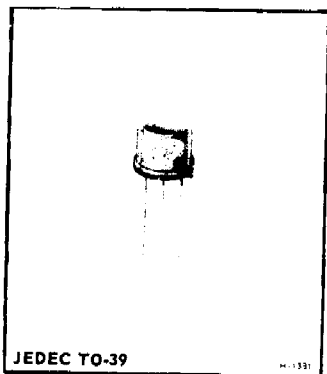


RF Power Transistors

2N5913



Silicon N-P-N Overlay Transistor

12.5-Volt, High-Gain Type for Class-C
 Amplifiers in VHF/UHF Communications Equipment

Features:

- High Power Gain, High Power Output . . .
- At 12.5 V:
 - 2-W (typ.) output at 470 MHz (7-dB gain)
 - 2-W (typ.) output at 250 MHz (9-dB gain)
 - 2-W (typ.) output at 175 MHz (13-dB gain)
- At 8 V:
 - 1.5-W (typ.) output at 470 MHz (4.8-dB gain)
 - 1.5-W (typ.) output at 250 MHz (7.0-dB gain)
 - 1.5-W (typ.) output at 175 MHz (10-dB gain)

MAXIMUM RATINGS, Absolute-Maximum Values:

* COLLECTOR-TO-BASE VOLTAGE, V_{CBO}	36	V
COLLECTOR-TO-EMITTER BREAKDOWN VOLTAGE:		
With base shorted to emitter $V_{(BR)CES}$	36	V
* With base open $V_{(BR)CEO}$	14	V
* EMITTER-TO-BASE VOLTAGE V_{EBO}	3.5	V
* CONTINUOUS COLLECTOR CURRENT I_C	0.33	A
* TRANSISTOR DISSIPATION: P_T		
At case temperatures up to 75°C	3.5	W
At case temperatures above 75°C	Derate at 0.0028 W/°C	
* TEMPERATURE RANGE:		
Storage & Operating (Junction)	-65 to +200	°C
* LEAD TEMPERATURE:		
At distances $\geq 1/32$ in. (0.8 mm) from seating plane for 10 s max.	230	°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, At Case Temperature (T_C) = 25°C

STATIC

CHARACTERISTIC	SYMBOL	TEST CONDITIONS					LIMITS		UNITS
		DC Voltage (V)		DC Current (mA)			Min.	Max.	
		V_{CE}	V_{EB}	I_E	I_B	I_C			
* Collector-Cutoff Current Base Connected to Emitter	I_{CES}	12.5			0			1.0 ^b	mA
Base Open	I_{CEO}	10			0			0.3	mA
* Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$			0		0.5	36	-	V
* Collector-to-Emitter Breakdown Voltage: With base open	$V_{(BR)CEO}$				0	25 ^a	14	-	V
With base connected to emitter	$V_{(BR)CES}$		0			25 ^a	36	-	
* Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$			0.5		0	3.5	-	V
Thermal Resistance: (Junction-to-Case)	θ_{J-C}						-	35.7	°C/W

^a Pulsed through a 25-mH inductor; duty factor = 50%.

^b $T_C = 100^\circ\text{C}$.

DYNAMIC

TEST & CONDITIONS	SYMBOL	FREQUENCY MHz	LIMITS		UNITS
			MINIMUM	TYPICAL	
Power Output ($V_{CC} = 12.5\text{ V}$): $P_{IE} = 0.1\text{ W}$	P_{OE}	175	1.75		W
* Large-Signal Common-Emitter Power Gain ($V_{CC} = 12.5\text{ V}$): $P_{IE} = 0.1\text{ W}$	G_{PE}	175	12.4		dB
* Collector Efficiency ($V_{CC} = 12.5\text{ V}$): $P_{IE} = 0.1\text{ W}$	η_C	175	50		%
* Common-Base Output Capacitance $V_{CB} = 12\text{ V}$	C_{obo}	1	15 (max.)		pF
Gain-Bandwidth Product $V_{CE} = 12\text{ V}$, $I_C = 200\text{ mA}$	f_T	-	-	900	MHz

* In accordance with JEDEC registration data format JS-6 RDF-3/JS-9 RDF-7.