

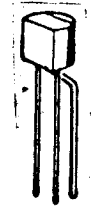
**TIS 97 TIS 98**

NPN SILICON PLANAR EPITAXIAL TRANSISTORS

MICRO ELECTRONICS

CASE T0-92 F

THE TIS97 AND TIS98 ARE LOW NOISE NPN SILICON PLANAR EPITAXIAL TRANSISTORS FOR USE IN HI-FI AUDIO AMPLIFIERS AND GENERAL PURPOSE LOW FREQUENCY APPLICATIONS.



CEB

ABSOLUTE MAXIMUM RATINGS

		TIS97	TIS98
Collector-Base Voltage	VCBO	60V	80V
Collector-Emitter Voltage	VCEO	40V	60V
Emitter-Base Voltage	VEBO	6V	6V
Collector Current	IC	200mA	200mA
Total Power Dissipation @ $T_A \leq 25^\circ\text{C}$	P_{tot}	360mW	
@ $T_C \leq 25^\circ\text{C}$		500mW	
Operating Junction & Storage Temperature	T_j, T_{stg}	-65 to 150°C	

ELECTRICAL CHARACTERISTICS @ $T_A = 25^\circ\text{C}$

PARAMETER	SYMBOL	TIS97			TIS98			UNIT	TEST CONDITIONS
		MIN	TYP	MAX	MIN	TYP	MAX		
Collector-Emitter Breakdown Voltage	BVCEO	40			60			V	$I_C = 10\text{mA}$ $I_B = 0$
Collector Cutoff Current	ICBO		10			10		nA	$V_{CB} = 40\text{V}$ $I_E = 0$
			10					μA	$V_{CB} = 60\text{V}$ $I_E = 0$
						10		μA	$V_{CB} = 80\text{V}$ $I_E = 0$
Emitter Cutoff Current	IEBO		20			20		nA	$V_{EB} = 6\text{V}$ $I_C = 0$
Collector-Emitter Saturation Voltage	$V_{CE(\text{sat})}^*$					0.5		V	$I_C = 100\text{mA}$ $I_B = 5\text{mA}$
Collector-Emitter Voltage	V_{CE}^*					1		V	$I_C = 10\text{mA}$ $I_B = 0.1\text{mA}$
Base-Emitter Voltage	V_{BE}^*	0.45	0.65		0.5	0.7		V	$I_C = 100\mu\text{A}$ $V_{CE} = 5\text{V}$
								V	$I_C = 1\text{mA}$ $V_{CE} = 5\text{V}$
D.C. Current Gain	H_{FE}^*	250	700						$I_C = 100\mu\text{A}$ $V_{CE} = 5\text{V}$
					100	300			$I_C = 1\text{mA}$ $V_{CE} = 5\text{V}$

* Pulse Test : Pulse Width=0.3mS, Duty Cycle=1%

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1-2.Bmp

PARAMETER	SYMBOL	TIS97			TIS98			UNIT	TEST CONDITIONS
		MIN	TYP	MAX	MIN	TYP	MAX		
Collector-Base Capacitance	C _{cb}	1		4	1		4	pF	V _{CB} =5V I _E =0 f=1MHz
Emitter-Base Capacitance	C _{eb}			16			16	pF	V _{EB} =0.5V I _E =0 f=1MHz
Input Impedance	h _{ie}	115			6.4			K Ω	I _C =100 μ A V _{CE} =5V f=1kHz
								K Ω	I _C =1mA V _{CE} =5V f=1kHz
Small Signal Current Gain	h _{fe}	250	800		100		400		I _C =100 μ A V _{CE} =5V f=1kHz
									I _C =1mA V _{CE} =5V f=1kHz
Voltage Feedback Ratio	h _{re}	30x 10 ⁻⁴			1.5x 10 ⁻⁴				I _C =100 μ A V _{CE} =5V f=1kHz
									I _C =1mA V _{CE} =5V f=1kHz
Output Admittance	h _{oe}	11			6			μ S	I _C =100 μ A V _{CE} =5V f=1kHz
								μ S	I _C =1mA V _{CE} =5V f=1kHz
Forward Transfer Admittance	y _{fe}	3.8			38			mS	I _C =100 μ A V _{CE} =5V f=1kHz
								mS	I _C =1mA V _{CE} =5V f=1kHz
Forward Current Transfer Ratio	h _{fe}	2			2				I _C =10mA V _{CE} =5V f=100MHz
Spot Noise Figure	NF			2		-		dB	I _C =30 μ A V _{CE} =5V R _G =10K Ω f=1kHz BW=100Hz
Average Noise Figure	$\overline{NF}$			3		-		dB	I _C =100 μ A V _{CE} =5V R _G =10K Ω BW=15.7kHz

TIS97 #2

2-2-BMP