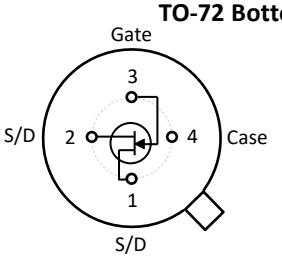
2N4117/A, 2N4118/A, 2N4119/A N-Channel JFET JAN Equivalent Parts

Features

- InterFET N0001H Geometry
- Low gate leakage: 120fA typical @20V
- Low C_{ISS}: 1.8pF typical
- Typical BV_{GSS}: -60V
- High radiation tolerance
- RoHS, REACH, CMR compliant
- Custom test and binning options available
- Edge case SPICE modeling: InterFET SPICE

TO-72 Bottom View



Built to MIL-PRF-19500

(Source and Drain pins are interchangeable)

Industry Standard Crosses

- 2N4117, 2N4118, 2N4119, VCR7N

InterFET Similar Parts

- SMP4117-8-9, PNVCR7N

InterFET Dual Parts

- IFNU421-2-3-4-5-6

Applications

- General: Buffers; Signal mixers; Femtoampere diodes
- Military/Aero: Radar; Communications; Satellites
- Medical: Imaging systems; Monitors; Ultrasound

Description

The -50V InterFET 2N4117/A, 2N4118/A, and 2N4119/A JFET's are targeted for ultra high input impedance applications. Gate leakages are typically 120fA at room temperatures. Proprietary InterFET processes yield exceptionally high radiation tolerance. Parts can be connected for femtoampere diode applications.

Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
2N4117JANequiv, 2N4118JANequiv 2N4119JANequiv	JAN Equivalent	TO-72	Bulk
2N4117AJANequiv, 2N4118AJANequiv 2N4119AJANequiv	JAN Equivalent	TO-72	Bulk
2N4117JANTXequiv, 2N4118JANTXequiv 2N4119JANTXequiv	JANTX Equivalent	TO-72	Bulk
2N4117AJANTXequiv, 2N4118AJANTXequiv 2N4119AJANTXequiv	JANTX Equivalent	TO-72	Bulk
2N4117JANTXVequiv, 2N4118JANTXVequiv 2N4119JANTXVequiv	JANTXV Equivalent	TO-72	Bulk
2N4117AJANTXVequiv, 2N4118AJANTXVequiv 2N4119AJANTXVequiv	JANTXV Equivalent	TO-72	Bulk
2N4117JANSequiv, 2N4118JANSequiv 2N4119JANSequiv	JANS Equivalent	TO-72	Bulk
2N4117AJANSequiv, 2N4118AJANSequiv 2N4119AJANSequiv	JANS Equivalent	TO-72	Bulk

Electrical Characteristics

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

Parameters		TO-72	SOT-23	TO-92	Unit
V_{RGS}	Reverse Gate Source and Gate Drain Voltage	-20	-20	-20	V
I_{FG}	Continuous Forward Gate Current	50	50	50	mA
P_D	Continuous Device Power Dissipation[1]	500	350	500	mW
P	Power Derating[1]	3.3	2.8	4	mW/°C
T_J	Operating Junction Temperature	-65 to 175	-55 to 150	-55 to 150	°C
T_{STG}	Storage Temperature	-65 to 175	-55 to 150	-55 to 150	°C

[1] Thermal power dissipation and derating values obtained with gate pin (substrate) thermally connected to pad and/or internal layer.

