Microsemi LAWRENCE

TECHNICAL DATA

NPN POWER TRANSISTOR SILICON AMPLIFIER

Qualified per MIL-PRF-19500/583

Devices		*Qualified Level*
2N5681	**2N5682**	**JAN JANTX JANTXV**

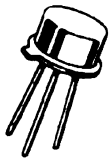
MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Ratings	Symbol	2N5681	2N5682	Units
Collector-Emitter Voltage	V_{CEO}	100	120	Vdc
Collector-Base Voltage	V_{CBO}	100	120	Vdc
Emitter-Base Voltage	V_{EBO}	4.0	4.0	Vdc
Collector Current	I_C	1.0	1.0	Adc
Base Current	I_B	0.5	0.5	Adc
Total Power Dissipation @ T_A = +25^{0}C(1) @ T_C = +25^{0}C(2)	P_T	1.0 10	1.0 10	W W
Operating & Storage Temperature Range	T_{op}, T_{stg}	-65 to +200	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	17.5	^{0}C

1) Derate linearly 5.7 mW/^{0}C for T_A > +25^{0}C
2) Derate linearly 57 mW/^{0}C for T_C > +25^{0}C



TO-39*
(TO-205AD)

*See appendix A for package outline

ELECTRICAL CHARACTERISTICS (T_A = 25^{0}C unless otherwise noted)

Characteristics	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage I_C = 10 mAdc 2N5681 2N5682	$V_{(BR)CEO}$	100 120		Vdc
Emitter-Base Cutoff Current V_{EB} = 4.0 Vdc	I_{EBO}		1.0	µAdc
Collector-Emitter Cutoff Current V_{CE} = 70 Vdc 2N5681 V_{CE} = 80 Vdc 2N5682	I_{CEO}		10	µAdc
Collector-Emitter Cutoff Current V_{BE} = 1.5 Vdc V_{CE} = 100 Vdc 2N5681 V_{CE} = 120 Vdc 2N5682	I_{CEX}		100	nAdc
Collector-Baser Cutoff Current V_{CE} = 100 Vdc 2N5681 V_{CE} = 120 Vdc 2N5682	I_{CBO}		100	nAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS [3]				
Forward Current Transfer Ratio I_C = 250 mAdc, V_{CE} = 2.0 Vdc I_C = 500 mAdc, V_{CE} = 2.0 Vdc I_C = 1.0 Adc, V_{CE} = 2.0 Vdc	h_{FE}	40 20 5	150	
Collector-Emitter Saturation Voltage I_C = 250 mAdc, I_B = 25 mAdc I_C = 500 mAdc, I_B = 50 mAdc	$V_{CE(sat)}$		0.6 1.0	Vdc
Base-Emitter Saturation Voltage I_C = 250 mAdc, I_B = 25 mAdc I_C = 500 mAdc, I_B = 50 mAdc	$V_{BE(sat)}$		1.1 1.3	Vdc
DYNAMIC CHARACTERISTICS				
Magnitude of Common Emitter Small-Signal Short Circuit Forward-Current Transfer Ratio I_C = 0.1 Adc, V_{CE} = 10 Vdc, f = 10 kHz	$\lvert h_{fe} \rvert$	3.0		
Small Signal Short Circuit Forward-Current Transfer Ratio I_C = 0.2 Adc, V_{CE} = 1.5 Vdc, f = 1.0 kHz	h_{fe}	40		
Output Capacitance V_{CB} = 20 Vdc, I_E = 0, f = 1 MHz	C_{obo}		50	pF

SAFE OPERATING AREA

DC Tests

T_C = +25^{0}C, 1 Cycle, t ≥ 0.5 s

Test 1

V_{CE} = 2 Vdc, I_C = 1.0 Adc

Test 2

V_{CE} = 10 Vdc, I_C = 1.0 Adc

Test 3

V_{CE} = 90 Vdc, I_C = 50 mAdc