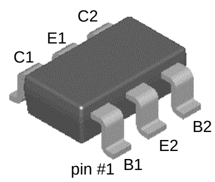
FAIRCHILD SEMICONDUCTOR®

FMBM5401
PNP General Purpose Amplifier

- This device has matched dies in SuperSOT-6.



SuperSOT™-6
Mark: .4S2

Absolute Maximum Ratings*

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	-150	V
V_{CBO}	Collector-Base Voltage	-160	V
V_{EBO}	Emitter-Base Voltage	-5.0	V
I_C	Collector Current - Continuous	-600	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 ~ 150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may e impaired.

Notes:

1. These ratings are based on a maximum junction temperature of 150 degrees C.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Electrical Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Max	Units
Off Characteristics					
BV_{CEO}	Collector-Emitter Breakdown Voltage *	I_C = -1.0mA, I_B = 0	-150		V
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = -100µA, I_E = 0	-160		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_C = -10µA, I_C = 0	-5.0		V
I_{CBO}	Collector Cut-off Current	V_{CB} = -120V, I_E = 0 V_{CB} = -120V, I_E = 0, T_a = 100°C		-50 -50	nA µA
I_{EBO}	Emitter Cut-off Current	V_{EB} = -3.0V, I_C = 0		-50	nA
On Characteristics*					
h_{FE1}	DC Current Gain	V_{CE} = -5V, I_C = -1mA	50		
DIVID1	Variation Ratio of h_{FE1} Between Die 1 and Die 2	h_{FE1}(Die1)/h_{FE1}(Die2)	0.9	1.1	
h_{FE2}	DC Current Gain	V_{CE} = -5V, I_C = -10mA	60	240	
DIVID2	Variation Ratio of h_{FE2} Between Die 1 and Die 2	h_{FE2}(Die1)/h_{FE2}(Die2)	0.95	1.05	
h_{FE3}	DC Current Gain	V_{CE} = -5V, I_C = -50mA	50		
DIVID3	Variation Ratio of h_{FE3} Between Die 1 and Die 2	h_{FE3}(Die1)/h_{FE3}(Die2)	0.9	1.1	

Electrical Characteristics (Continued) T_C = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Max	Units
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = -10mA, I_B = -1mA I_C = -50mA, I_B = -5mA	-0.2 -0.5	V V	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = -10mA, I_B = -1mA I_C = -50mA, I_B = -5mA		-1 -1	V V
$V_{BE(on)}$	Base-Emitter On Voltage	V_{CE} = -5V, I_C = -10mA		-1	V
DEL	Difference of $V_{BE(on)}$ Between Die1 and Die 2	$V_{BE(on)}$(Die1)-$V_{BE(on)}$(Die2)	-8	8	mV
Small Signal Characteristics					
f_T	Current Gain Bandwidth Product	V_{CE} = -10V, I_C = -10mA f = 100MHz	100	300	MHz
C_{ob}	Output Capacitance	V_{CB} = -10V, I_E = 0, f = 1MHz		6.0	pF
NF	Noise Figure	V_{CE} = -5.0V, I_C = -250µA, R_S = 1.0KΩ, f = 10Hz to 15.7KHz		8.0	dB

* Pulse Test: Pulse Width ≤ 300ms, Duty Cycle ≤ 2.0%

Thermal Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
P_D	Total Device Dissipation	700	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient, Total	180	°C/W

