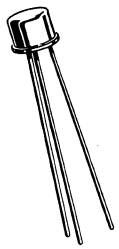
2N1983 (SILICON)
2N1984



NPN silicon annular small-signal transistor.

CASE 31
(TO-5)
Collector connected to case

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	25	Vdc
Collector-Base Voltage	V_{CB}	50	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector Current	I_C	1.0	Adc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	0.6 4.8	Watt mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	2.0 16	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ_{JC}	62.5	°C/W
Thermal Resistance, Junction to Ambient	θ_{JA}	208	°C/W

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Sustaining Voltage [1] (I_C = 100 mAdc, I_B = 0)		$BV_{CEO(sus)}$	25	-	Vdc
Collector-Emitter Sustaining Voltage [1] (I_C = 100 mAdc, $R_{BE} \leq$ 10 ohms)		$BV_{CER(sus)}$	30	-	Vdc
Collector Cutoff Current (V_{CB} = 30 Vdc, I_E = 0)		I_{CBO}	-	5.0	μAdc
(V_{CB} = 30 Vdc, I_E = 0, T_A = 150°C)			-	200	
Emitter-Cutoff Current ($V_{EB(off)}$ = 2.0 Vdc, I_C = 0)		I_{EBO}	-	100	μAdc
ON CHARACTERISTICS					
Collector-Emitter Saturation Voltage (I_C = 5.0 mAdc, I_B = 0.5 mAdc)		$V_{CE(sat)}$	-	0.25	Vdc
Base-Emitter On Voltage (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc)		$V_{BE(on)}$	-	0.85	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain—Bandwidth Product (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 20 MHz)		f_T	40	-	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0)		C_{ob}	-	45	pF
Input Impedance (I_C = 5.0 mAdc, V_{CE} = 5.0 Vdc)	2N1983	h_{ie}	-	2.0	k ohm
	2N1984		-	1.2	
Input Resistance (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)		h_{ib}	20	30	ohm
(I_C = 5.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)			4.0	8.0	
Voltage Feedback Ratio (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)	2N1983	h_{rb}	-	7.0	X 10^{-4}
	2N1984		-	5.0	
(I_C = 5.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)	2N1983		-	7.0	
	2N1984		-	5.0	
Small-Signal Current Gain (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)	2N1983	h_{fe}	70	210	-
	2N1984		35	100	
(I_C = 5.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)	2N1983		80	240	
	2N1984		40	120	
Output Admittance (I_C = 5.0 mAdc, V_{CE} = 5.0 Vdc)	2N1983	h_{oe}	-	200	-
	2N1984		-	100	
Output Admittance (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)		h_{ob}	-	1.0	μmho
(I_C = 5.0 mAdc, V_{CE} = 5.0 Vdc, f = 1.0 kHz)			-	1.5	

[1] Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.