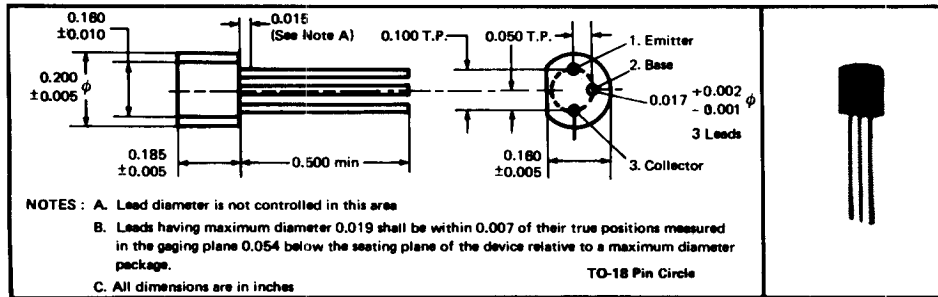


BC382, BC383, BC384.
ULTRA LOW NOISE N.P.N. EPITAXIAL PLANAR TRANSISTORS TYPES

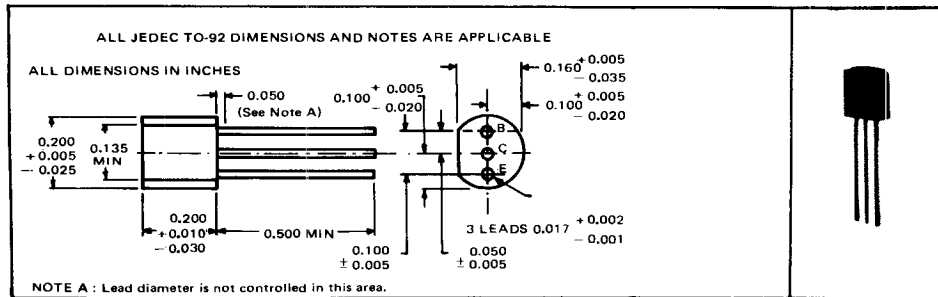
- Designed Specifically for Very Low Noise Pre-Amplifier Applications
- Guaranteed 1/f Noise Performance

mechanical data

BC382, BC383, BC384



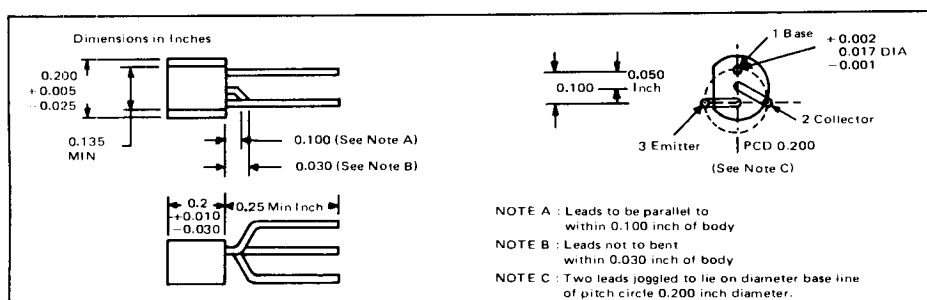
BC382L, BC383L, BC384L



TEXAS INSTRUMENTS

BC382, BC383, BC384.
ULTRA LOW NOISE N.P.N. EPITAXIAL PLANAR TRANSISTORS TYPES

BC382LT05, BC383LT05, BC384LT05



absolute maximum ratings at 25°C ambient temperature

	BC382/L LT05	BC383/L LT05	BC384/L LT05	UNIT
Collector-Base Voltage	50	45	45	V
Collector-Emitter Voltage (See Note 1)	45	30	30	V
Emitter-Base Voltage	6	6	6	V
Continuous Collector Current	200	200	200	mA
Continuous Device Dissipation at (or below) 25°C Free Air Temperature	300	300	300	mW
Storage Temperature Range	-55 to 150	-55 to 150	-55 to 150	°C

