**Electrical Characteristics @ Tj= 25°C (unless otherwise stated)**

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>CHARACTERISTIC</th>
<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
<th>UNITS</th>
<th>CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BV_GSS</td>
<td>Gate to Source Breakdown Voltage</td>
<td>-25</td>
<td></td>
<td></td>
<td>V</td>
<td>I_G = -1µA, V_DS = 0V</td>
</tr>
<tr>
<td>V_GS(ON)</td>
<td>Gate to Source Pinch-off Voltage</td>
<td>-8</td>
<td></td>
<td>-12</td>
<td>V</td>
<td>I_G = 1µA, V_DS = 10V</td>
</tr>
<tr>
<td>I_GSS</td>
<td>Gate to Source Leakage Current</td>
<td>-0.2</td>
<td>nA</td>
<td></td>
<td></td>
<td>V_GS = -15V, V_DS = 0V</td>
</tr>
<tr>
<td>r_D(on)</td>
<td>Dynamic Drain to Source &quot;ON&quot; Resistance</td>
<td>100</td>
<td>200</td>
<td></td>
<td>Ω</td>
<td>V_GS =0V, Io=500µA</td>
</tr>
<tr>
<td>r_D1/r_D2</td>
<td>Static Drain to Source &quot;ON&quot; Resistance Ratios</td>
<td>0.95</td>
<td>1</td>
<td></td>
<td></td>
<td>V_GS =0V, Io=1mA</td>
</tr>
<tr>
<td>C_DG</td>
<td>Drain to Gate Capacitance</td>
<td>8</td>
<td></td>
<td></td>
<td>pF</td>
<td>V_GS =-10V, I_D=0A, f=1MHz</td>
</tr>
<tr>
<td>C_DS</td>
<td>Source to Gate Capacitance</td>
<td>8</td>
<td></td>
<td></td>
<td>pF</td>
<td>V_GS =-10V, I_D=0A, f=1MHz</td>
</tr>
</tbody>
</table>

**Features**
- Continuous Voltage-Controlled Resistance
- High Off-Isolation
- High Input Impedance
- Gain Ranging Capability
- Simplified Drive Voltage Capabilities
- No Circuit Interaction
- Wide Range Signal Attenuation
- Pin-for-Pin Replacement for Siliconix VCR11N

**Benefits**
- Wide Range Signal Attenuation
- Gain Ranging
- Simplified Gate Drive
- High Breakdown Voltage
- No Circuit Interaction

**Applications**
- Amplifier Gain Control
- Oscillator Amplitude Control
- Small Signal Attenuations
- Filters

**Description**

A voltage-controlled resistor (VCR) is a three-terminal variable resistor where the resistance value between two of the terminals is controlled by a voltage potential applied to the third. The VCR is capable of operation as a symmetrical resistor with no dc bias voltage in the signal loop, an ideal characteristic for many applications.

The VCR11N is specially intended for applications where the drain-source voltage is a low-level AC signal with no DC component. The key device performance is the predictable RDS change with no change in V_GS voltage. The VCR11N is available in the TO-71 6 lead package.
 Typical Characteristics

Output Characteristics

VCR11N

Package Dimensions

Ordering Information

STANDARD PART CALL-OUT
VCR11N TO-71 6L RoHS
VCR11N SOT-23 6L RoHS
VCR11N DFN 8L RoHS

CUSTOM PART CALL-OUT
(CUSTOM PARTS INCLUDE SEL + 4 DIGIT NUMERIC CODE)
VCR11N TO-71 6L RoHS SELXXXX
VCR11N SOT-23 6L RoHS SELXXXX
VCR11N DFN 8L RoHS SELXXXX

Notes

1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulse Test: PW ≤ 300µs, Duty Cycle ≤ 3%
3. All characteristics MIN/TYP/MAX numbers are absolute values. Negative values indicate electrical polarity only.
4. When ordering include the full Linear Systems part number and package type. Linear Systems creates custom parts on a case by case basis. To learn whether Linear Systems can meet your requirements, please send your drawing along with a detailed description of the device specifications to sales@linearsystems.com. One of our qualified representatives will contact you.
5. All standard parts are RoHS compliant. Contact the factory for availability of non-RoHS parts.
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