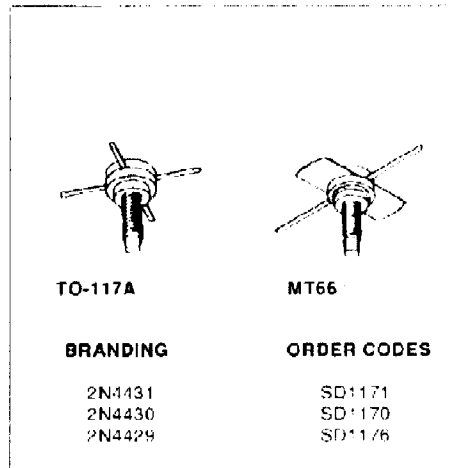


2N4429 → 4431

RF & MICROWAVE POWER TRANSISTORS
MICROWAVE POWER TRANSISTORS FOR CLASS C APPLICATIONS

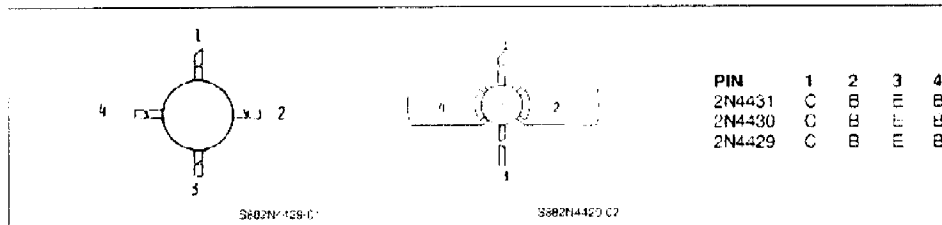
FEATURES	HIGH POWER GAIN	PACKAGE
2N4431	5W @ 1GHz	MT66
2N4430	2.5W @ 1GHz	MT66
2N4429	1W @ 1GHz	TO-117A



DESCRIPTION

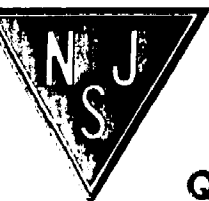
This family of single chip silicon transistors was designed for reliable operation in the 1GHz region. Precise epitaxial growth, diffusion, photoengraving and injection molding techniques are employed to fabricate each device. The family is intended for Class A, B, or C amplifier, oscillator, and multiplier operations in the UHF region.

PIN CONNECTION



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

Symbol	Parameter	2N4431	2N4430	2N4429	Unit
V _{CEC}	Collector to Base Voltage	55.0	55.0	55.0	V
V _{CEB}	Collector to Emitter Voltage	40.0	40.0	35.0	V
V _{EBE}	Emitter to Base Voltage	3.5	3.5	3.5	V
I _{C(max)}	Continuous Collector Current	2.0	1.0	425	mA
P _{tot}	Total Dissipation at 25 °C Stud	10.0	10.0	5.0	W
θ _{JC}	Thermal Resistance (junction to stud)	9.7	17.5	35.0	°C/W
T _J	Junction Temperature	200	200	200	°C
T _{stg}	Storage Temperature	-65 to 150	-65 to 150	-65 to 150	°C



NJ Semi-Conductors reserves the right to change test conditions, parameters limits and package dimensions without notice information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

ELECTRICAL CHARACTERISTICS

STATIC

Symbol	Parameter	Test Conditions	2N4431		2N4430		2N4429		Unit
			Min.	Max.	Min.	Max.	Min.	Max.	
I_{CEX}	Collector Cutoff Current	$V_{CE} = 55V$ $V_{BE} = 1.5V$		4.0		2.0		1.0	μA
BV_{CEO}	Collector to Emitter Breakdown Voltage	$I_C = 50mA, I_B = 0$	40.0		40.0				V
		$I_C = 20mA, I_B = 0$					35.0		V
BV_{CES}	Collector to Emitter Breakdown Voltage	$R = 10\Omega, I_C = 50mA$	55.0		55.0				V
		$R = 10\Omega, I_C = 20mA$					55.0		V
BV_{EBC}	Emitter to Base Breakdown Voltage	$I_E = 0.50mA$	3.5						V
		$I_E = 0.20mA$			3.5				V
		$I_E = 0.10mA$					3.5		V
β_{DC}	DC Current Gain	$V_{CE} = 5V, I_C = 100mA$	20	200	20	200			
		$V_{CE} = 5V, I_C = 50mA$					20	200	

DYNAMIC

Symbol	Parameter	Test Conditions	2N4431		2N4430		2N4429		Unit
			Min.	Max.	Min.	Max.	Min.	Max.	
f_T	Gain Bandwidth @ 200MHz	$V_{CE} = 20V, I_C = 100mA$	600		600				MHz
		$V_{CE} = 20V, I_C = 50mA$					700		MHz
C_{ob}	Output Capacitance	$V_{CE} = 20V, f_c = 1.0MHz$		10		5.0		3.5	pF
β_{eff}	DC Current Gain	$V_{CE} = 5.0V, I_C = 2.0A$	5						
		$V_{CE} = 5.0V, I_C = 1.0A$			5				
		$V_{CE} = 5.0V, I_C = 400mA$					5		
P_{out}	Power Output	$f_o = 1000MHz, P_{in} = 1.57W$	5.0						W
	$V_{CE} = 28V$	$f_o = 1000MHz, P_{in} = 750mW$			2.5				W
	n - Collector	$f_o = 1000MHz, P_{in} = 300mW$					1.0		W
	Efficiency > 35	$f_o = 500MHz, P_{in} = 75mW$							mW

TEST CIRCUIT

