

# X-RAY JFETS



Die Size 0.80mm x 0.80mm x 0.50mm

## Applications

### X-ray Detectors

- Si(Li) Detectors
- Si-PIN Detectors
- Silicon Drift Detectors (SDD)

## JFET Ordering Information

Part Number	Packaging
FET00042	TO-72 with can
FET00005	Nailhead package
Contact Moxtek	Teflon package

*Please contact MOXTEK for price and delivery information. Custom packaging is available.*



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## MX-20 Ultra Low Noise JFET

The MX-20 ultra low noise JFET is used in a variety of applications including microanalysis, EDXRF, XRD. The MX-20 is a 4 pin N-channel JFET and is guaranteed to have a noise level less than 2.0nV at 1KHz, 20°C. This JFET has excellent transconductance ( $g_m$ ) and input capacitance ( $C_{gs}$ ) ( $g_m=8mS$ ,  $C_{gs}=0.9pF$ , 20°C).

## Features for Optimal Detector Resolution

Ultra low noise

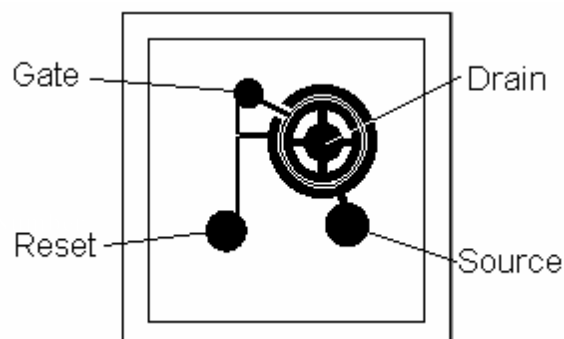
Free of generation recombination noise

Excellent transconductance ( $g_m$ ) and input capacitance ( $C_{gs}$ )

Low leakage current

## Standard Package Includes:

- JFET mounted on a nailhead or TO-72
- Each JFET is tested and guaranteed

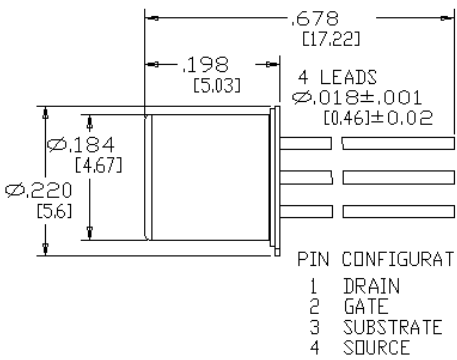


Noise Characteristics	Typ nV/ $\sqrt{\text{Hz}}$	Max nV/ $\sqrt{\text{Hz}}$	Test Condition		Temp C°
			$V_{ds}$	$I_d$	
1KHz	1.8		4V	5mA	20
10KHz	1.6		4V	5mA	20
100KHz	1.5		4V	5mA	20
1KHz	1.6	2.3	4V	5mA	-100
10KHz	1.3	2.0	4V	5mA	-100
100KHz	1.2	2.0	4V	5mA	-100

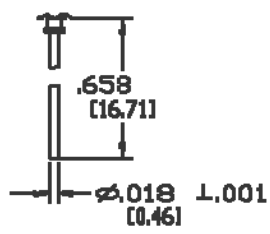
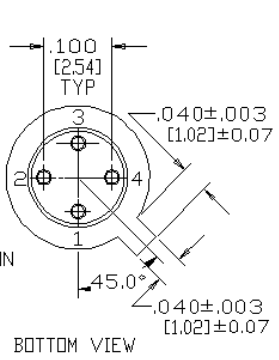
Static Characteristics	Min	Typ	Max	Test Condition
Gate to Source Breakdown ( $BV_{gss}$ )	20V	26V		$V_{ds}=0V, I_g=1\mu A, V_{sub}=0V$
Reverse Leakage Current ( $I_{gss}$ )		0.6pA	2pA	$V_{reverse} = -10V$
Gate to Source Cutoff Voltage ( $V_{gs}$ )		10V		$V_{sub}=0V, I_d=1nA$
Drain Saturation Current ( $I_{dss}$ )		29mA		$V_{gs}=0V, V_{ds}=0V$

Dynamic Characteristics	Typ	Test Condition
Transconductance ( $g_m$ )	8mS	$V_{ds}=4V, I_d=5mA, 20^\circ C$
Transconductance ( $g_m$ )	11mS	$V_{ds}=4V, I_d=5mA, -100^\circ C$
Gate to Source Capacitance ( $C_{gs}$ )	0.9pF	$V_{gs}=0V, V_{ds}=4V, I_d=5mA$

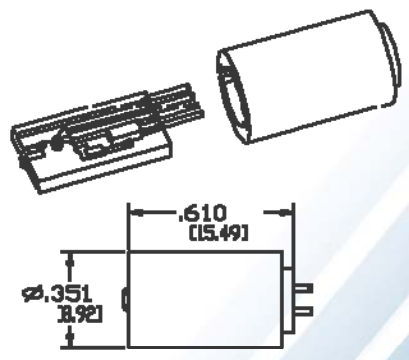
### Available JFET Packages



TO-72 PACKAGE WITH CAN  
 (Light Reset Package available)



NAILHEAD WITH  
 FLYING LEADS



TEFLON PACKAGE