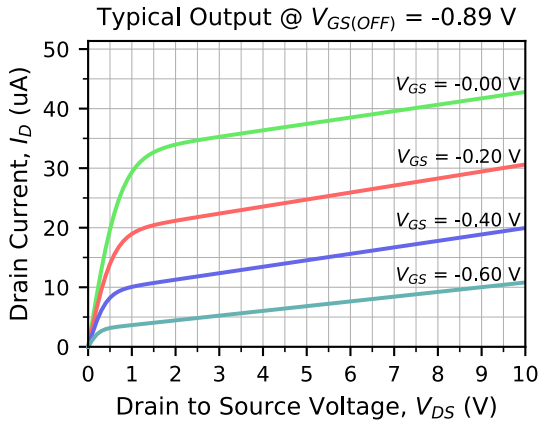
Static Characteristics (@ TA = 25°C, Unless otherwise specified, Highlighted values = A variant)

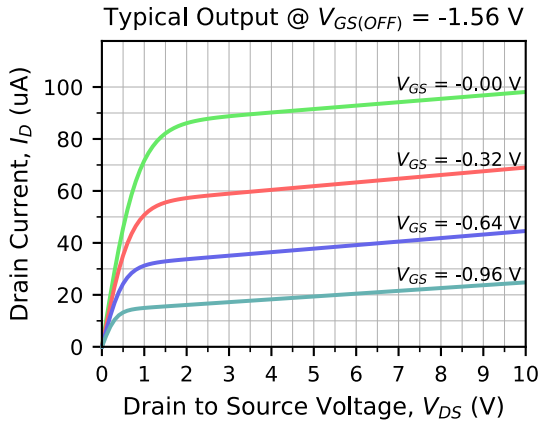
Parameters		Conditions	2N4117/A		2N4118/A		2N4119/A		Unit
			Min	Max	Min	Max	Min	Max	
$V_{(BR)GSS}$	Gate to Source Breakdown Voltage	I_G = -1µA, V_{DS} = 0V	-40		-40		-40		V
I_{GSS}	Gate to Source Reverse Current	V_{GS} = -20V, V_{DS} = 0V		-10		-10		-10	pA
				-1		-1		-1	pA
$V_{GS(OFF)}$	Gate to Source Cutoff Voltage	V_{DS} = 10V, I_D = 1nA	-0.6	-1.8	-1	-3	-2	-6	V
I_{DSS}	Drain to Source Saturation Current	V_{DS} = 10V, V_{GS} = 0V (Pulsed)	0.03	0.09	0.08	0.24	0.2	0.6	mA
			0.015	0.09	0.08	0.24	0.2	0.6	mA

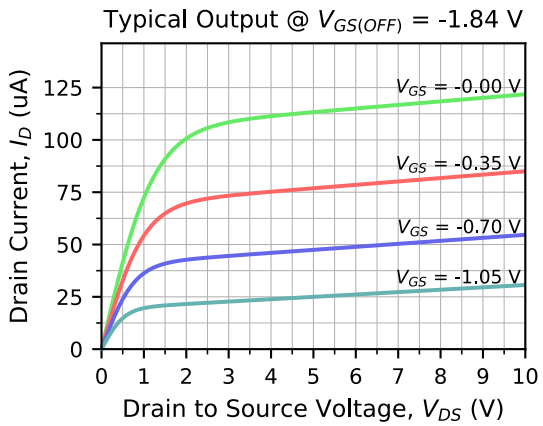
Dynamic Characteristics (@ TA = 25°C, Unless otherwise specified)

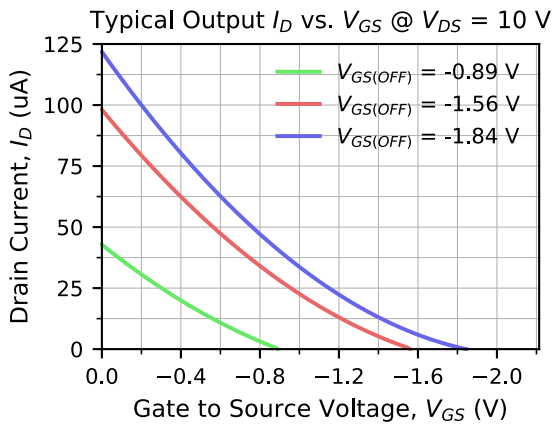
Parameters		Conditions	2N4117/A		2N4118/A		2N4119/A		Unit
			Min	Max	Min	Max	Min	Max	
G_{FS}	Forward Transconductance	V_{DS} = 10V, V_{GS} = 0V, f = 1kHz	70	210	80	250	100	330	µS
G_{OS}	Output Conductance	V_{DS} = 10V, V_{GS} = 0V, f = 1kHz		3		5		10	µS
C_{iss}	Input Capacitance	V_{DS} = 10V, V_{GS} = 0V, f = 1MHz		3		3		3	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 10V, V_{GS} = 0V, f = 1MHz		1.5		1.5		1.5	pF

