



JCS3205H

主要参数 MAIN CHARACTERISTICS

| | |
|-------------------------------------|--------------|
| I_D | 110 A |
| V_{DSS} | 55 V |
| $R_{dson-max}$ (@ $V_{gs}=10V$) | 8 m Ω |
| Q_g-typ | 78nC |

用途

- 高频开关电源
- UPS 电源

APPLICATIONS

- High efficiency switch mode power supplies
- UPS

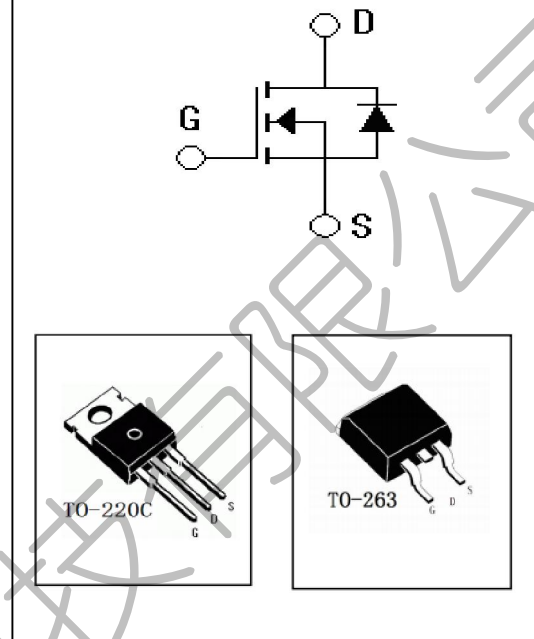
产品特性

- 低栅极电荷
- 低 C_{rss} (典型值 197pF)
- 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} (typical 197pF)
- 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 |
|---------------------|---------------|---------------|---------------------|-----------------|-----------------------|
| JCS3205CH-O-C-N-B | JCS3205CH | TO-220C | 否 NO | 条管 Tube | 2.06 g(typ) |
| JCS3205SH-O-S-N-B | JCS3205SH | TO-263 | 否 NO | 条管 Tube | 1.93 g(typ) |
| JCS3205SH-O-S-N-A | JCS3205SH | TO-263 | 否 NO | 卷盘 Reel | 1.93 g(typ) |





绝对最大额定值 ABSOLUTE RATINGS (Tc=25°C)

| 项 目 Parameter | 符 号 Symbol | 数 值 Value | 单 位 Unit |
|--|---|--------------|-------------|
| 最高漏极-源极直流电压 Drain-Source Voltage | V _{DSS} | 55 | V |
| 连续漏极电流 Drain Current -continuous | I _D T=25°C T=100°C | 110* | A |
| | | 80* | A |
| 最大脉冲漏极电流 (注1) Drain Current – pulse (note 1) | I _{DM} | 440* | 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} | 2970 | mJ |
| 雪崩电流 (注1) Avalanche Current (note 1) | I _{AR} | 60 | A |
| 重复雪崩能量 (注1) Repetitive Avalanche Current (note 1) | E _{AR} | 20 | 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 | 5.0 | V/ns |
| 耗散功率 Power Dissipation | P _D T _C =25°C -Derate above 25°C | 200 | W |
| | | 1.33 | W/°C |
| 最高结温及存储温度 Operating and Storage Temperature Range | T _J , T _{STG} | -55~+175 | °C |
| 引线最高焊接温度 Maximum Lead Temperature for Soldering Purposes | T _L | 300 | °C |

*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} | $I_D=250\mu A, V_{GS}=0V$ | 55 | - | - | 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 $25^\circ C$ | - | 0.057 | - | V/ $^\circ C$ |
| 零栅压下漏极漏电流 Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=55V, V_{GS}=0V, T_C=25^\circ C$ | - | - | 1 | μA |
| | | $V_{DS}=44V, T_C=125^\circ C$ | - | - | 10 | μA |
| 正向栅极体漏电流 Gate-body leakage current, forward | I_{GSSF} | $V_{DS}=0V, V_{GS}=20V$ | - | - | 100 | nA |
| 反向栅极体漏电流 Gate-body leakage current, reverse | I_{GSSR} | $V_{DS}=0V, V_{GS}=-20V$ | - | - | -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 | $R_{DS(ON)}$ | $V_{GS}=10V, I_D=60A$ | - | 7 | 8 | m Ω |
| 栅极电阻 Gate Resistance | R_G | $f=1.0MHz$, open drain | | 1.8 | | Ω |
| 正向跨导 Forward Transconductance | g_{fs} | $V_{DS} = 28V, I_D=60A$ (note 4) | - | 43 | - | S |
| 动态特性 Dynamic Characteristics | | | | | | |
| 输入电容 Input capacitance | C_{iss} | $V_{DS}=25V, V_{GS}=0V, f=1.0MHz$ | - | 2750 | | pF |
| 输出电容 Output capacitance | C_{oss} | | - | 749 | | pF |
| 反向传输电容 Reverse transfer capacitance | C_{rss} | | - | 197 | | pF |





