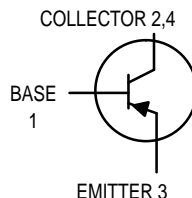


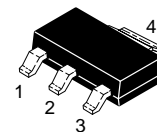
PNP Silicon Transistor



BF721T1

Motorola Preferred Device

PNP SILICON
TRANSISTOR
SURFACE MOUNT



CASE 318E-04, STYLE 1
SOT-223 (TO-261AA)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	-300	Vdc
Collector-Base Voltage	V_{CBO}	-300	Vdc
Collector-Emitter Voltage	V_{CER}	-300	Vdc
Emitter-Base Voltage	V_{EBO}	-5.0	Vdc
Collector Current	I_C	-100	mAdc
Total Power Dissipation up to $T_A = 25^\circ\text{C}^{(1)}$	P_D	1.5	Watts
Storage Temperature Range	T_{stg}	-65 to +150	$^\circ\text{C}$
Junction Temperature	T_J	150	$^\circ\text{C}$

DEVICE MARKING

DF

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance from Junction to Ambient ⁽¹⁾	$R_{\theta JA}$	83.3	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = -1.0 \text{ mAdc}$, $I_E = 0$)	$V_{(BR)CEO}$	-300	—	Vdc
Collector-Base Breakdown Voltage ($I_C = -100 \mu\text{Adc}$, $I_E = 0$)	$V_{(BR)CBO}$	-300	—	Vdc
Collector-Emitter Breakdown Voltage ($I_C = -100 \mu\text{Adc}$, $R_{BE} = 2.7 \text{ k}\Omega$)	$V_{(BR)CER}$	-300	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = -10 \mu\text{Adc}$, $I_C = 0$)	$V_{(BR)EBO}$	-5.0	—	Vdc
Collector-Base Cutoff Current ($V_{CB} = -200 \text{ Vdc}$, $I_E = 0$)	I_{CBO}	—	-10	nAdc
Collector-Emitter Cutoff Current ($V_{CE} = -250 \text{ Vdc}$, $R_{BE} = 2.7 \text{ k}\Omega$) ($V_{CE} = -200 \text{ Vdc}$, $R_{BE} = 2.7 \text{ k}\Omega$, $T_J = 150^\circ\text{C}$)	I_{CER}	—	-50 -10	nAdc μAdc

1. Device mounted on a glass epoxy printed circuit board 1.575 in. x 1.575 in. x 0.059 in.; mounting pad for the collector lead min. 0.93 in².

Thermal Clad is a trademark of the Bergquist Company

Preferred devices are Motorola recommended choices for future use and best overall value.

BF721T1**ELECTRICAL CHARACTERISTICS** ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS				
DC Current Gain ($V_{CE} = -25\text{ mAdc}$, $V_{CE} = -20\text{ Vdc}$)	h_{FE}	50	—	—
Collector-Emitter Saturation Voltage ($I_C = -30\text{ mAdc}$, $I_B = -5.0\text{ mAdc}$)	$V_{CE(\text{sat})}$	—	-0.8	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain — Bandwidth Product ($V_{CE} = -10\text{ Vdc}$, $I_C = -10\text{ mAdc}$, $f = 35\text{ MHz}$)	f_T	60	—	MHz
Feedback Capacitance ($V_{CE} = -30\text{ Vdc}$, $I_C = 0$, $f = 1.0\text{ MHz}$)	C_{re}	—	1.6	pF

