

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				
		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	Ω	$V_{GS} = 0\text{V}$, $I_D = 0\text{A}$	$f = 1\ \text{kHz}$
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	Ω	$V_{GS} = 0\text{V}$, $I_D = 0\text{A}$	$f = 1\ \text{kHz}$
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 & 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



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