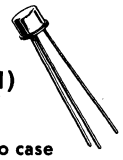
2N381 thru 2N383 (GERMANIUM)

2N2171



CASE 31(1)
(TO-5)

Base connected to case

PNP germanium transistors for small-signal audio amplifiers, Class B push-pull output stages and medium-speed switching circuits.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Base Voltage	V_{CB}	50	Volts
Collector-Emitter Voltage (R_{BE} = 10K)	V_{CER}	25	Volts
Emitter-Base Voltage	V_{EB}	20	Volts
Collector Current	I_C	400	mA
Junction Temperature	T_J	-65 to +100	°C
Collector Dissipation	P_D		
T_A = 25°C		225	mW
derate		3.0	mW/°C
T_C = 25°C		500	mW
derate		6.7	mW/°C

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

Characteristics		Symbol	Min	Typical	Max	Unit
Collector-Base Cutoff Current (V_{CB} = -25 Vdc)		I_{CBO}	- - -	6.0	10	μAdc
Emitter-Base cutoff Current (V_{EB} = -20 Vdc)		I_{EBO}	- - -	5.0	10	μAdc
Collector-Emitter Voltage (I_C = 500 μAdc, R_{BE} = 10K)		BV_{CER}	25	- - -	- - -	Vdc
Collector-Emitter Voltage (I_C = 50 μAdc, V_{BE} = 1.0 Vdc)	2N381	BV_{CER}	- - -	50	- - -	Vdc
	2N382, 2N383, 2N2171		- - -	45	- - -	
DC Current Gain		h_{FE}				- - -
(I_C = 20 mAdc, V_{CE} = -1.0 Vdc)	2N381		35	- - -	65	
	2N382		60	- - -	95	
	2N383		75	- - -	120	
	2N2171		110	- - -	250	
(I_C = 100 mAdc, V_{CE} = -1.0 Vdc)	2N381		30	- - -	- - -	
	2N382		50	- - -	- - -	
	2N383		65	- - -	- - -	
	2N2171		90	- - -	- - -	

ELECTRICAL CHARACTERISTICS (continued)

Characteristics		Symbol	Min	Typical	Max	Unit
Small Signal Current Gain (I_C = 10 mA, V_{CE} = -5.0 V, f = 1 kHz)		h_{fe}				- - -
	2N381		35	60	85	
	2N382		70	90	135	
	2N383		90	115	155	
	2N2171		120	210	310	
Voltage Feedback Ratio (I_C = 10 mA, V_{CE} = -5 V, f = 1 kHz)		h_{re}				$X10^{-3}$
	2N381		- - -	0.66	- - -	
	2N382		- - -	0.69	- - -	
	2N383		- - -	0.72	- - -	
	2N2171		- - -	0.75	- - -	
Input Impedance (I_C = 10 mA, V_{CE} = -5.0 V, f = 1 kHz)		h_{ie}				ohms
	2N381		- - -	300	- - -	
	2N382		- - -	450	- - -	
	2N382		- - -	550	- - -	
	2N2171		- - -	850	- - -	
Output Admittance (I_C = 10 mA, V_{CE} = -5.0 V, f = 1 kHz)		h_{oe}				μmhos
	2N381		- - -	420	- - -	
	2N382		- - -	400	- - -	
	2N383		- - -	380	- - -	
	2N2171		- - -	500	- - -	
Transducer Gain		G_T				dB
(R_g = 300 Ω , R_L = 500 Ω)	2N381		- - -	36	- - -	
(R_g = 450 Ω , R_L = 500 Ω)	2N382		- - -	38	- - -	
(R_g = 550 Ω , R_L = 500 Ω)	2N383		- - -	39.5	- - -	
(R_g = 785 Ω , R_L = 500 Ω)	2N2171		- - -	42.5	- - -	
Output Capacitance (I_C = 1 mA, V_{CB} = -6V)		C_{ob}	- - -	20	- - -	pF
Noise Figure (I_C = 1 mA, V_{CE} = -6V, R_g = 1 kc, f = 1 kHz)		NF				dB
	2N381		- - -	6.0	- - -	
	2N382		- - -	5.5	- - -	
	2N383		- - -	5.0	- - -	
	2N2171		- - -	3.5	- - -	
Cutoff Frequency (I_C = 1 mA, V_{CB} = -6V)		$f_{\alpha b}$				MHz
	2N381		- - -	3.0	- - -	
	2N382		- - -	4.0	- - -	
	2N383		- - -	5.0	- - -	
	2N2171		- - -	7.5	- - -	