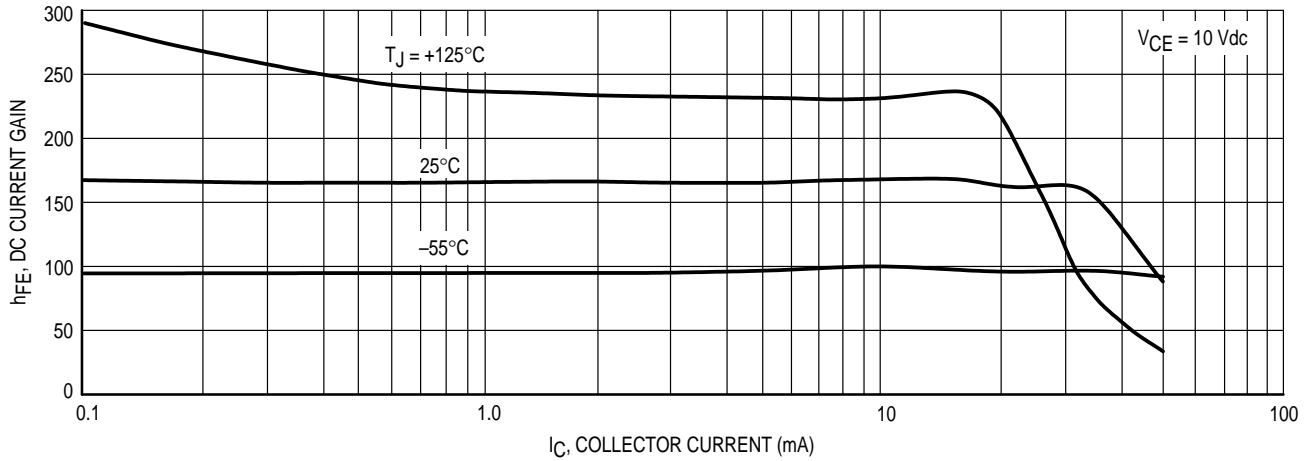


Figure 1. DC Current Gain

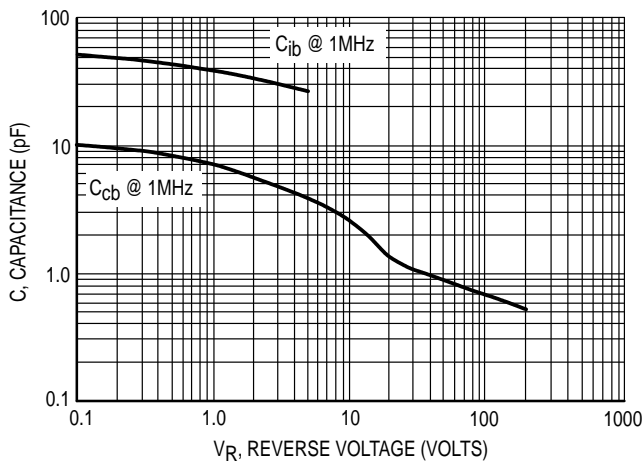


Figure 2. Capacitance

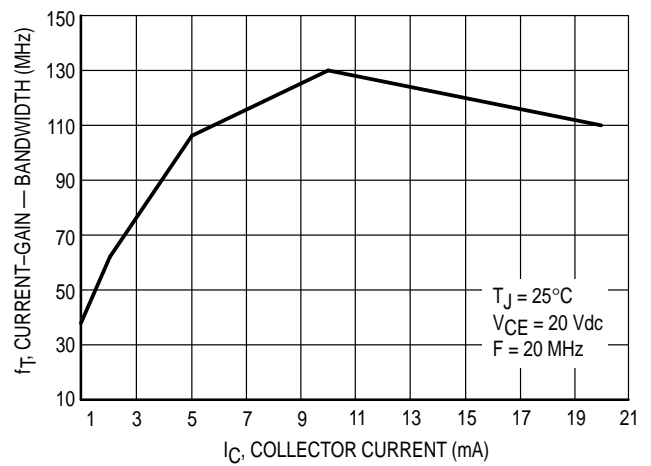


Figure 3. Current-Gain — Bandwidth

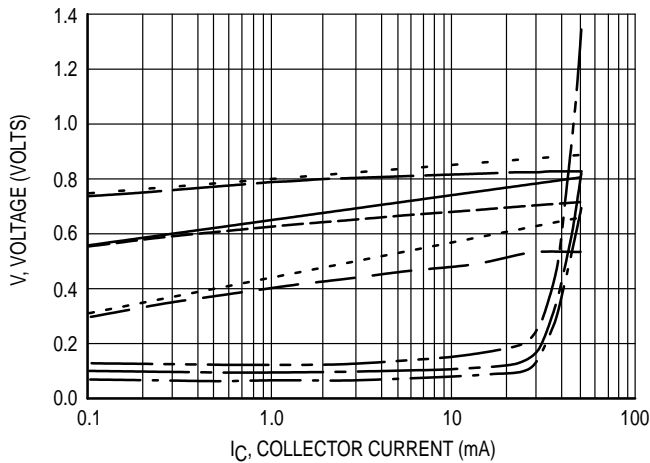
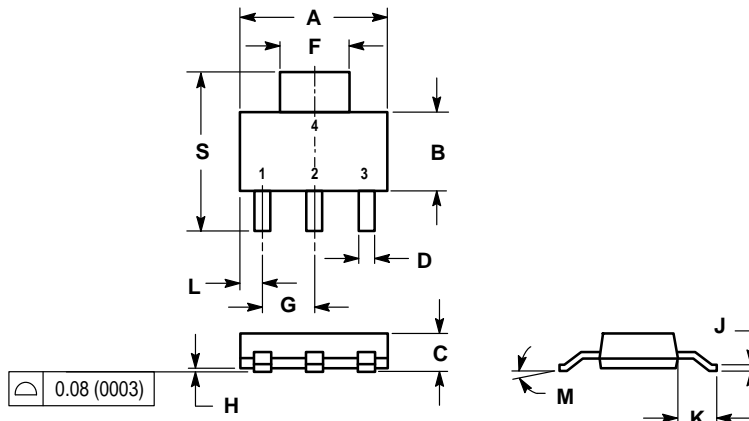


Figure 4. "ON" Voltages

- $V_{CE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(on)}$ @ 25°C , $V_{CE} = 10 \text{ V}$
- $V_{BE(on)}$ @ 125°C , $V_{CE} = 10 \text{ V}$
- $V_{BE(on)}$ @ -55°C , $V_{CE} = 10 \text{ V}$

PACKAGE DIMENSIONS



NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.249	0.263	6.30	6.70
B	0.130	0.145	3.30	3.70
C	0.060	0.068	1.50	1.75
D	0.024	0.035	0.60	0.89
F	0.115	0.126	2.90	3.20
G	0.087	0.094	2.20	2.40
H	0.0008	0.0040	0.020	0.100
J	0.009	0.014	0.24	0.35
K	0.060	0.078	1.50	2.00
L	0.033	0.041	0.85	1.05
M	0°	10°	0°	10°
S	0.264	0.287	6.70	7.30

STYLE 1:
 PIN 1. BASE
 2. COLLECTOR
 3. EMITTER
 4. COLLECTOR

CASE 318E-04
 ISSUE H
 TO-261AA

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