

## 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  
 Continuous Forward Gate Current  
 Continuous Device Power Dissipation  
 Power Derating

- 15 V  
 10 mA  
 300 mW  
 2.4 mW/°C

**At 25°C free air temperature:  
 Static Electrical Characteristics**

		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	$\Omega$	$V_{GS} = 0\text{V}, I_D = 0\text{A}$	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

**At 25°C free air temperature:  
 Static Electrical Characteristics**

		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	$\Omega$	$V_{GS} = 0\text{V}, I_D = 0\text{A}$	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, 4 Case

