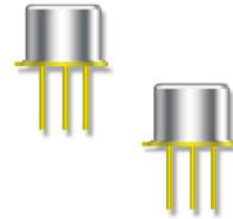


Features

- Available in JAN, JANTX, and JANTXV per MIL-PRF-19500/583
- TO-39 (TO-205AD) Package



Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Off Characteristics					
Collector - Emitter Breakdown Voltage	$I_C = 10 \text{ mAdc}$, 2N5681 $I_C = 10 \text{ mAdc}$, 2N5682	$V_{(BR)CEO}$	Vdc	100 120	—
Collector - Emitter Cutoff Current	$V_{CE} = 70 \text{ Vdc}$, 2N5681 $V_{CE} = 80 \text{ Vdc}$, 2N5682	I_{CEO}	μAdc	—	10
Collector - Emitter Cutoff Current	$V_{CE} = 100 \text{ Vdc}$, $V_{BE} = 1.5 \text{ Vdc}$, 2N5681 $V_{CE} = 120 \text{ Vdc}$, $V_{BE} = 1.5 \text{ Vdc}$, 2N5682	I_{CEX}	nAdc	—	100
Collector - Base Cutoff Current	$V_{CB} = 100 \text{ Vdc}$, 2N5681 $V_{CB} = 120 \text{ Vdc}$, 2N5682	I_{CBO}	nAdc	—	100
Emitter - Base Cutoff Current	$V_{EB} = 4.0 \text{ Vdc}$	I_{EBO}	μAdc	—	1
On Characteristics¹					
Forward Current Transfer Ratio	$I_C = 250 \text{ mAdc}$, $V_{CE} = 2 \text{ Vdc}$ $I_C = 500 \text{ mAdc}$, $V_{CE} = 2 \text{ Vdc}$ $I_C = 1 \text{ Adc}$, $V_{CE} = 2 \text{ Vdc}$	H_{FE}	-	40 20 5	150 — —
Collector - Emitter Saturation Voltage	$I_C = 250 \text{ mAdc}$, $I_B = 25 \text{ mAdc}$ $I_C = 500 \text{ mAdc}$, $I_B = 50 \text{ mAdc}$	$V_{CE(SAT)}$	Vdc	—	0.6 1.0
Emitter - Base Saturation Voltage	$I_C = 250 \text{ mAdc}$, $I_B = 25 \text{ mAdc}$ $I_C = 500 \text{ mAdc}$, $I_B = 50 \text{ mAdc}$	$V_{BE(SAT)}$	Vdc	—	1.1 1.3
Dynamic Characteristics					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 0.1 \text{ Adc}$, $V_{CE} = 1.5 \text{ Vdc}$, $f = 1 \text{ MHz}$	$ h_{FE} $	-	3	—
Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 0.2 \text{ Adc}$, $V_{CE} = 1.5 \text{ Vdc}$, $f = 1 \text{ kHz}$	h_{FE}	-	40	—
Output Capacitance	$V_{CB} = 20 \text{ Vdc}$, $I_E = 0$, $f = 1 \text{ MHz}$	C_{IBO}	pF	—	50
Safe Operating Area					
DC Tests:	$T_C = +25^\circ\text{C}$, 1 Cycle, $t \geq 0.5 \text{ s}$				
Test 1:	$V_{CE} = 2 \text{ Vdc}$, $I_C = 1 \text{ Adc}$				
Test 2:	$V_{CE} = 10 \text{ Vdc}$, $I_C = 1 \text{ Adc}$				
Test 3:	$V_{CE} = 90 \text{ Vdc}$, $I_C = 10 \text{ mAdc}$				

Absolute Maximum Ratings

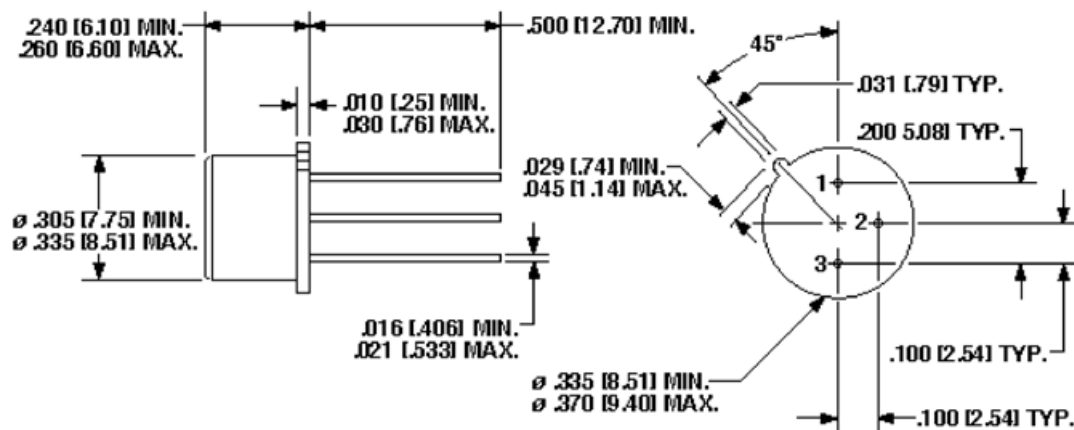
Ratings	Symbol	Value
Collector - Emitter Voltage 2N5681 2N5682	V_{CEO}	100 Vdc 120 Vdc
Collector - Base Voltage 2N5681 2N5682	V_{CBO}	100 Vdc 120 Vdc
Emitter - Base Voltage	V_{EBO}	4.0 Vdc
Collector Current	I_C	1.0 Adc
Base Current	I_B	0.5 Adc
Total Power Dissipation @ $T_A = 25^\circ\text{C}^2$ @ $T_C = 25^\circ\text{C}^3$	P_T	1 W 10 W
Operating & Storage Temperature Range	T_{OP}, T_{STG}	-65°C to +200°C

- Derate linearly @ 5.7 mW/°C for $T_A > +25^\circ\text{C}$.
- Derate linearly @ 57 mW/°C for $T_C > +75^\circ\text{C}$.

Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Case	$R_{\theta JC}$	17.5°C/W

Outline Drawing



Dimensions are in inches [mm].

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