

## N-CHANNEL, J-FET DEPLETION MODE TRANSISTOR

*Screened in  
reference to  
MIL-PRF-19500*

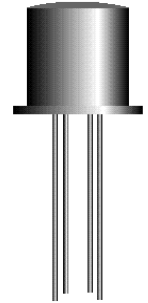
### DESCRIPTION

The NJF6510 is ideal for functioning as a VHF and a small signal amplifier. This part number is also an equivalent to the MX2N3822.

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

### FEATURES

- Screened to MX level in reference to MIL-PRF-19500 JANTX level.



**TO-72 (TO-206AF)  
Package**

### APPLICATIONS / BENEFITS

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

### MAXIMUM RATINGS @ $T_C = +25\text{ }^\circ\text{C}$ unless otherwise noted.

Parameters/Test Conditions	Symbol	Value	Unit
Junction and Storage Temperature	$T_J$ and $T_{STG}$	-55 to +200	$^\circ\text{C}$
Gate-Source Voltage	$V_{GSR}$	50	V
Drain-Source Voltage	$V_{DS}$	50	V
Drain-Drain -Gate Voltage	$V_{DG}$	50	V
Steady-State Power Dissipation @ $T_A = +25\text{ }^\circ\text{C}$ <sup>(1)</sup>	$P_D$	300	mW
Gate Current	$I_{GF}$	10	mA

**Notes:** 1. Derate linearly 1.7 mW/ $^\circ\text{C}$  for  $T_A > +25\text{ }^\circ\text{C}$ .

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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: 0.322 grams.
- See [Package Dimensions](#) on last page.

**PART NOMENCLATURE**

**SYMBOLS & DEFINITIONS**

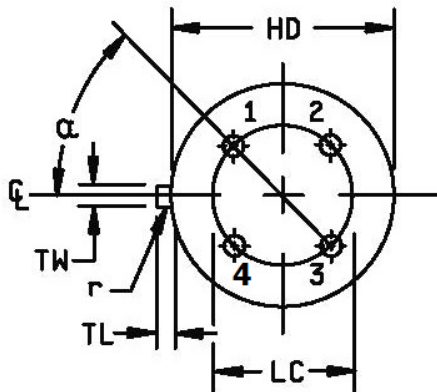
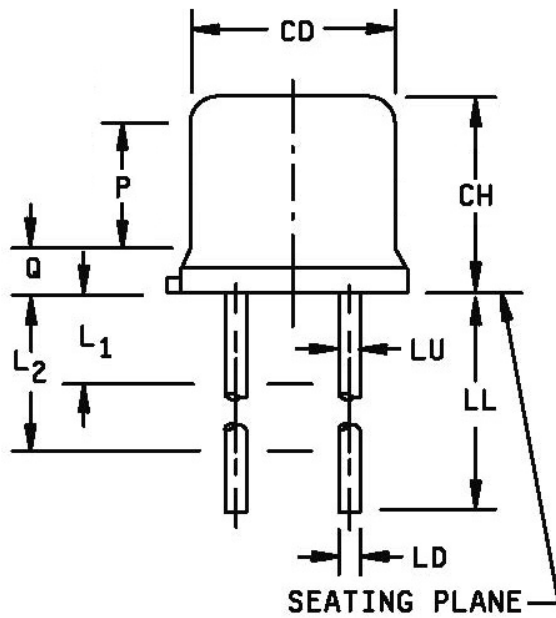
Symbol	Definition
$I_D$	Drain current.
$I_G$	Gate current.
$R_G$	Gate resistor.
$T_A$	Ambient or free air temperature.
$T_C$	Case temperature.

**ELECTRICAL CHARACTERISTICS @  $T_A = +25^\circ\text{C}$  unless otherwise noted.**
**OFF CHARACTERISTICS**

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Gate-Source Breakdown Voltage $V_{DS} = 0, I_G = 1.0 \mu\text{A}$	$V_{(BR)GSSR}$	50		V
Gate Reverse Current $V_{GS} = 0, V_{DS} = 30\text{ V}$ $V_{GS} = 0, V_{DS} = 30\text{ V}$ $V_{DS} = 0, V_{GS} = 20\text{ V}$	$I_{GSSR}$		0.1	$\eta\text{A}$
Drain Saturation Current (Pulsed) $V_{GS} = 0, V_{DS} = 15\text{ V}$	$I_{DSS}$	2.0	10	mA
Gate-Source Voltage $V_{DS} = 15\text{ V}, I_D = 400 \mu\text{A}$	$V_{GS}$	1.0	4.0	V
Gate-Source Cutoff Voltage $V_{DS} = 15\text{ V}, I_D = 0.5 \eta\text{A}$	$V_{GS(off)}$		6.0	V

**DYNAMIC CHARACTERISTICS**

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Small-Signal Common Source, Short-Circuit Forward Transfer Admittance $V_{GS} = 0, V_{DS} = 15\text{ V}, f = 1.0\text{ kHz}$	$ y_{fs} $	3000	6500	$\mu\text{S}$
Small-Signal, Common Source, Short-Circuit Output Admittance $V_{GS} = 0, V_{DS} = 15\text{ V}, f = 1.0\text{ kHz}$	$ y_{os} $		20	$\mu\text{S}$
Small-Signal, Common-Source Short-Circuit Input Capacitance $V_{GS} = 0\text{ V}, V_{DS} = 15\text{ V}, 100\text{ kHz} \leq f \leq 1.0\text{ MHz}$	$C_{iss}$		6.0	pF
Small-Signal, Common-Source Reverse Transfer Capacitance $V_{DS} = 15\text{ V}, V_{GS} = 0, 100\text{ kHz} \leq f \leq 1.0\text{ MHz}$	$C_{rss}$		3.0	pF
Common Source Spot Noise Figure $V_{GS} = 0, V_{DS} = 15\text{ V}, R_G = 1\text{ M}\Omega$ $f = 10\text{ Hz}$ $f = 1.0\text{ kHz}$	$NF_1$		5.0 2.5	dB

**PACKAGE DIMENSIONS**


Ltr	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
CD	.178	.195	4.52	4.95	
CH	.170	.210	4.32	5.33	
HD	.209	.230	5.31	5.84	
L1		.050		1.27	
L2	.250		6.35		
LC	.100 TP		2.54 TP		
LD	.016	.021	0.41	0.53	2, 6
LL	.500	.750	12.70	19.05	6
LU	.016	.019	0.41	0.48	3, 6
Q		.040		1.02	
r		.007		0.18	
TL	.028	.048	0.71	1.22	8
TW	.036	.046	0.91	1.17	
$\alpha$	45° TP				
Pin					
1	Emitter				
2	Base				
3	Collector				
4	Case				

**NOTES:**

- Dimensions are in inches. Millimeters are given for general information only.
- Measured in the zone beyond .250 (6.35 mm) from the seating plane.
- Measured in the zone .050 (1.27 mm) and .250 (6.35 mm) from the seating plane.
- When measured in a gauging plane .054 +.001, -.000 (1.37 +.3, -.00 mm) before the seating plane of the transistor, maximum diameter leads shall be within .007 (.18 mm) of their true location relative to a maximum width tab. Smaller diameter leads shall fall within the outline of the maximum lead tolerance.
- The active elements are electrically insulated from the case.
- All 4 leads.
- Lead 1 is the source, lead 2 is the drain, lead 3 is the gate, and lead 4 is the case.
- Symbol TL is measured from HD maximum.
- In accordance with ASME Y14.5M, diameters are equivalent to  $\Phi$ x symbology.