

Linear Systems replaces discontinued Siliconix 2N4392

The LS4392 features many of the superior characteristics of JFETs which make it a good choice for demanding analog switching applications and for specialized amplifier circuits.

LS4392 Benefits:

- Low Error Voltage
- High-Speed Analog Circuit Performance
- Negligible "Off-Error," Excellent Accuracy
- Good Frequency Response, Low Glitches
- Eliminates Additional Buffering

LS4392 Applications:

- Analog Switches
- Choppers, Sample-and-Hold
- Normally "On" Switches, Current Limiters

FEATURES

| | |
|---|----------------------------|
| DIRECT REPLACEMENT FOR SILICONIX 2N4392 | |
| LOW ON RESISTANCE | $r_{DS(on)} \leq 60\Omega$ |
| LOW GATE OPERATING CURRENT | $I_{D(off)} = 5\mu A$ |
| FAST SWITCHING | $t_{(ON)} \leq 15ns$ |
| ABSOLUTE MAXIMUM RATINGS¹ @ 25°C (unless otherwise noted) | |
| Maximum Temperatures | |
| Storage Temperature | -65°C to +200°C |
| Operating Junction Temperature | -55°C to +200°C |
| Maximum Power Dissipation | |
| Continuous Power Dissipation | 350mW |
| MAXIMUM CURRENT | |
| Gate Current (Note 1) | $I_G = 50mA$ |
| MAXIMUM VOLTAGES | |
| Gate to Drain Voltage / Gate to Source Voltage | -35V |

LS4392 ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

| SYMBOL | CHARACTERISTIC | MIN | TYP. | MAX | UNITS | CONDITIONS |
|---------------|---|-----|------|------|-------|-------------------------------|
| BV_{GSS} | Gate to Source Breakdown Voltage | -35 | -- | -- | V | $I_G = -1\mu A, V_{DS} = 0V$ |
| $V_{GS(off)}$ | Gate to Source Cutoff Voltage | -2 | -- | -5 | | $V_{DS} = 15V, I_D = 10nA$ |
| $V_{GS(F)}$ | Gate to Source Forward Voltage | -- | 0.7 | 1 | | $I_G = 1mA, V_{DS} = 0V$ |
| $V_{DS(on)}$ | Drain to Source On Voltage | -- | 0.25 | -- | mA | $V_{GS} = 0V, I_D = 3mA$ |
| $V_{DS(on)}$ | Drain to Source On Voltage | -- | 0.3 | 0.4 | | $V_{GS} = 0V, I_D = 6mA$ |
| $V_{DS(on)}$ | Drain to Source On Voltage | -- | 0.35 | -- | | $V_{GS} = 0V, I_D = 12mA$ |
| I_{DSS} | Drain to Source Saturation Current ² | 25 | -- | -- | pA | $V_{DS} = 20V, V_{GS} = 0V$ |
| I_{GSS} | Gate Reverse Current | -- | -5 | -100 | | $V_{GS} = -20V, V_{DS} = 0V$ |
| I_G | Gate Operating Current | -- | -5 | -- | | $V_{DG} = 15V, I_D = 10mA$ |
| $I_{D(off)}$ | Drain Cutoff Current | -- | 5 | 100 | Ω | $V_{DS} = 10V, V_{GS} = -10V$ |
| $r_{DS(on)}$ | Drain to Source On Resistance | -- | -- | 60 | | $V_{GS} = 0V, I_D = 1mA$ |

LS4392 DYNAMIC ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

| SYMBOL | CHARACTERISTIC | TYP | MIN | MAX | UNITS | CONDITIONS |
|--------------|--------------------------------|-----|-----|-----|--------|--|
| g_{fs} | Forward Transconductance | 6 | -- | -- | mS | $V_{DS} = 20V, I_D = 1mA, f = 1kHz$ |
| g_{os} | Output Conductance | 25 | -- | -- | μS | $V_{DS} = 20V, I_D = 1mA, f = 1kHz$ |
| $r_{ds(on)}$ | Drain to Source On Resistance | -- | -- | 60 | Ω | $V_{GS} = 0V, I_D = 0A, f = 1kHz$ |
| C_{iss} | Input Capacitance | 13 | -- | -- | pF | $V_{DS} = 20V, V_{GS} = 0V, f = 1MHz$ |
| C_{rss} | Reverse Transfer Capacitance | 3.6 | -- | -- | | $V_{DS} = 0V, V_{GS} = -5V, f = 1MHz$ |
| C_{rss} | | 3.5 | -- | -- | | $V_{DS} = 0V, V_{GS} = -7V, f = 1MHz$ |
| C_{rss} | | 3.1 | -- | -- | | $V_{DS} = 0V, V_{GS} = -12V, f = 1MHz$ |
| e_n | Equivalent Input Noise Voltage | 3 | -- | -- | nV/√Hz | $V_{DS} = 10V, I_D = 10mA, f = 1kHz$ |

LS4392 SWITCHING ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

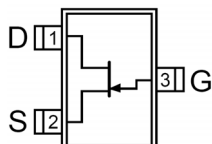
| SYMBOL | CHARACTERISTIC | TYP | MIN | MAX | UNITS | CONDITIONS |
|--------------|----------------|-----|-----|-----|-------|--------------------------------|
| $t_{d(on)}$ | Turn On Time | 2 | -- | -- | ns | $V_{DD} = 10V, V_{GS(H)} = 0V$ |
| t_r | | 2 | -- | -- | | |
| $t_{d(off)}$ | Turn Off Time | 6 | -- | -- | | |
| t_f | | 13 | -- | -- | | |

Notes: 1. Absolute ratings are limiting values above which serviceability may be impaired
2. Pulse test: PW ≤ 300μs, Duty Cycle ≤ 3%

LS4392 SWITCHING CIRCUIT PARAMETERS

| | |
|-------------|-------|
| $V_{GS(L)}$ | -7V |
| R_L | 1600Ω |
| $I_{D(on)}$ | 6mA |

SOT-23 (Top View)



Available Packages:

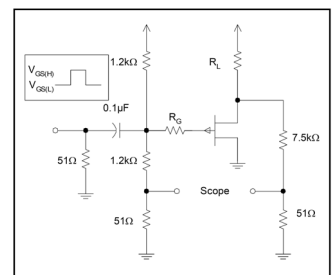
LS4392 in SOT-23
LS4392 in bare die.

Micross Components Europe



Tel: +44 1603 788967
Email: chipcomponents@micross.com
Web: <http://www.micross.com/distribution>

SWITCHING CIRCUIT



Contact Micross for full package and die dimensions