

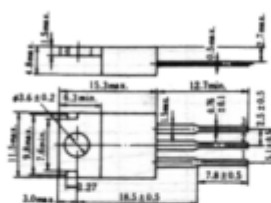
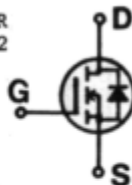
# 2SK428

# SILICON N-CHANNEL MOS FET

HIGH SPEED POWER SWITCHING  
HIGH FREQUENCY POWER AMPLIFIER  
Complementary pair with 2SJ122

### Features:

- Low On-Resistance.
- High Speed Switching.
- High Cutoff Frequency.
- No Secondary Breakdown.
- Suitable for Switching Regulator, DC-DC Converter, PWM Amplifiers, and Ultrasonic Power Oscillators.



(JEDEC TO-220AB)

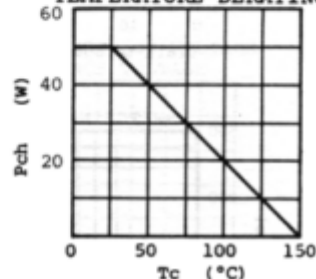
1. Gate
2. Drain (Flap)
3. Source

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| Item                                      | Symbol               | Rating     | Unit |
|-------------------------------------------|----------------------|------------|------|
| Drain-Source Voltage                      | V <sub>DSS</sub>     | 60         | V    |
| Gate-Source Voltage                       | V <sub>GSS</sub>     | ±20        | V    |
| Drain Current                             | I <sub>D</sub>       | 10         | A    |
| Drain Peak Current                        | I <sub>D(peak)</sub> | 15         | A    |
| Body-Drain Diode<br>Reverse Drain Current | I <sub>DR</sub>      | 10         | A    |
| Channel Dissipation                       | P <sub>ch</sub> *    | 50         | W    |
| Channel Temperature                       | T <sub>ch</sub>      | 150        | °C   |
| Storage Temperature                       | T <sub>sta</sub>     | -55 ~ +150 | °C   |