电特性 ELECTRICAL CHARACTERISTICS

| 开关特性 Switching Characteristics | | | | | | |
|---|-------------------|-------------------------------------|---|------|-----|----|
| 延迟时间 Turn-On delay time | $t_d(\text{on})$ | $V_{DD}=28V, I_D=60A, R_G=25\Omega$ | - | 17 | - | ns |
| 上升时间 Turn-On rise time | t_r | $V_{GS}=10V$ | - | 122 | - | ns |
| 延迟时间 Turn-Off delay time | $t_d(\text{off})$ | (note 4, 5) | - | 57 | - | ns |
| 下降时间 Turn-Off Fall time | t_f | | - | 72 | - | ns |
| 栅极电荷总量 Total Gate Charge | Q_g | $V_{DS}=44V,$ | - | 78 | - | nC |
| 栅-源电荷 Gate-Source charge | Q_{gs} | $I_D=60A$ | - | 13.2 | - | nC |
| 栅-漏电荷 Gate-Drain charge | Q_{gd} | $V_{GS}=10V$ (note 4, 5) | - | 37.8 | - | 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 | - | - | 110 | A |
| 正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current | | I_{SM} | - | - | 440 | A |
| 正向压降 Drain-Source Diode Forward Voltage | V_{SD} | $V_{GS}=0V, I_S=60A$ | - | | 1.3 | V |
| 反向恢复时间 Reverse recovery time | t_{rr} | $V_{GS}=0V, I_S=60A$ | - | 67 | 127 | ns |
| 反向恢复电荷 Reverse recovery charge | Q_{rr} | $di/dt=100A/\mu s$ (note 4) | - | 163 | 253 | nC |

热特性 THERMAL CHARACTERISTIC

| 项 目 Parameter | 符 号 Symbol | 最大 Max | 单 位 Unit |
|--|---------------|-----------|---------------|
| 结到管壳的热阻 Thermal Resistance, Junction to Case | $R_{th(j-c)}$ | 0.75 | $^{\circ}C/W$ |
| 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: $L=0.5mH, I_{AS}=60A, V_{DD}=50V, R_G=25\Omega$, 起始结温 $T_J=25^{\circ}C$
- 3: $I_{SD} \leq 60A, di/dt \leq 300A/\mu s, V_{DD} \leq BV_{DSS}$, 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

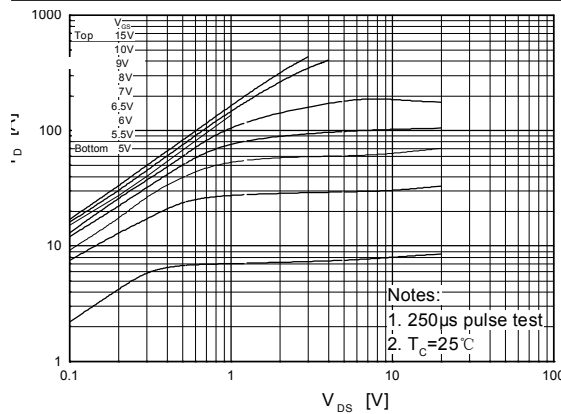
Notes:

- 1: Pulse width limited by maximum junction temperature
- 2: $L=0.5mH, I_{AS}=60A, V_{DD}=50V, R_G=25\Omega$, Starting $T_J=25^{\circ}C$
- 3: $I_{SD} \leq 60A, di/dt \leq 300A/\mu s, V_{DD} \leq BV_{DSS}$, 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

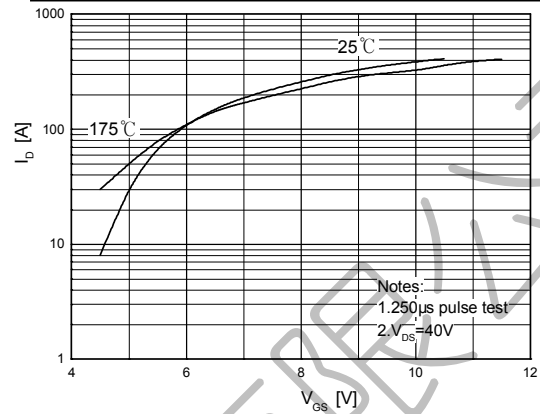


特征曲线 ELECTRICAL CHARACTERISTICS (curves)

