



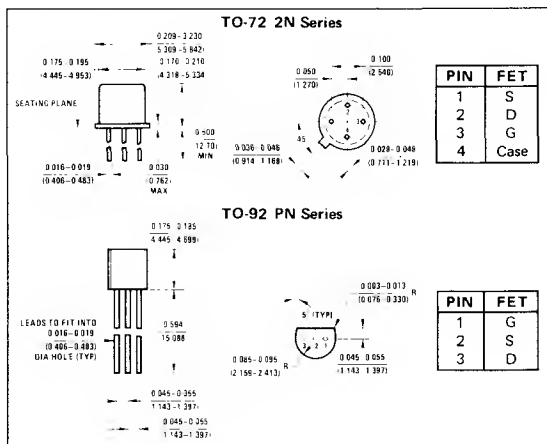
2N3684-87/PN3684-87 N-Channel JFETs

General Description

The 2N3684/PN3684 thru 2N3687/PN3687 series of N-channel JFETs is characterized for general purpose small signal amplifier applications requiring low noise and tightly specified I_{DSS} ranges.

Absolute Maximum Ratings (25°C)

Gate-Drain or Gate-Source Voltage (Note 2)	−50V
Gate Current or Drain Current	50 mA
Total Device Dissipation (Derate 2 mW/°C to 175°C)	350 mW
Storage Temperature Range	
2N Series	−65°C to +200°C
PN Series	−65°C to +150°C
Lead Temperature (1/16" from case for 10 seconds)	300°C



Electrical Characteristics (25°C unless otherwise noted)

PARAMETER	CONDITIONS	2N3684/ PN3684		2N3685/ PN3685		2N3686/ PN3686		2N3687/ PN3687		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
I_{GSS} Gate Reverse Current	$V_{GS} = -30V, V_{DS} = 0$ 150°C		−0.1		−0.1		−0.1		−0.1	nA
			−0.5		−0.5		−0.5		−0.5	μA
BV_{GSS} Gate-Source Breakdown Voltage	$I_G = -1\mu A, V_{DS} = 0$	−50		−50		−50		−50		V
$V_{GS(off)}$ Gate-Source Cutoff Voltage	$V_{DS} = 20V, I_D = 1\text{ nA}$	−2	−5	−1	−3.5	−0.6	−2	−0.3	−1.2	
I_{DSS} Saturation Drain Current	$V_{DS} = 20V, V_{GS} = 0$	2.5	7.5	1	3	0.4	1.2	0.1	0.5	mA
$r_{DS(on)}$ Drain-Source ON Resistance	$V_{DS} = 0V, V_{GS} = 0, \text{ (Note 1)}$		600		800		1200		2400	Ω
g_{fs} Common-Source Forward Transconductance, (Note 3)	$V_{DS} = 20V, V_{GS} = 0$ $f = 1\text{ kHz}$	2000	3000	1500	2500	1000	2000	500	1500	μmho
g_{os} Common-Source Output Conductance			50		25		10		5	
C_{rss} Common-Source Reverse Transfer Capacitance			1.2		1.2		1.2		1.2	pF
C_{iss} Common-Source Input Capacitance			4		4		4		4	
e_n Equivalent Short-Circuit Input Spot Noise Voltage	$V_{DS} = 10V, V_{GS} = 0$ $f = 20\text{ Hz}$		0.15		0.15		0.15		0.15	$\frac{\mu V}{\sqrt{Hz}}$
NF Noise Figure	$V_{DS} = 10V, V_{GS} = 0$ $R_{gen} = 10M, BW = 6\text{ Hz}$ $f = 100\text{ Hz}$		0.5		0.5		0.5		0.5	dB

Note 1: Not JEDEC registered data.

Note 2: Due to symmetrical geometry, these units may be operated with source and drain leads interchanged.

Note 3: Pulse test duration: 2 ms.

2N3684, 2N3685, 2N3686, 2N3687,
PN3684, PN3685, PN3686, PN3687