\*Value at Tc=25°C

POWER VS.  
TEMPERATURE DERATING



### ■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

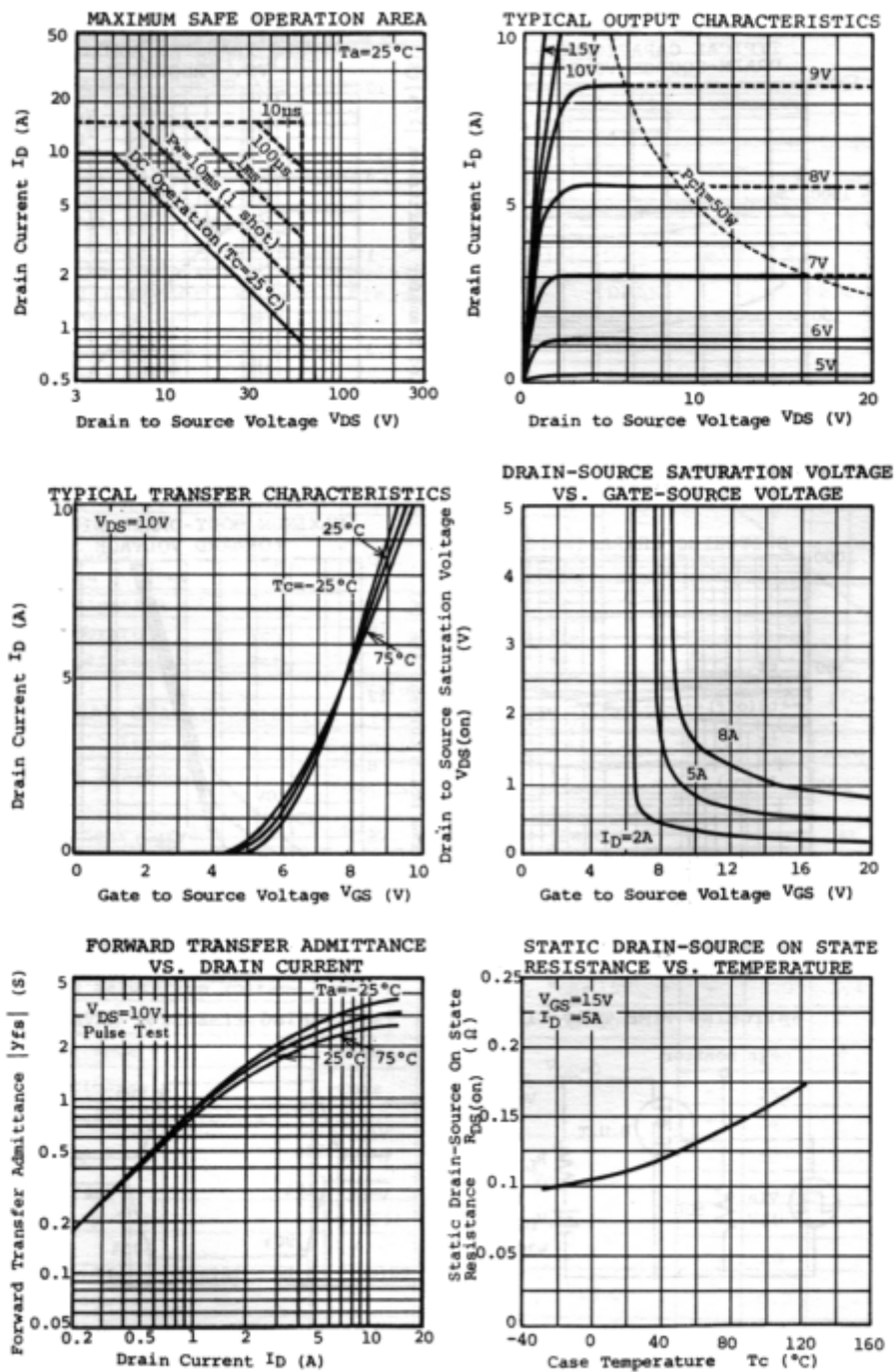
| Item                                    | Symbol        | Test Condition                            | min. | typ. | max.    | Unit     |
|-----------------------------------------|---------------|-------------------------------------------|------|------|---------|----------|
| Drain-Source Breakdown Voltage          | $V_{(BR)DSS}$ | $I_D=10mA$ , $V_{GS}=0$                   | 60   | -    | -       | V        |
| Gate-Source Leak Current                | $I_{GSS}$     | $V_{GS}=\pm 20V$ , $V_{DS}=0$             | -    | -    | $\pm 1$ | $\mu A$  |
| Zero Gate Voltage Drain Current         | $I_{DSS}$     | $V_{DS}=50V$ , $V_{GS}=0$                 | -    | -    | 1       | mA       |
| Gate-Source Cutoff Voltage              | $V_{GS(off)}$ | $I_D=1mA$ , $V_{DS}=10V$                  | 2.0  | -    | 5.0     | V        |
| Static Drain-Source On State Resistance | $R_{DS(on)}$  | $I_D=5A$ , $V_{GS}=15V$ *                 | -    | 0.1  | 0.15    | $\Omega$ |
| Drain-Source Saturation Voltage         | $V_{DS(on)}$  | $I_D=5A$ , $V_{GS}=15V$ *                 | -    | 0.5  | 0.75    | V        |
| Forward Transfer Admittance             | $ y_{fs} $    | $I_D=5A$ , $V_{DS}=10V$ *                 | 1.5  | 2.2  | -       | S        |
| Input Capacitance                       | $C_{iss}$     | $V_{DS}=10V$ , $V_{GS}=0$<br>$f=1MHz$     | -    | 900  | -       | pF       |
| Output Capacitance                      | $C_{oss}$     |                                           | -    | 700  | -       | pF       |
| Reverse Transfer Capacitance            | $C_{rss}$     |                                           | -    | 120  | -       | pF       |
| Turn-On Delay Time                      | $t_{d(on)}$   |                                           | -    | 15   | -       | ns       |
| Rise Time                               | $t_r$         | $I_D=2A$ , $V_{GS}=15V$<br>$R_L=15\Omega$ | -    | 45   | -       | ns       |
| Turn-Off Delay Time                     | $t_{d(off)}$  |                                           | -    | 55   | -       | ns       |
| Fall Time                               | $t_f$         |                                           | -    | 65   | -       | ns       |
| Body-Drain Diode Forward Voltage        | $V_{DF}$      | $I_F=5A$ , $V_{GS}=0$                     | -    | 0.9  | -       | V        |
| Body-Drain Diode Reverse Recovery Time  | $t_{rr}$      | $I_F=5A$ , $V_{GS}=0$                     | -    | 400  | -       | ns       |

