VCR2N N-Channel Voltage Controlled Resistor JFET

Features

- InterFET N0072L Geometry
- Low Leakage: 10pA Typical
- Low Input Capacitance: 1.5pF Maximum
- RoHS Compliant
- SMT, TH, and Bare Die Package options.

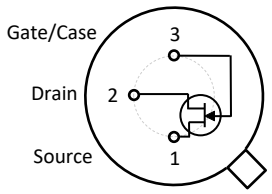
Applications

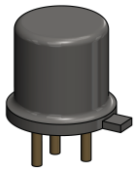
- Small Signal Attenuators
- Filters
- Amplifier Gain Control
- Oscillator Amplitude Control

Description

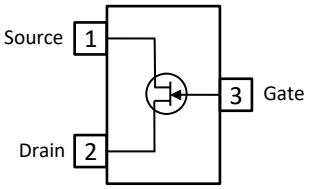
The -15V InterFET VCR2N Voltage Controlled Resistor JFET are targeted for ultra high input impedance applications. Gate leakages are less than 10pA at room temperatures. The resistance range of the VCR2N is 20 Ohms to 60 Ohms. The TO-18 package is hermetically sealed and suitable for military applications.

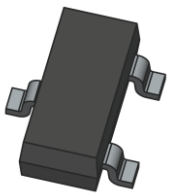
TO-18 Bottom View



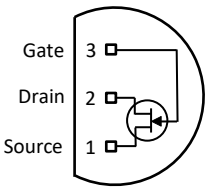


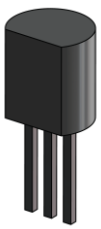
SOT23 Top View





TO-92 Bottom View





Product Summary

Parameters		VCR2N Min	Unit
BV_{GSS}	Gate to Source Breakdown Voltage	-15	V
$V_{GS(off)}$	Gate to Source Cutoff Voltage	-1	V
$r_{ds(on)}$	Drain to Source ON Resistance	20	Ω

Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
VCR2N	Through-Hole	TO-18	Bulk
PNVCR2N	Through-Hole	TO-92	Bulk
SMPVCR2N	Surface Mount	SOT23	Bulk
SMPVCR2NTR	7" Tape and Reel: Max 3,000 Pieces 13" Tape and Reel: Max 9,000 Pieces	SOT23	Minimum 1,000 Pieces Tape and Reel
VCR2NCOT	Chip Orientated Tray (COT Waffle Pack)	COT	400/Waffle Pack
VCR2NCFT	Chip Face-up Tray (CFT Waffle Pack)	CFT	400/Waffle Pack

Electrical Characteristics

Maximum Ratings (@ T_A = 25°C, Unless otherwise specified)

Parameters		Value	Unit
V_{RGS}	Reverse Gate Source and Gate Drain Voltage	-15	V
I_{FG}	Continuous Forward Gate Current	10	mA
P_D	Continuous Device Power Dissipation	300	mW
P	Power Derating	2.4	mW/°C
T_J	Operating Junction Temperature	-55 to 125	°C
T_{STG}	Storage Temperature	-65 to 150	°C

Static Characteristics (@ TA = 25°C, Unless otherwise specified)

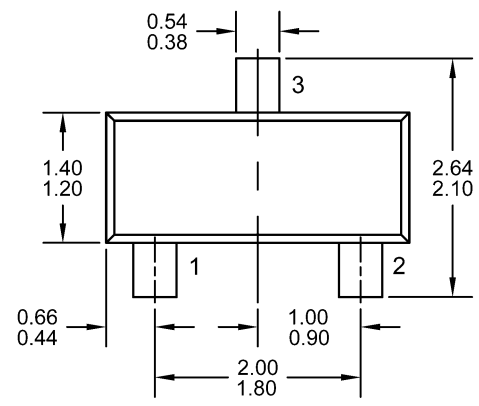
Parameters		Conditions	VCR2N		Unit
			Min	Max	
$V_{(BR)GSS}$	Gate to Source Breakdown Voltage	I_G = -1µA, V_{DS} = 0V	-15		V
I_{GSS}	Gate to Source Reverse Current	V_{GS} = -15V, V_{DS} = 0V		-5	nA
$V_{GS(OFF)}$	Gate to Source Cutoff Voltage	V_{DS} = 10V, I_D = -1µA	-1	-3.5	V