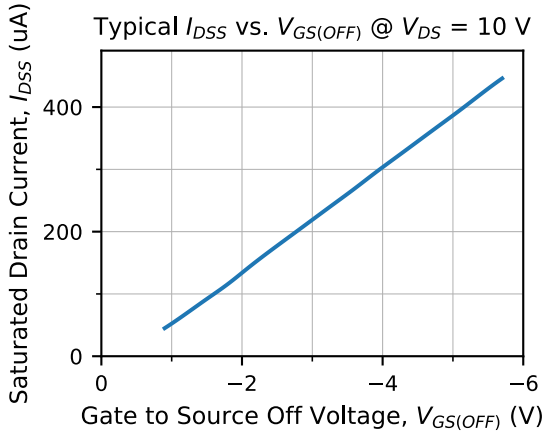
Typical 2N4117, 2N4118, 2N4119 Characteristics

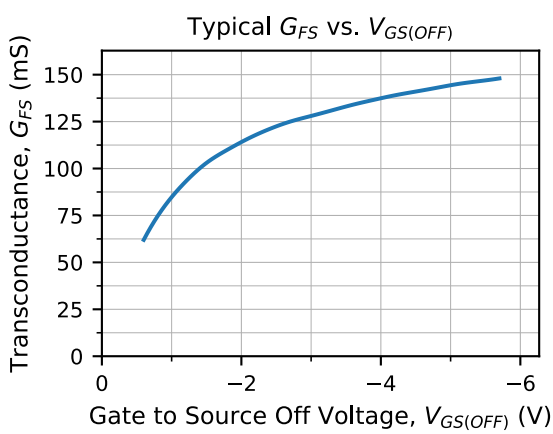




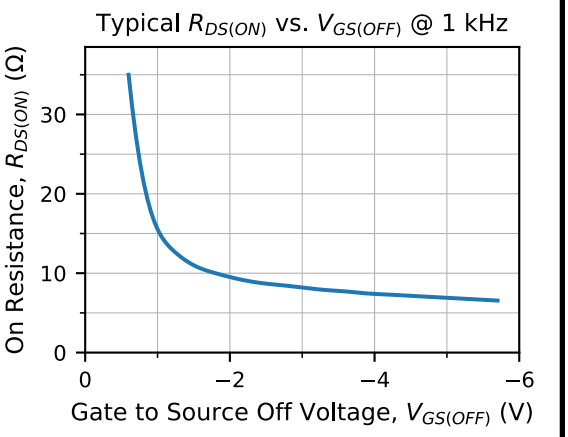


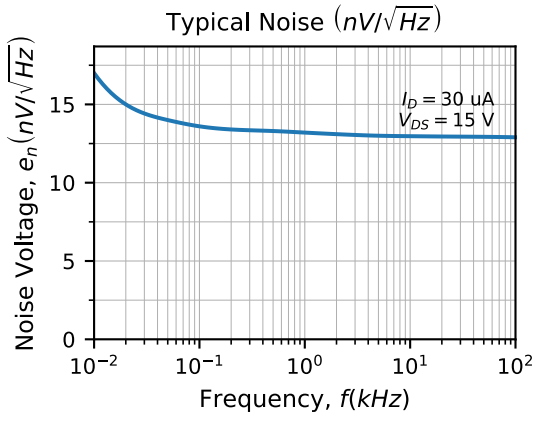


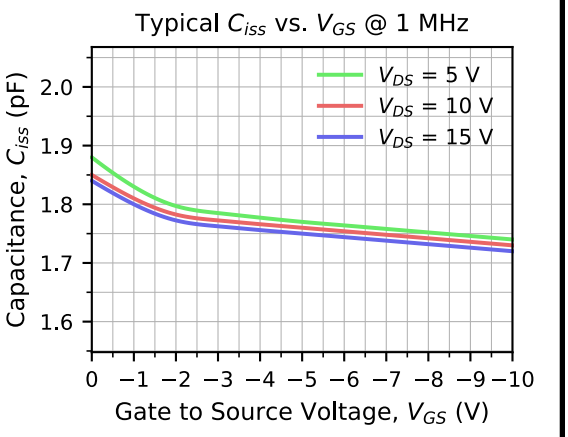


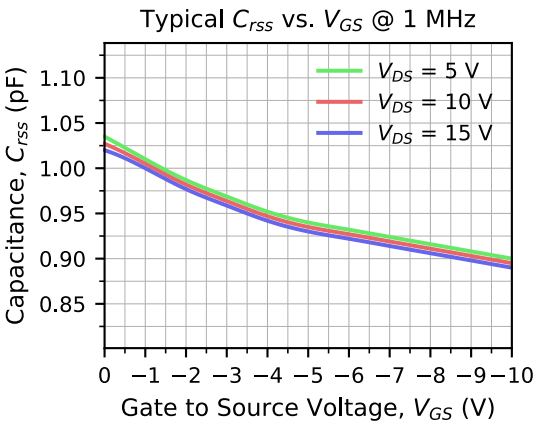


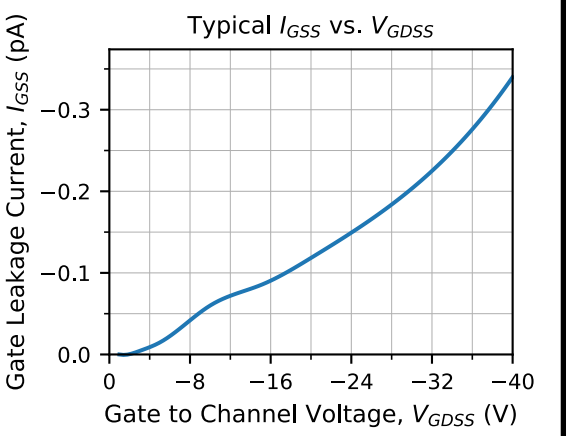
Typical 2N4117, 2N4118, 2N4119 Characteristics (Continued)





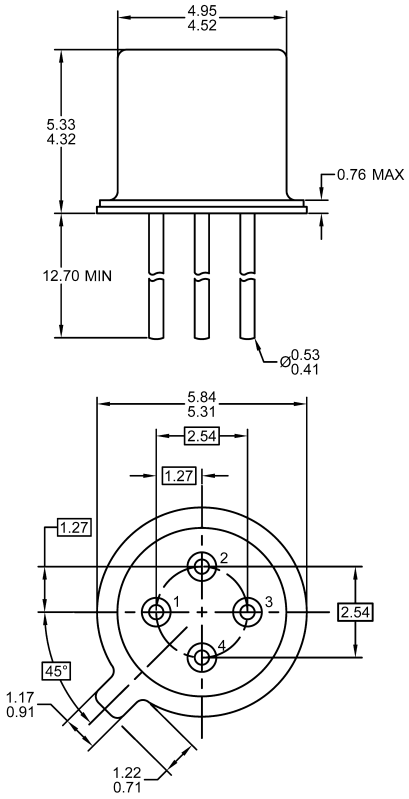






TO-72 Mechanical and Layout Data

Package Outline Data



1. All linear dimensions are in millimeters.
2. Four leaded device. Not all leads are shown in drawing views.
3. Package weight approximately 0.31 grams
4. Bulk product is shipped in standard ESD shipping material
5. Refer to JEDEC standards for additional information.

Compliance and Legal

Environment

InterFET parts follow the latest RoHS Compliance, REACH Compliance, Proposition 65 Statement, TSCA Statement, and Chemical Disposal and Waste Mitigation requirement and guidelines. For more on InterFET's Environmental Commitment please visit www.InterFET.com/environmental/.

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