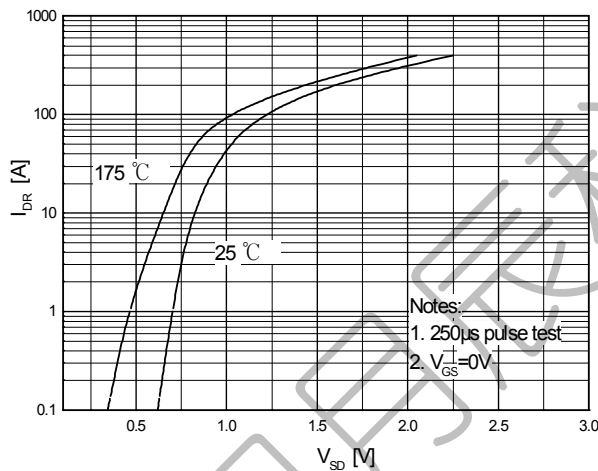
On-Region Characteristics



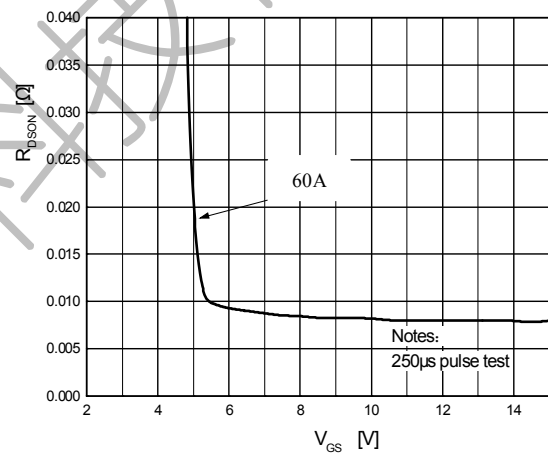
Transfer Characteristics



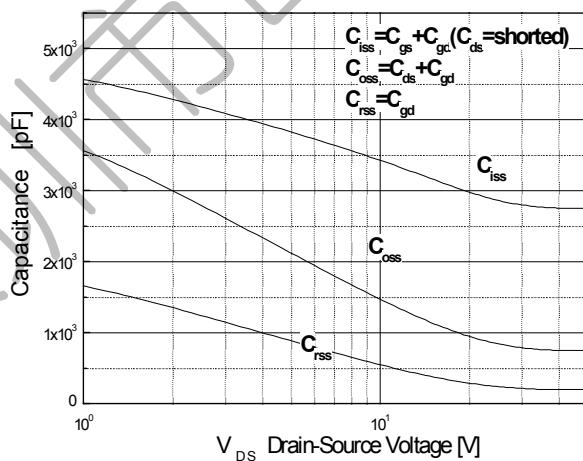
Body Diode Forward Voltage Variation vs. Source Current and Temperature



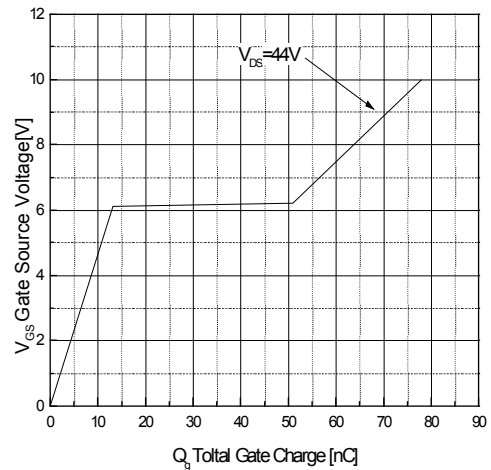
On-Resistance Variation vs. Drain Current and Gate Voltage



