

## 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

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	$V_{(BR)GSS}$	- 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	$\Omega$	$V_{GS} = 0\text{V}$ , $I_D = 0\text{A}$	$f = 1\text{ kHz}$
Drain Gate Capacitance	$C_{dg}$		7.5		3	pF	$V_{DG} = 10\text{V}$ , $I_S = 0\text{A}$	$f = 1\text{ MHz}$
Source Gate Capacitance	$C_{sg}$		7.5		3	pF	$V_{DG} = 10\text{V}$ , $I_D = 0\text{A}$	$f = 1\text{ MHz}$

At 25°C free air temperature:  
Static Electrical Characteristics

		VCR7N				
		NJ01		Process		
		Min	Max	Unit	Test Conditions	
Gate Source Breakdown Voltage	$V_{(BR)GSS}$	- 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	$\Omega$	$V_{GS} = 0\text{V}$ , $I_D = 0\text{A}$	$f = 1\text{ kHz}$
Drain Gate Capacitance	$C_{dg}$		1.5	pF	$V_{DG} = 10\text{V}$ , $I_S = 0\text{A}$	$f = 1\text{ MHz}$
Source Gate Capacitance	$C_{sg}$		1.5	pF	$V_{DG} = 10\text{V}$ , $I_D = 0\text{A}$	$f = 1\text{ MHz}$

## VCR2N &amp; VCR4N

## TO-18 Package

See Section G for Outline Dimensions

## Pin Configuration

1 Source, 2 Drain, 3 Gate &amp; Case

## VCR7N

## TO-72 Package

See Section G for Outline Dimensions

## Pin Configuration

1 Source, 2 Drain, 3 Gate &amp; Case