

### **FJNS4208R**

# Switching Application (Bias Resistor Built In) - Switching circuit, Inverter, Interface circuit, Driver Circuit

- Built in bias Resistor ( $R_1=47K\Omega$ ,  $R_2=22K\Omega$ )
- Complement to FJNS3208R

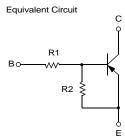


1.Emitter 2. Collector 3. Base

### **PNP Epitaxial Silicon Transistor**

### **Absolute Maximum Ratings** T<sub>a</sub>=25°C unless otherwise noted

| Symbol           | Parameter                   | Value     | Units |  |
|------------------|-----------------------------|-----------|-------|--|
| V <sub>CBO</sub> | Collector-Base Voltage      | -50       | V     |  |
| V <sub>CEO</sub> | Collector-Emitter Voltage   | -50       | V     |  |
| V <sub>EBO</sub> | Emitter-Base Voltage        | -10       | V     |  |
| I <sub>C</sub>   | Collector Current           | -100      | mA    |  |
| P <sub>C</sub>   | Collector Power Dissipation | 300       | mW    |  |
| T <sub>J</sub>   | Junction Temperature        | 150       | °C    |  |
| T <sub>STG</sub> | Storage Temperature         | -55 ~ 150 | °C    |  |



### Electrical Characteristics T<sub>a</sub>=25°C unless otherwise noted

| Symbol                         | Parameter                            | Test Condition  | Min. | Тур. | Max. | Units |
|--------------------------------|--------------------------------------|---|------|------|------|-------|
| BV <sub>CBO</sub>              | Collector-Base Breakdown Voltage     | $I_{C}$ = -10 $\mu$ A, $I_{E}$ =0                     | -50  |      |      | V     |
| BV <sub>CEO</sub>              | Collector-Emitter Breakdown Voltage  | I <sub>C</sub> = -100μA, I <sub>B</sub> =0            | -50  |      |      | V     |
| I <sub>CBO</sub>               | Collector Cut-off Current            | $V_{CB}$ = -40V, $I_{E}$ =0                           |      |      | -0.1 | μΑ    |
| h <sub>FE</sub>                | DC Current Gain                      | $V_{CE}$ = -5V, $I_{C}$ = -5mA                        | 56   |      |      |       |
| V <sub>CE</sub> (sat)          | Collector-Emitter Saturation Voltage | $I_{C}$ = -10mA, $I_{B}$ = -0.5mA                     |      |      | -0.3 | V     |
| f <sub>T</sub>                 | Current Gain Bandwidth Product       | $V_{CE}$ = -10V, $I_{C}$ = -5mA                       |      | 200  |      | MHz   |
| C <sub>ob</sub>                | Output Capacitance                   | V <sub>CB</sub> = -10V, I <sub>E</sub> =0<br>f=1.0MHz |      | 5.5  |      | pF    |
| V <sub>I</sub> (off)           | Input Off Voltage                    | $V_{CE}$ = -5V, $I_{C}$ = -100 $\mu$ A                | -0.8 |      |      | V     |
| V <sub>I</sub> (on)            | Input On Voltage                     | $V_{CE}$ = -0.3V, $I_{C}$ = -2mA                      |      |      | -4   | V     |
| R <sub>1</sub>                 | Input Resistor                       |   | 32   | 47   | 62   | ΚΩ    |
| R <sub>1</sub> /R <sub>2</sub> | Resistor Ratio                       |   | 1.9  | 2.1  | 2.4  |       |

## **Typical Characteristics**

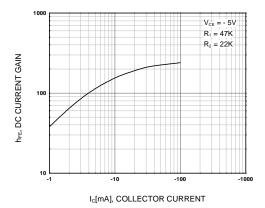


Figure 1. DC current Gain

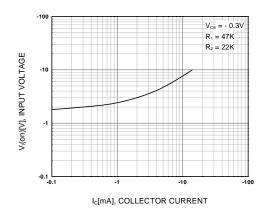


Figure 2. Input On Voltage

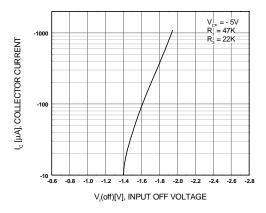


Figure 3. Input Off Voltage

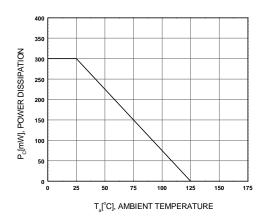
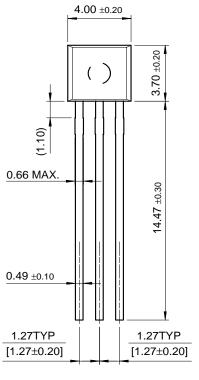
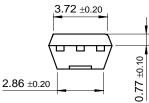


Figure 4. Power Derating

**TO-92S** 







Dimensions in Millimeters

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| CoolFET™                   | FASTr™               | MicroFET™              | PowerTrench <sup>®</sup> | SuperSOT™-6           |
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| Programmable Active Droop™ |                      | OPTOPLANAR™            | SMART START™             |                       |

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