Capacitance Characteristics

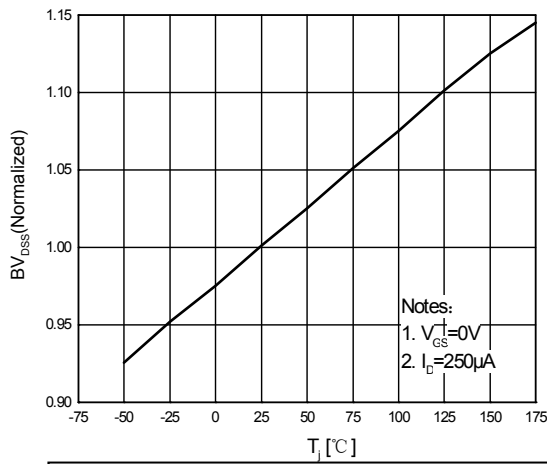


Gate Charge Characteristics

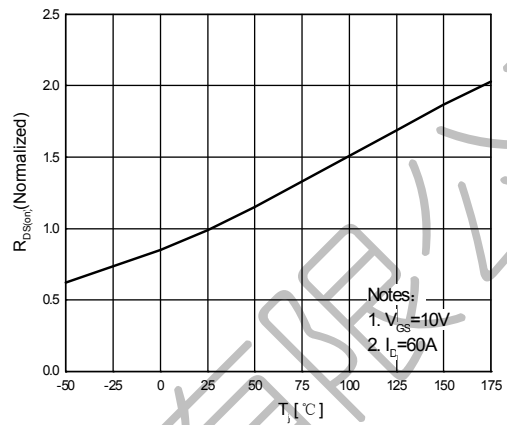


特征曲线 ELECTRICAL CHARACTERISTICS (curves)

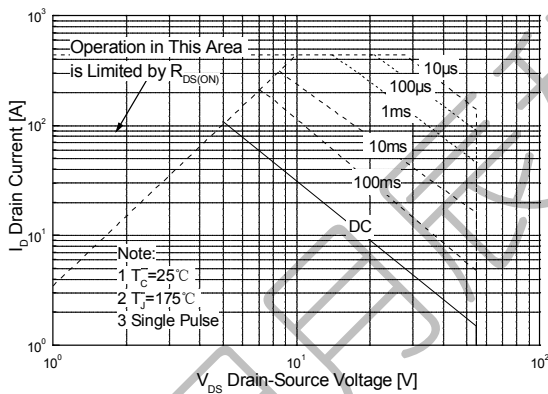
Breakdown Voltage Variation vs. Temperature