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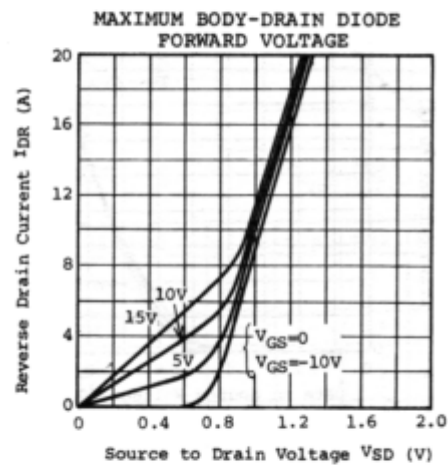
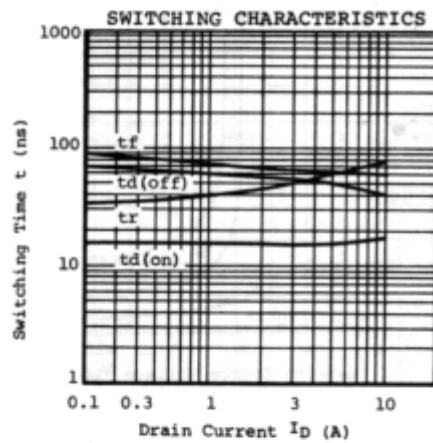
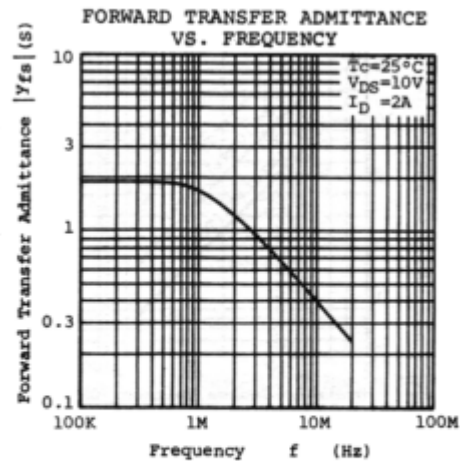
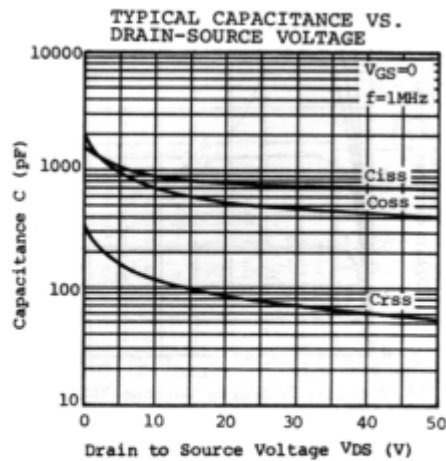
\*Pulse Test

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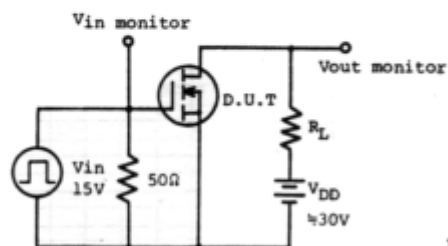


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SWITCHING TIME TEST CIRCUIT



SWITCHING TIME TEST WAVEFORMS

