

VCR2N, VCR4N, VCR7N

N-Channel Silicon Voltage Controlled Resistor JFET

- Small Signal Attenuators
- Filters
- Amplifier Gain Control
- Oscillator Amplitude Control

Absolute maximum ratings at $T_A = 25^\circ\text{C}$.

| | |
|--|-----------|
| Reverse Gate Source & Reverse Gate Drain Voltage | - 15 V |
| Continuous Forward Gate Current | 10 mA |
| Continuous Device Power Dissipation | 300 mW |
| Power Derating | 2.4 mW/°C |

| | | VCR2N | | VCR4N | | Process | |
|-------------------------------|---------------|-------|-------|-------|-------|---------|--|
| | | NJ72 | | NJ16 | | | |
| | | Min | Max | Min | Max | Unit | Test Conditions |
| Gate Source Breakdown Voltage | $V_{(BR)GSS}$ | - 15 | | - 15 | | V | $I_G = - 1 \mu\text{A}, V_{DS} = 0\text{V}$ |
| Gate Reverse Current | I_{GSS} | | - 5 | | - 0.2 | nA | $V_{GS} = - 15\text{V}, V_{DS} = 0\text{V}$ |
| Gate Source Cutoff Voltage | $V_{GS(OFF)}$ | - 1 | - 3.5 | - 3.5 | - 7 | V | $I_D = - 1 \mu\text{A}, V_{DS} = 10\text{V}$ |

Dynamic Electrical Characteristics

| | | | | | | | | |
|----------------------------|--------------|----|-----|-----|-----|----------|--|-----------|
| Drain Source ON Resistance | $r_{ds(on)}$ | 20 | 60 | 200 | 600 | Ω | $V_{GS} = 0\text{V}, I_D = 0\text{A}$ | f = 1 kHz |
| Drain Gate Capacitance | C_{dg} | | 7.5 | | 3 | pF | $V_{DG} = 10\text{V}, I_S = 0\text{A}$ | f = 1 MHz |
| Source Gate Capacitance | C_{sg} | | 7.5 | | 3 | pF | $V_{DG} = 10\text{V}, I_D = 0\text{A}$ | f = 1 MHz |

| | | VCR7N | | Process | |
|-------------------------------|---------------|-------|-------|---------|--|
| | | NJ01 | | | |
| | | Min | Max | Unit | Test Conditions |
| Gate Source Breakdown Voltage | $V_{(BR)GSS}$ | - 15 | | V | $I_G = - 1 \mu\text{A}, V_{DS} = 0\text{V}$ |
| Gate Reverse Current | I_{GSS} | | - 0.1 | nA | $V_{GS} = - 15\text{V}, V_{DS} = 0\text{V}$ |
| Gate Source Cutoff Voltage | $V_{GS(OFF)}$ | - 2.5 | - 5 | V | $I_D = - 1 \mu\text{A}, V_{DS} = 10\text{V}$ |

Dynamic Electrical Characteristics

| | | | | | | |
|----------------------------|--------------|------|------|----------|--|-----------|
| Drain Source ON Resistance | $r_{ds(on)}$ | 4000 | 8000 | Ω | $V_{GS} = 0\text{V}, I_D = 0\text{A}$ | f = 1 kHz |
| Drain Gate Capacitance | C_{dg} | | 1.5 | pF | $V_{DG} = 10\text{V}, I_S = 0\text{A}$ | f = 1 MHz |
| Source Gate Capacitance | C_{sg} | | 1.5 | pF | $V_{DG} = 10\text{V}, I_D = 0\text{A}$ | f = 1 MHz |

VCR2N & VCR4N
TO-18 Package

See Section G for Outline Dimensions

Pin Configuration

1 Source, 2 Drain, 3 Gate & Case

VCR7N

TO-72 Package

See Section G for Outline Dimensions

Pin Configuration

1 Source, 2 Drain, 3 Gate & Case



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