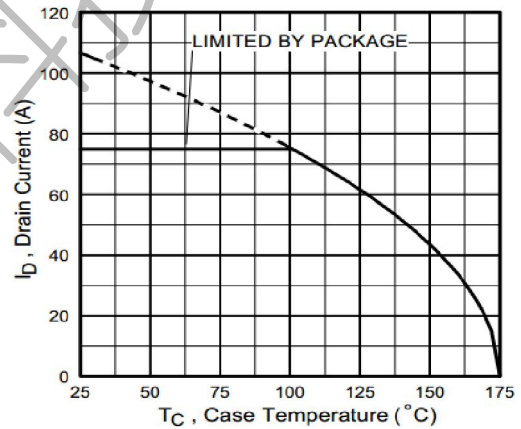
On-Resistance Variation vs. Temperature



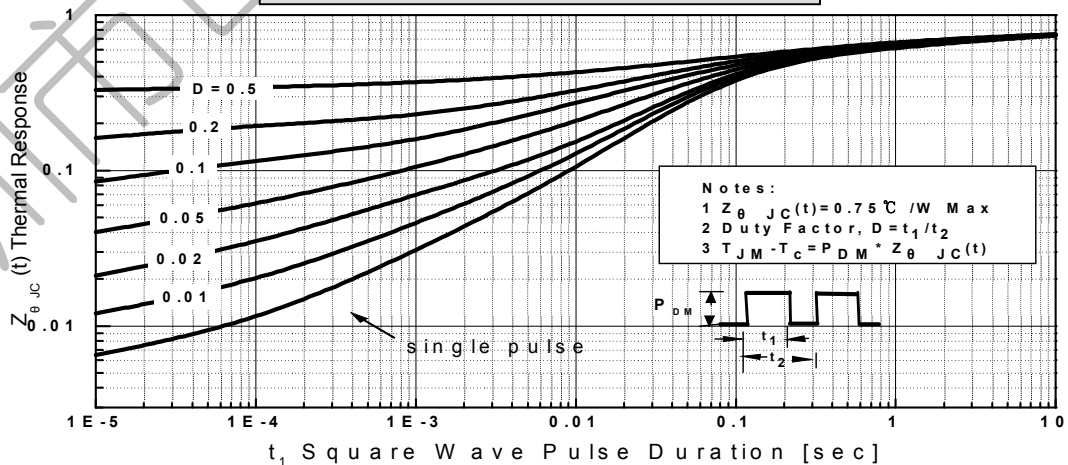
Maximum Safe Operating Area



Maximum Drain Current vs. Case Temperature



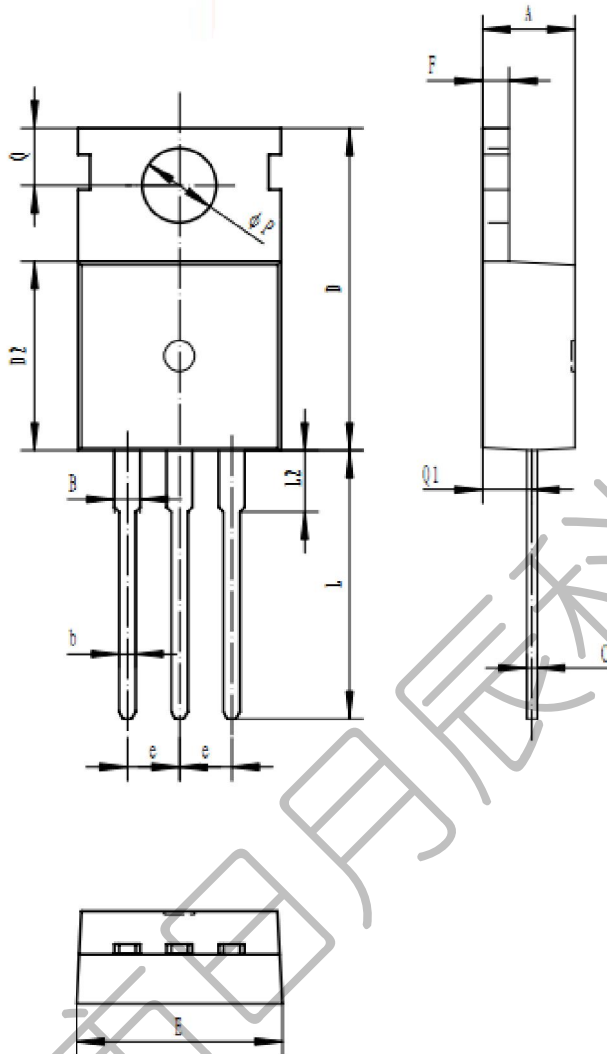
Transient Thermal Response Curve



外形尺寸 PACKAGE MECHANICAL DATA

TO-220C

单位 Unit: mm

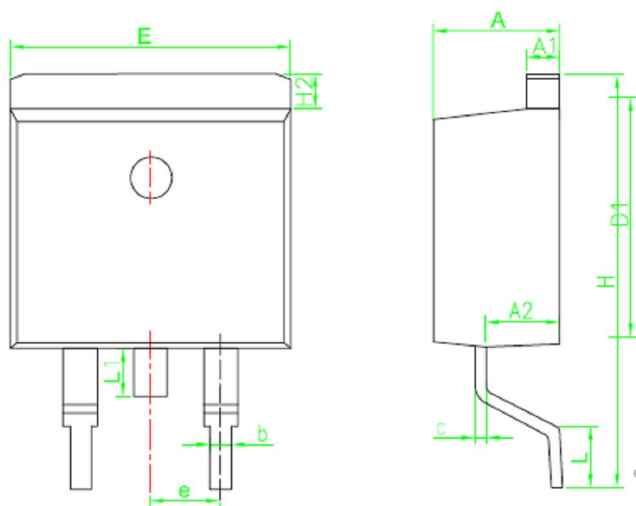


| 符号 symbol | MIN | MAX |
|--------------|-------|-------|
| A | 4.30 | 4.70 |
| B | 1.22 | 1.40 |
| b | 0.70 | 0.95 |
| c | 0.40 | 0.65 |
| D | 15.20 | 16.20 |
| D2 | 9.00 | 9.40 |
| E | 9.70 | 10.10 |
| e | 2.59 | 2.69 |
| F | 1.25 | 1.40 |
| L | 12.60 | 13.60 |
| L2 | 2.80 | 3.20 |
| Q | 2.60 | 3.00 |
| Q1 | 2.20 | 2.60 |
| P | 3.50 | 3.80 |

外形尺寸 PACKAGE MECHANICAL DATA

TO-263

单位 Unit: mm



| SYMBOL | MM | |
|--------|---------|-------|
| | MIN | MAX |
| A | 4.30 | 4.80 |
| A1 | 1.12 | 1.42 |
| A2 | 2.54 | 2.84 |
| b | 0.67 | 1.00 |
| c | 0.29 | 0.52 |
| D1 | 8.40 | 9.00 |
| E | 9.80 | 10.46 |
| e | 2.54BSC | |
| H | 14.00 | 16.00 |
| H2 | 1.12 | 1.45 |
| L | 1.50 | 3.10 |
| L1 | 1.45 | 1.70 |

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