N-Channel, J-FET Depletion Mode Transistor

Screened in reference to MIL-PRF-19500

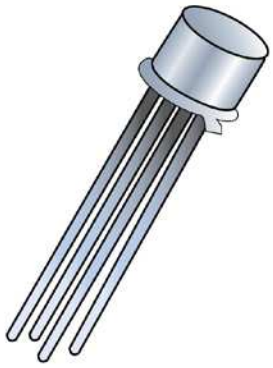
DESCRIPTION

The NJF6514 and NJF6515 are ideal for functioning as very high frequency (VHF) small signal amplifiers. The NJF6514 part number is similar to the MV2N3821. The NJF6515 part number would be similar to a MS2N3821.

Important: For the latest information, visit our website http://www.microsemi.com.

FEATURES

- The NJF6514 is screened to MV level in reference to MIL-PRF-19500 JANTXV level.
- The NJF6515 is screened to MS level in reference to MIL-PRF-19500 JANS level.



TO-72 (TO-206AF) Package

APPLICATIONS / BENEFITS

- Low-power transistor.
- Leaded metal TO-72 package.

MAXIMUM RATINGS @ T_C = +25 °C unless otherwise noted

Parameters/Test Conditions	Symbol	Value	Unit
Junction and Storage Temperature	T_J and T_{STG}	-55 to +200	°C
Reverse Gate-Source Voltage	V_{GSR}	50	V
Drain-Source Voltage	V_{DS}	50	V
Drain-Gate Voltage	V_{DG}	50	V
Total Power Dissipation @ T_A = +25 ºC (1)	P_T	300	mW
Forward Gate Current	I_{GF}	10	mA

Notes: 1. Derate linearly 1.7 mW/°C for T_A > +25 °C.

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MECHANICAL and PACKAGING

- CASE: Ni plated kovar, Ni cap.
- TERMINALS: Au over Ni plated kovar leads.
- MARKING: Manufacturer's ID, date code, part number.
- POLARITY: See case outline on last page.
- WEIGHT: Approximately 0.322 grams.
- See package dimensions on last page.

PART NOMENCLATURE

SYMBOLS & DEFINITIONS

Symbol	Definition
I_D	Drain current, dc: The direct current into the drain terminal.
I_G	Gate current, dc: The direct current into the gate terminal.
R_G	Gate resistance.
T_A	Ambient temperature: The air temperature measured below a device, in an environment of substantially uniform temperature, cooled only by natural air convection and not materially affected by reflective and radiant surfaces.
T_C	Case temperature: The temperature measured at a specified location on the case of a device.
I_{GF}	Forward gate current: The direct current into the gate terminal with a forward gate-source voltage applied.
V_{DG}	Drain-gate voltage, dc: The dc voltage between the drain and gate terminals.
V_{DS}	Drain-source voltage, dc: The dc voltage between the drain and source terminals.
V_{GSR}	Reverse gate-source voltage: The voltage between the gate and source terminals of such polarity that an increase in its magnitude causes the channel resistance to increase.

