

## Linear Systems replaces discontinued Siliconix U440

The U440 is a tightly matched Monolithic Dual N-Channel JFET

The U440 are monolithic dual JFETs mounted in a single TO-71 package. The monolithic dual chip design reduces parasitics and gives better performance at very high frequencies while ensuring extremely tight matching. These devices are an excellent choice for use as wideband differential amplifiers in demanding test and measurement applications. The U440 is a direct replacement for discontinued Siliconix U440.

The hermetically sealed TO-71 is well suited for military applications.

(See Packaging Information).

### U440 Applications:

- Wideband Differential Amps
- High-Speed, Temp-Compensated Single-Ended Input Amps
- High-Speed Comparators
- Impedance Converters and vibrations detectors.

### FEATURES

Direct Replacement for SILICONIX U440

HIGH CMRR CMRR ≥ 85dB

LOW GATE LEAKAGE  $I_{GSS} \leq 1 \text{ pA}$

**ABSOLUTE MAXIMUM RATINGS**<sup>1</sup>  
@ 25°C (unless otherwise noted)

#### Maximum Temperatures

Storage Temperature -65°C to +150°C

Operating Junction Temperature -55°C to +135°C

#### Maximum Power Dissipation

Continuous Power Dissipation (Total) 500mW

#### Maximum Currents

Gate Current 50mA

#### Maximum Voltages

Gate to Drain -25V

Gate to Source -25V

Gate to Gate ±50V

### MATCHING CHARACTERISTICS @ 25°C (unless otherwise stated)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$ V_{GS1} - V_{GS2} $	Differential Gate to Source Cutoff Voltage			10	mV	$V_{DG} = 10V, I_D = 5mA$
$\Delta V_{GS1} - V_{GS2}  / \Delta T$	Differential Gate to Source Cutoff Voltage Change with Temperature		20		$\mu V/^\circ C$	$V_{DG} = 10V, I_D = 5mA$ $T_A = -55^\circ C \text{ to } +125^\circ C$
$I_{DSS1} / I_{DSS2}$	Gate to Source Saturation Current Ratio		0.07		%	$V_{DS} = 10V, V_{GS} = 0V$
$G_{fs1} / G_{fs2}$	Forward Transconductance Ratio <sup>2</sup>		0.97		%	$V_{DS} = 10V, I_D = 5mA, f = 1kHz$
CMRR	Common Mode Rejection Ratio		85		dB	$V_{DG} = 5 \text{ to } 10V, I_D = 5mA$

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

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
$BV_{GSS}$	Gate to Source Breakdown Voltage	-25			V	$I_G = -1\mu A, V_{DS} = 0V$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	-1	-3.5	-6	V	$V_{DS} = 10V, I_D = 1nA$
$I_{DSS}$	Gate to Source Saturation Current	6	15	30	mA	$V_{DS} = 10V, V_{GS} = 0V$
$I_{GSS}$	Gate Leakage Current <sup>3</sup>		-1	-500	pA	$V_{GS} = -15V, V_{DS} = 0V$
$I_G$	Gate Operating Current		-1	-500	pA	$V_{DG} = 10V, I_D = 5mA$
$g_{fs}$	Forward Transconductance	4.5	6	9	mS	$V_{DS} = 10V, I_D = 5mA, f = 1kHz$
$g_{os}$	Output Conductance		70	200	$\mu S$	
$C_{ISS}$	Input Capacitance		3		pF	$V_{DS} = 10V, I_D = 5mA, f = 1MHz$
$C_{RSS}$	Reverse Transfer Capacitance		1		pF	
$e_n$	Equivalent Input Noise Voltage		4		nV/√Hz	$V_{DS} = 10V, I_D = 5mA, f = 10kHz$

Notes:

- Absolute Maximum ratings are limiting values above which serviceability may be impaired
- Pulse Test:  $PW \leq 300\mu s$  Duty Cycle  $\leq 3\%$
- Assumes smaller value in numerator

Available Packages:

U440 in TO-71  
U440 available as bare die

Please contact Micross for full package and die dimensions:

Email: [chipcomponents@micross.com](mailto:chipcomponents@micross.com)  
Web: [www.micross.com/distribution.aspx](http://www.micross.com/distribution.aspx)



TO-71 (Top View)