TEXAS INSTRUMENTS

BC382, BC383, BC384.
ULTRA LOW NOISE N.P.N. EPITAXIAL PLANAR TRANSISTORS TYPES

electrical characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$V_{(BR)CBO}$ Collector-Base Breakdown Voltage	$I_C = 10 \mu A,$ $I_E = 0$	BC382	50		V
		BC383	45		
		BC384	45		
$V_{(BR)CEO}$ Collector-Emitter Breakdown Voltage	$I_C = 2 \text{ mA},$ $I_B = 0$	BC382	45		V
		BC383	30		
		BC384	30		
$V_{(BR)EBO}$ Emitter-Base Breakdown Voltage	$I_E = 10 \mu A, I_C = 0$	All	6		V
I_{CBO} Collector Cutoff Current	$V_{CB} = 30 \text{ V}, I_E = 0$	All		15	nA
I_{EBO} Emitter Cutoff Current	$V_{EB} = 4 \text{ V}, I_C = 0$	All		15	nA
h_{FE} Static Forward Current Transfer Ratio	$V_{CE} = 5 \text{ V},$ $I_C = 10 \mu A$	BC382	40		
		BC383	40		
		BC384	100		
	$V_{CE} = 5 \text{ V},$ $I_C = 2 \text{ mA}$	BC382	100	480	
		BC383	100	850	
		BC384	250	400	
	$V_{CE} = 5 \text{ V},$ $I_C = 100 \text{ mA},$ See Note 1	BC382	80		
		BC383	80		
	BC384	130			
$V_{CE(sat)}$ Collector-Emitter Saturation Voltage	$I_C = 10 \text{ mA},$ $I_B = 0.5 \text{ mA}$	All		0.25	
	$I_C = 100 \text{ mA},$ $I_B = 5 \text{ mA}$	All		0.6	
$V_{BE(sat)}$ Base-Emitter Saturation Voltage	$I_C = 100 \text{ mA},$ $I_B = 5 \text{ mA}$	All		1.2	V
h_{fe} Small-Signal Common-Emitter Forward Current Transfer Ratio	$V_{CE} = 5 \text{ V},$ $I_C = 2 \text{ mA},$ $f = 1 \text{ kHz}$	BC382	240	900	
		BC383	240	900	
		BC384	240	900	
	Group (B Green)	240	500		
	Group (C Blue)	450	900		
V_{BE} Base-Emitter Voltage	$I_C = 10 \mu A, V_{CE} = 5 \text{ V}$	All	0.52		V
	$I_C = 100 \mu A, V_{CE} = 5 \text{ V}$	All	0.55		

NOTE: 1. These parameters must be measured using pulse techniques $t_p = 300 \mu s$, duty cycle $\leq 2\%$.

TEXAS INSTRUMENTS

BC382, BC383, BC384.
ULTRA LOW NOISE N.P.N. EPITAXIAL PLANAR TRANSISTORS TYPES

electrical characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
V_{BE} Base-Emitter Voltage	$I_C = 2 \text{ mA}, V_{CE} = 5 \text{ V}$	All	0.55	0.7	V
	$I_C = 10 \text{ mA}, V_{CE} = 5 \text{ V}$	All	0.68		
C_{ob} Common-Base Open-Circuit Output Capacitance	$V_{CB} = 10 \text{ V},$ $f = 1 \text{ MHz}$	All	3	5	pF
C_{ib} Common-Base Open Circuit Input Capacitance	$V_{EB} = 0.5 \text{ V},$ $f = 1 \text{ MHz}$	All	9.5		pF
f_T Transition Frequency	$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA},$ $f = 100 \text{ MHz}$	All	150		MHz
NF Noise Figure	$V_{CE} = 5 \text{ V}, I_C = 200 \mu\text{A},$ $R_G = 2 \text{ k}\Omega,$ $B : 30 \text{ Hz to } 15 \text{ Hz}$	BC382		6	dB
		BC383		6	
		BC384		4	
e_n Flicker Noise (1/f) Voltage (referred to base)	$V_{CE} = 5 \text{ V}, I_C = 200 \mu\text{A},$ $R_G = 2 \text{ k}\Omega,$ $B : 10 \text{ Hz to } 50 \text{ Hz},$ See Figure 1	BC382		135	nV
		BC383		135	
		BC384		135	

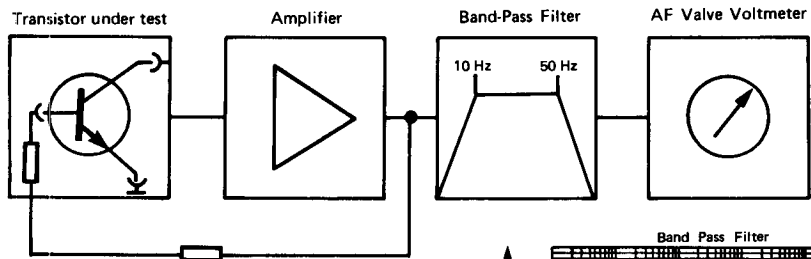
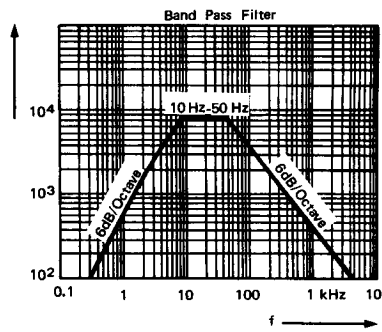


FIGURE 1.
 Voltage Gain of System = 10,000



TEXAS INSTRUMENTS