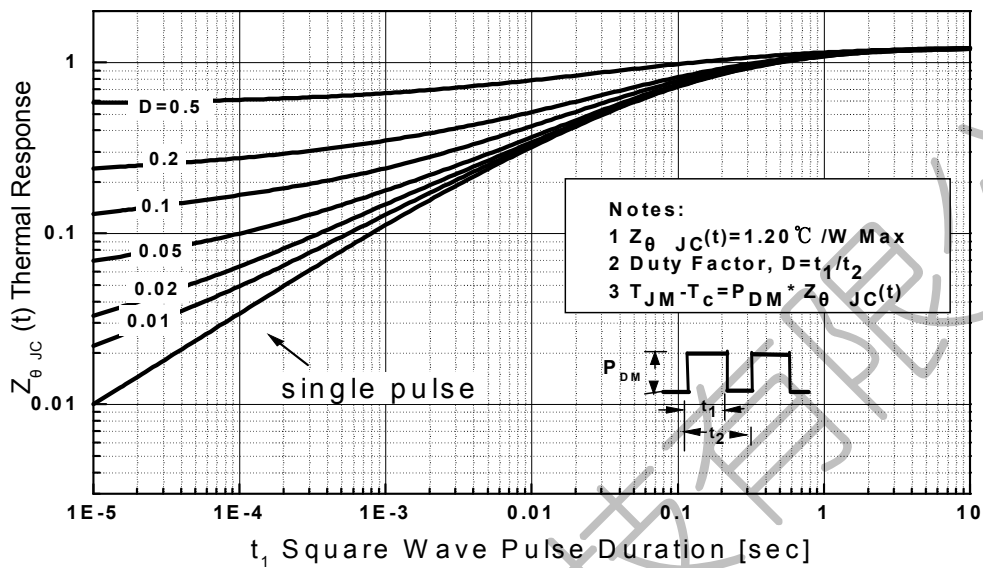
Gate Charge Characteristics





特征曲线 ELECTRICAL CHARACTERISTICS (curves)

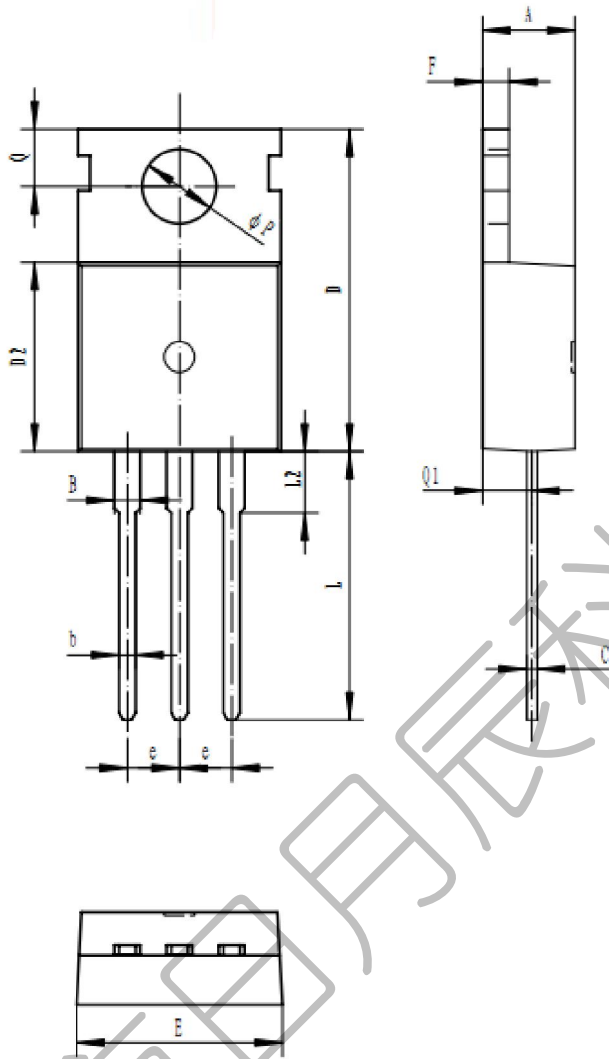
Transient Thermal Response Curve (Zthjc)





TO-220C

单位 Unit: mm



符号 symbol	MIN	MAX
A	4.30	4.70
B	1.22	1.40
b	0.70	0.95
c	0.40	0.65
D	15.20	16.20
D2	9.00	9.40
E	9.70	10.10
e	2.39	2.69
F	1.25	1.40
L	12.60	13.60
L2	2.80	3.20
Q	2.60	3.00
Q1	2.20	2.60
P	3.50	3.80





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