LINEAR SYSTEMS

# U426
# HIGH INPUT IMPEDANCE MONOLITHIC DUAL N-CHANNEL JFET

micross

## Linear Systems replaces discontinued Siliconix U426

### The U426 is a high input impedance Monolithic Dual N-Channel JFET

The U426 monolithic dual n-channel JFET is designed to provide very high input impedance for differential amplification and impedance matching. Among its many unique features, this series offers operating gate current specified at -500 fA. The U426 is a direct replacement for discontinued Siliconix U426.

The hermetically sealed TO-71 & TO-78 packages are well suited for military applications. The 8 Pin P-DIP and 8 Pin SOIC provide ease of manufacturing, and the symmetrical pinout prevents improper orientation.

(See Packaging Information).

**U426 Applications:**

- Ultra Low Input Current Differential Amps
- High-Speed Comparators
- Impedance Converters

| **FEATURES** | |
|---|---|
| HIGH INPUT IMPEDANCE | $I_G$ = 0.25pA MAX |
| HIGH GAIN | gfs = 120µmho MIN |
| LOW POWER OPERATION | $V_{GS(OFF)}$ = 2V MAX |

**ABSOLUTE MAXIMUM RATINGS**
@ 25°C (unless otherwise noted)

| **Maximum Temperatures** | |
|---|---|
| Storage Temperature | -65°C to +150°C |
| Operating Junction Temperature | +150°C |

| **Maximum Voltage and Current for Each Transistor – Note 1** | | |
|---|---|---|
| $-V_{GSS}$ | Gate Voltage to Drain or Source | 40V |
| $-V_{DSO}$ | Drain to Source Voltage | 40V |
| $-I_{G(f)}$ | Gate Forward Current | 10mA |

| **Maximum Power Dissipation** | |
|---|---|
| Device Dissipation @ Free Air – Total | 400mW @ +125°C |

**MATCHING CHARACTERISTICS** @ 25°C UNLESS OTHERWISE NOTED

| SYMBOL | CHARACTERISTICS | VALUE | UNITS | CONDITIONS |
|---|---|---|---|---|
| $\|\Delta V_{GS1-2}/\Delta T\|$max. | DRIFT VS. TEMPERATURE | 40 | µV/°C | $V_{DG}$=10V, $I_D$=30µA $T_A$=-55°C to +125°C |
| $\|V_{GS1-2}\|$ max. | OFFSET VOLTAGE | 25 | mV | $V_{DG}$=10V, $I_D$=30µA |

**ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)**

| SYMBOL | CHARACTERISTICS | MIN. | TYP. | MAX. | UNITS | CONDITIONS |
|---|---|---|---|---|---|---|
| $BV_{GSS}$ | Breakdown Voltage | 40 | 60 | -- | V | $V_{DS}$ = 0 $I_G$ =1nA |
| $BV_{GGO}$ | Gate-To-Gate Breakdown | 40 | -- | -- | V | $I_G$ = 1µA $I_D$ = 0 $I_S$= 0 |
| | **TRANSCONDUCTANCE** | | | | | |
| $Y_{fss}$ | Full Conduction | 300 | -- | 1500 | µmho | $V_{DS}$ = 10V $V_{GS}$ = 0V f = 1kHz |
| $Y_{fs}$ | Typical Operation | 120 | 200 | 350 | µmho | $V_{DG}$ = 10V $I_D$ = 30µA f = 1kHz |
| | **DRAIN CURRENT** | | | | | |
| $I_{DSS}$ | Full Conduction | 60 | -- | 1000 | µA | $V_{DS}$ = 10V $V_{GS}$ = 0V |
| | **GATE VOLTAGE** | | | | | |
| $V_{GS(off)}$ | Pinchoff voltage | -- | -- | 2.0 | V | $V_{DS}$ = 10V $I_D$ = 1nA |
| $V_{GS}$ | Operating Range | -- | -- | 1.8 | V | $V_{DG}$ = 10V $I_D$ = 30µA |
| | **GATE CURRENT** | | | | | |
| $I_G$max. | Operating | -- | -- | .25 | pA | $V_{DG}$ = 10V $I_D$ = 30µA |
| $-I_G$max. | High Temperature | -- | -- | 250 | pA | $T_A$ = +125°C |
| $I_{GSS}$max. | At Full Conduction | -- | -- | 1.0 | pA | $V_{DS}$ = 0V $V_{GS}$ = 20V |
| $-I_{GSS}$max. | High Temperature | -- | -- | 1.0 | nA | $T_A$ = +125°C |
| | **OUTPUT CONDUCTANCE** | | | | | |
| $Y_{OSS}$ | Full Conduction | -- | -- | 10 | µmho | $V_{DS}$ = 10V $V_{GS}$ = 0V |
| $Y_{OS}$ | Operating | -- | 0.1 | 3.0 | µmho | $V_{DG}$ = 10V $I_D$ = 30µA |
| | **COMMON MODE REJECTION** | | | | | |
| CMR | -20 log $\|\Delta V_{GS1-2}/\Delta V_{DS}\|$ | -- | 90 | -- | dB | $\Delta V_{DS}$ = 10 to 20V $I_D$ = 30µA |
| | -20 log $\|\Delta V_{GS1-2}/\Delta V_{DS}\|$ | -- | 90 | -- | dB | $\Delta V_{DS}$ = 5 to 10V $I_D$ = 30µA |
| | **NOISE** | | | | | $V_{DG}$ = 10V $I_D$ = 30µA $R_G$ = 10MΩ |
| NF | Figure | -- | -- | 1 | dB | f = 10Hz |
| $e_n$ | Voltage | -- | 20 | 70 | nV/√Hz | $V_{DG}$ = 10V $I_D$ = 30µA f = 10Hz |
| | | -- | 10 | -- | | $V_{DG}$ = 10V $I_D$ = 30µA f = 1KHz |
| | **CAPACITANCE** | | | | | |
| $C_{ISS}$ | Input | -- | -- | 3.0 | pF | $V_{DS}$= 10V $V_{GS}$ = 0 f = 1MHz |
| $C_{RSS}$ | Reverse Transfer | -- | -- | 1.5 | pF | |

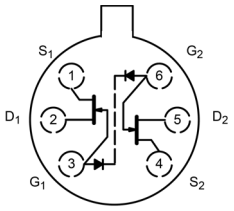
Note 1 – These ratings are limiting values above which the serviceability of any semiconductor may be impaired



Available Packages:

U426 in TO-71 & TO-78
U426 in PDIP & SOIC
U426 available as bare die
Please contact Micross for full package and die dimensions
Email: chipcomponents@micross.com

TO-71 / TO-78 (Top View)




P-DIP / SOIC (Top View)