ELECTRICAL CHARACTERISTICS @ T_A = +25 °C unless otherwise noted

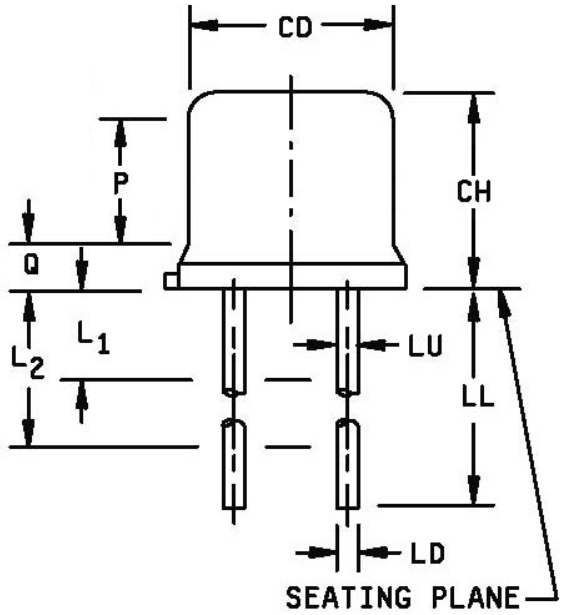
OFF CHARACTERTICS

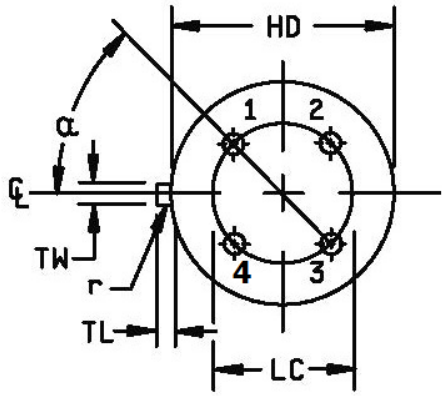
Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Reverse Gate-Source Breakdown Voltage V_{DS} = 0, I_G = 1.0 µA	$V_{(BR)GSSR}$	50		V
Reverse Gate Current V_{GS} = 0, V_{DS} = 30 V V_{GS} = 0, V_{DS} = 30 V V_{DS} = 0, V_{GS} = 20 V	I_{GSSR}		0.1	nA
Zero-Gate-Voltage Drain Current (Pulsed) V_{GS} = 0, V_{DS} = 15 V	I_{DSS}	0.5	2.5	mA
Gate-Source Voltage V_{DS} = 15 V, I_D = 50 µA	V_{GS}	0.5	2.0	V
Gate-Source Cutoff Voltage V_{DS} = 15 V, I_D = 0.5 nA	$V_{GS(off)}$		4.0	V

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Small-Signal Common Source, Short-Circuit Forward Transfer Admittance V_{GS} = 0, V_{DS} = 15 V, f = 1.0 kHz	$\|y_{fs}\|$	1500	4500	µS
Small-Signal, Common Source, Short-Circuit Output Admittance V_{GS} = 0, V_{DS} = 15 V, f = 1.0 kHz	$\|y_{os}\|$		10	µS
Small-Signal, Common-Source Short-Circuit Input Capacitance V_{GS} = 0 V, V_{DS} = 15 V, 100 kHz ≤ f ≤ 1.0 MHz	C_{iss}		6.0	pF
Small-Signal, Common-Source Reverse Transfer Capacitance V_{DS} = 15 V, V_{GS} = 0, 100 kHz ≤ f ≤ 1.0 MHz	C_{rss}		3.0	pF
Common Source Spot Noise Figure V_{GS} = 0, V_{DS} = 15 V, R_G = 1 MΩ f = 10 Hz f = 1.0 kHz	NF_1		 5.0 2.5	dB

PACKAGE DIMENSIONS





Ltr	Dimensions				Notes
	Inch		Millimeters		
	Min	Max	Min	Max	
CD	0.178	0.195	4.52	4.95	
CH	0.170	0.210	4.32	5.33	
HD	0.209	0.230	5.31	5.84	
L1	-	0.050	-	1.27	
L2	0.250	-	6.35		
LC	0.100 TP		2.54 TP		
LD	0.016	0.021	0.41	0.53	2, 6
LL	0.500	0.750	12.70	19.05	6
LU	0.016	0.019	0.41	0.48	3, 6
Q	-	0.040	-	1.02	
r	-	0.007	-	0.18	
TL	0.028	0.048	0.71	1.22	8
TW	0.036	0.046	0.91	1.17	
α	45° TP				
Pin					
1	Emitter				
2	Base				
3	Collector				
4	Case				

NOTES:

1. Dimensions are in inches. Millimeters are given for general information only.
2. Measured in the zone beyond 0.250 (6.35 mm) from the seating plane.
3. Measured in the zone 0.050 (1.27 mm) and 0.250 (6.35 mm) from the seating plane.
4. When measured in a gauging plane 0.054 + 0.001, - 0.000 (1.37 + 0.3, - 0.00 mm) before the seating plane of the transistor, maximum diameter leads shall be within 0.007 (0.18 mm) of their true location relative to a maximum width tab. Smaller diameter leads shall fall within the outline of the maximum diameter lead tolerance.
5. The active elements are electrically insulated from the case.
6. All 4 leads.
7. Lead 1 is the source, lead 2 is the drain, lead 3 is the gate, and lead 4 is the case.
8. Symbol TL is measured from HD maximum.
9. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.