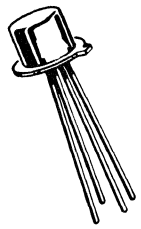
2N3279 thru 2N3282 (GERMANIUM)



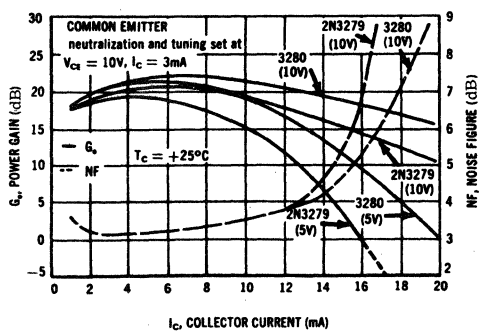
CASE 20
(TO-72)

PNP germanium epitaxial mesa transistors for high-gain, low-noise amplifier, oscillator, mixer and frequency multiplier applications.

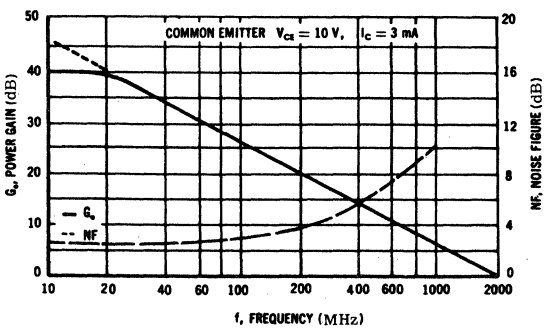
MAXIMUM RATINGS

Rating	Symbol	2N3279 2N3280	2N3281 2N3282	Unit
Collector-Emitter Voltage	V_{CEO}	20	15	Vdc
Collector-Emitter Voltage	V_{CES}	30		Vdc
Collector-Base Voltage	V_{CB}	30		Vdc
Emitter-Base Voltage	V_{EB}	1.0	0.5	
Collector Current	I_C	50		mAdc
Total Device Dissipation @ $T_A = 25°C$ Derate above 25°C	P_D	100 1.33		mW mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +100		°C

POWER GAIN AND NOISE FIGURE versus COLLECTOR CURRENT
200 MHz



NEUTRALIZED POWER GAIN AND NOISE FIGURE versus FREQUENCY



ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage (I_C = 2.0 mAdc, I_B = 0)	2N3279, 2N3280	BV_{CEO}	20	-	-	Vdc
	2N3281, 2N3282		15	-	-	
Collector-Emitter Breakdown Voltage (I_C = 100 μAdc, V_{BE} = 0)		BV_{CES}	30	-	-	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)		BV_{CBO}	30	-	-	Vdc
Collector Cutoff Current (V_{CB} = 10 Vdc, I_E = 0)	All Types	I_{CBO}	-	1.0	5.0	μAdc
(V_{CB} = 10 Vdc, I_E = 0, T_A = +55°C)	2N3279, 2N3280		-	-	50	
Emitter Cutoff Current (V_{BE} = 0.5 Vdc, I_C = 0)	2N3281, 2N3282	I_{EBO}	-	-	100	μAdc
(V_{BE} = 0.75 Vdc, I_C = 0)	2N3279, 2N3280		-	-	100	
ON CHARACTERISTICS						
DC Current Gain (I_C = 3.0 mAdc, V_{CE} = 10 Vdc)	2N3279, 2N3280	h_{FE}	10	-	70	-
	2N3281, 2N3282		10	-	100	
Collector-Emitter Saturation Voltage (I_C = 5.0 mAdc, I_B = 1.0 mAdc)	2N3279, 2N3280	$V_{CE(sat)}$	-	-	0.3	Vdc
	2N3281, 2N3282		-	-	0.5	
Base-Emitter Saturation Voltage (I_C = 5.0 mAdc, I_B = 1.0 mAdc)	2N3279, 2N3280	$V_{BE(sat)}$	-	-	1.0	Vdc
	2N3281, 2N3282		-	-	1.5	
DYNAMIC CHARACTERISTICS						
Current-Gain-Bandwidth Product (I_C = 3.0 mAdc, V_{CE} = 10 Vdc)	2N3279, 2N3280	f_T	400	500	800	MHz
	2N3281, 2N3282		300	400	800	
Maximum Frequency of Oscillation (I_C = 3.0 mAdc, V_{CE} = 10 Vdc)		f_{max}	-	2000	-	MHz
Output Capacitance* (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)	2N3279	C_{ob}*	-	0.9	1.0	pF
	2N3280 thru 2N3282		-	1.0	1.2	
Small-Signal Current Gain (I_C = 3.0 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	2N3279, 2N3280	h_{fe}	10	-	100	-
	2N3281, 2N3282		10	-	150	
Collector-Base Time Constant (I_E = 3.0 mAdc, V_{CB} = 10 Vdc, f = 31.8 MHz)	2N3279, 2N3280	$r_b'C_c$	3.0	5.0	10	ps
	2N3281, 2N3282		3.0	5.0	15	
Noise Figure (I_C = 3.0 mAdc, V_{CE} = 10 Vdc, f = 200 MHz)	2N3279, 2N3280	NF	-	2.9	3.5	dB
	2N3281, 2N3282		-	4.0	5.0	
FUNCTIONAL TESTS						
Power Gain (I_C = 3.0 mAdc, V_{CE} = 10 Vdc, f = 200 MHz)	2N3279, 2N3280	G_{pe}	17	-	23	dB
	2N3281, 2N3282		16	-	23	
Power Gain (AGC)** (I_C = 20 mAdc, V_{CE} = 5.0 Vdc, f = 200 MHz)	2N3279, 2N3281	G_{pe}(AGC)**	-	-	0	dB
	2N3280, 2N3282		-	0	-	

*C_{ob} is measured in a guarded circuit such that the can capacitance is not included.

**AGC is obtained by increasing I_C. The circuit remains adjusted for V_{CE} = 10 Vdc and I_C = 3.0 mAdc operation.