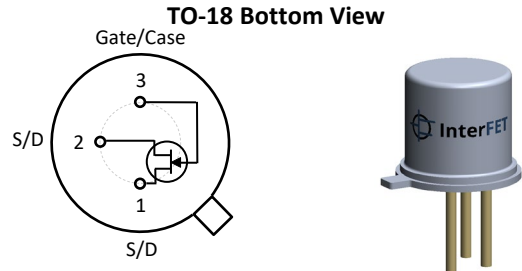


2N4091, 2N4092, 2N4093 N-Channel JFET Jan Equivalent Parts

Features

- InterFET [N0132S Geometry](#)
- Low noise: 1.0 nV/√Hz typical
- High gain: 22mS typical
- Low gate leakage: 750fA typical @20V
- Typical $V_{GS(OFF)}$: -2.5V
- Typical I_{DSS} : 12mA
- High radiation tolerance
- RoHS, REACH, CMR compliant
- Custom test and binning options available
- Edge case SPICE modeling: [InterFET SPICE](#)



Built to MIL-PRF-19500

(S/D pins are interchangeable)

Industry Standard Crosses

- TBD

InterFET Similar Parts

- J112, 113A
- 2N4860-1, 2N4857-8-9, 2N4392, 2N3971

Applications

- General: Amplifiers; Switches; Voltage regulators;
- Oscillators; Signal mixers; Noise generators
- Military/Aero: Radar; Communications; Satellites; Missiles guidance; Hydrophone Pre-Amps
- Medical: Medical imaging systems; Medical monitors and recorders; Ultrasound equipment
- Audio: Tone control circuits; Headphone amplifiers; Audio filters; Electret Microphone

Description

The -40V InterFET 2N4091, 2N4092, and 2N4093 JFET's are targeted for very low noise switching applications for mid to high frequency designs. Gate leakages are typically 50pA at room temperatures. The TO-18 package is hermetically sealed and suitable for military applications.



Ordering Information Custom Part and Binning Options Available

Part Number	Description	Case	Packaging
2N4091JANequiv, 2N4092JANequiv, 2N4093JANequiv	JAN equivalent	TO-18	Bulk
2N4091JANTXequiv, 2N4092JANTXequiv, 2N4093JANTXequiv	JANTX equivalent	TO-18	Bulk
2N4091JANTXVequiv, 2N4092JANTXVequiv, 2N4093JANTXVequiv	JANTXV equivalent	TO-18	Bulk
2N4091JANSequiv, 2N4092JANSequiv, 2N4093JANSequiv	JANS equivalent	TO-18	Bulk



NOTICE: Please refer to the end of this document for information on product materials, compliance, safety, and legal statements.

Electrical Characteristics

Maximum Ratings (@ $T_A = 25^\circ\text{C}$, Unless otherwise specified)

Parameters	TO-18	Unit
V_{RGS} Reverse Gate Source and Gate Drain Voltage	-20	V
I_{FG} Continuous Forward Gate Current	50	mA
P_D Continuous Device Power Dissipation ¹	500	mW
P Power Derating ¹	3.3	mW/ $^\circ\text{C}$
T_J Operating Junction Temperature	-65 to 175	$^\circ\text{C}$
T_{STG} Storage Temperature	-65 to 175	$^\circ\text{C}$

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

Static Characteristics (@ $T_A = 25^\circ\text{C}$, Unless otherwise specified)

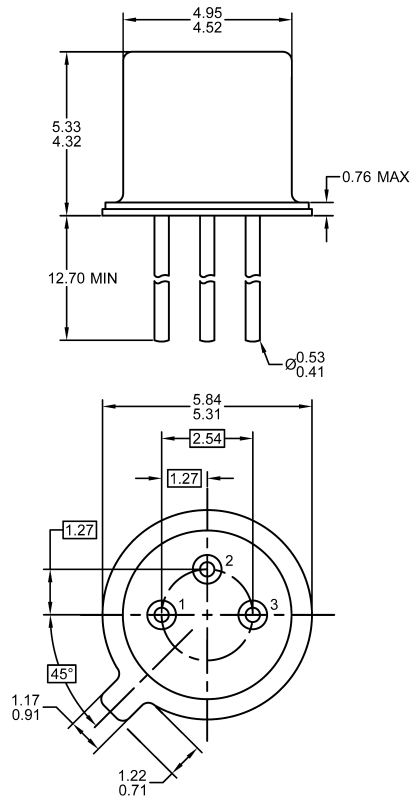
Parameters	Conditions	2N4091		2N4092		2N4093		Unit
		Min	Max	Min	Max	Min	Max	
$V_{(BR)GSS}$ Gate to Source Breakdown Voltage	$V_{DS} = 0V, I_G = -1\mu A$	-40		-40		-40		V
I_{GSS} Gate to Source Reverse Current	$V_{GS} = -20V, V_{DS} = 0V$		-1		-1		-1	nA
$V_{GS(OFF)}$ Gate to Source Cutoff Voltage	$V_{DS} = 20V, I_D = 1nA$	-5	-10	-2	-7	-1	-5	V
I_{DSS} Drain to Source Saturation Current	$V_{GS} = 0V, V_{DS} = 20V$ (Pulsed)	30		15		8		mA

Dynamic Characteristics (@ $T_A = 25^\circ\text{C}$, Unless otherwise specified)

Parameters	Conditions	2N4091		2N4092		2N4093		Unit
		Min	Max	Min	Max	Min	Max	
$R_{DS(ON)}$ Drain to Source ON Resistance	$V_{GS} = 0V, I_D = 0A,$ $f = 1kHz$		30		50		80	Ω
C_{iss} Input Capacitance	$V_{DS} = 20V, V_{GS} = 0V,$ $f = 1MHz$		16		16		16	pF
C_{rss} Reverse Transfer Capacitance	$V_{DS} = 0V, V_{GS} = -20V,$ $f = 1MHz$		5		5		5	pF
t_d Turn-On Delay Time	$V_{DD} = 3V, V_{GS(ON)} = 0V$		10		15		20	ns
t_r Rise Time	$V_{DD} = 3V, V_{GS(ON)} = 0V$		10		20		40	ns
t_{off} Turn-Off Time	$V_{DD} = 3V, V_{GS(ON)} = 0V$		40		60		80	ns

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.



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

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