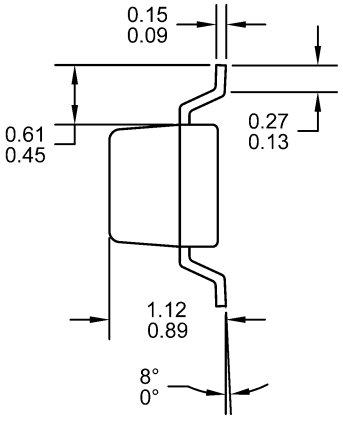
Dynamic Characteristics (@ TA = 25°C, Unless otherwise specified)

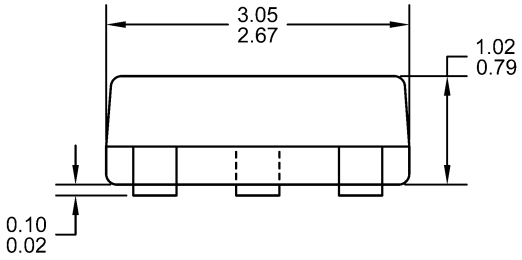
Parameters		Conditions	VCR2N		Unit
			Min	Max	
$r_{ds(on)}$	Drain to Source ON Resistance	I_D = 0A, V_{GS} = 0V, f = 1kHz	20	60	Ω
C_{dg}	Drain Gate Capacitance	V_{DG} = 10V, I_S = 0A, f = 1MHz		7.5	pF
C_{sg}	Source Gate Capacitance	V_{GS} = 10V, I_D = 0A, f = 1MHz		7.5	pF

SOT23 (TO-236AB) Mechanical and Layout Data

Package Outline Data

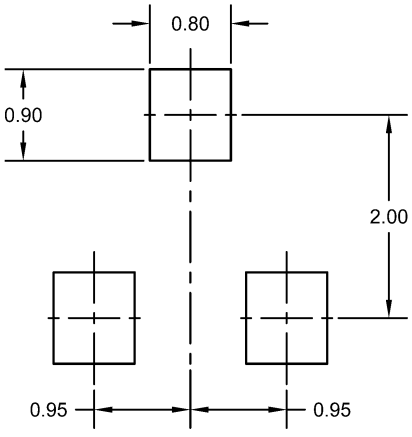






1. All linear dimensions are in millimeters.
2. Package weight approximately 0.12 grams
3. Molded plastic case UL 94V-0 rated
4. For Tape and Reel specifications refer to InterFET CTC-021 Tape and Reel Specification, Document number: IF39002
5. Bulk product is shipped in standard ESD shipping material
6. Refer to JEDEC standards for additional information.

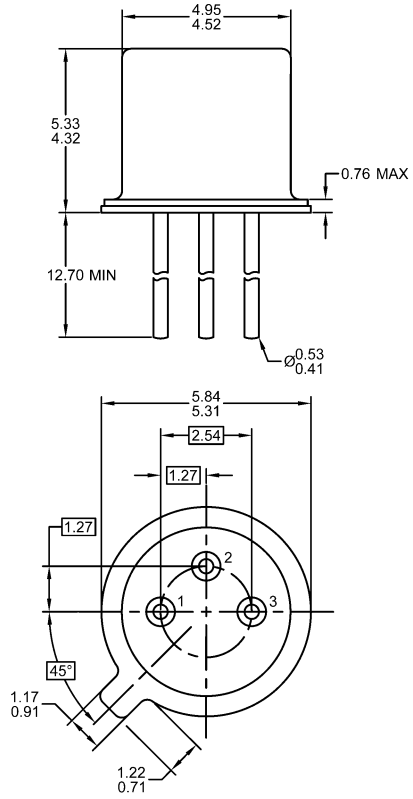
Suggested Pad Layout



1. All linear dimensions are in millimeters.
2. The suggested land pattern dimensions have been provided for reference only. A more robust pattern may be desired for wave soldering.

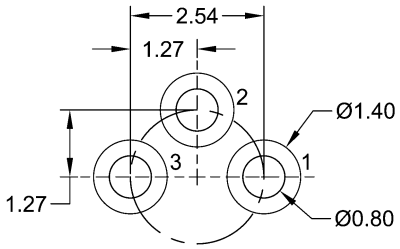
TO-18 Mechanical and Layout Data

Package Outline Data



1. All linear dimensions are in millimeters.
2. Package weight approximately 0.29 grams
3. Bulk product is shipped in standard ESD shipping material
4. Refer to JEDEC standards for additional information.

Suggested Through-Hole Layout



1. All linear dimensions are in millimeters.
2. The suggested land pattern dimensions have been provided as a straight lead reference only. A more robust pattern may be desired for wave soldering and/or bent lead configurations.