

# 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/ $^\circ\text{C}$

At 25°C free air temperature:

### Static Electrical Characteristics

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

### Dynamic Electrical Characteristics

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

At 25°C free air temperature:

### Static Electrical Characteristics

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

### Dynamic Electrical Characteristics

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

### 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, 4 Case