* Device mounted on a 1 in 2 pad of 2 oz coppe

Typical Performance Characteristics

Figure 1. Typical Pulsed Current Gain vs Collector Current

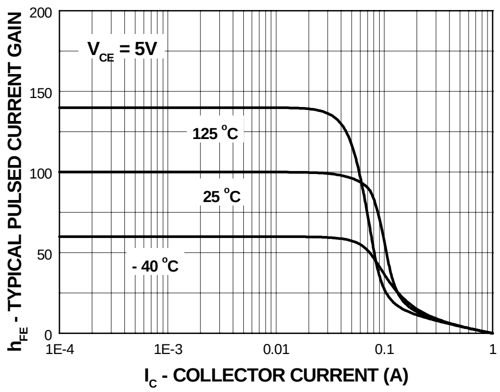


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

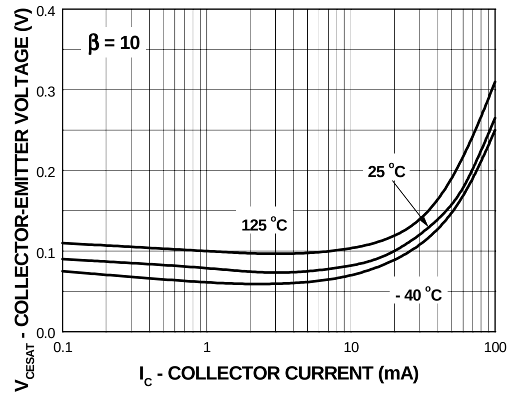


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

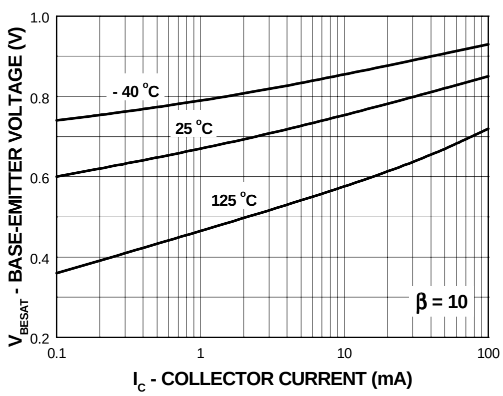


Figure 4. Base-Emitter On Voltage vs Collector Current

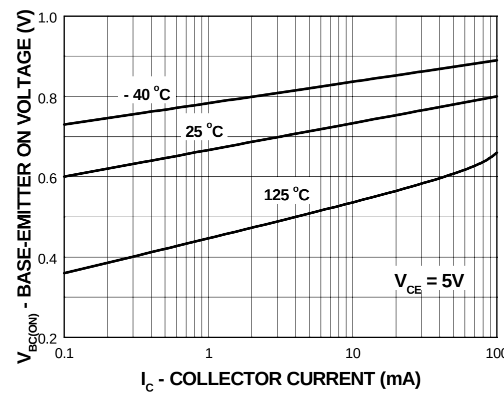


Figure 5. Collector-Cutoff Current vs Ambient Temperature

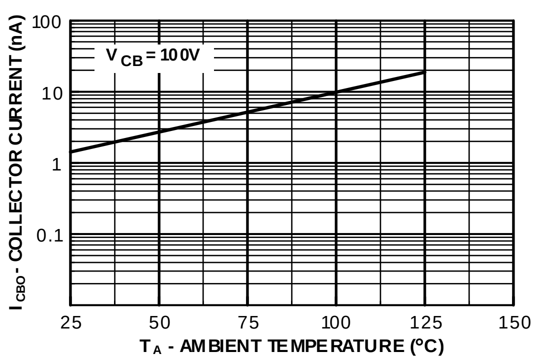
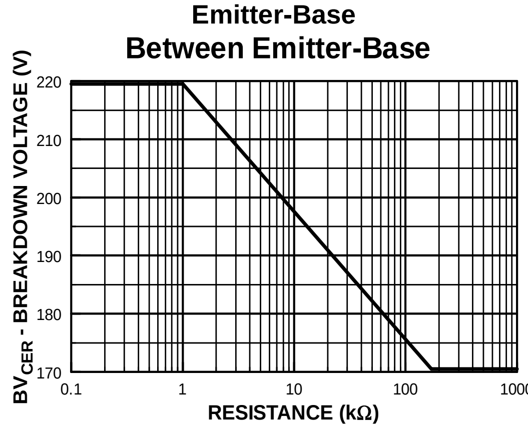
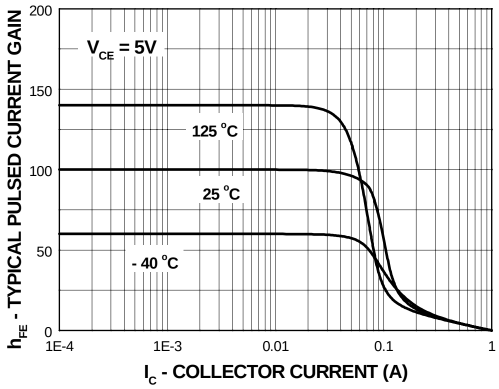


Figure 6. Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base



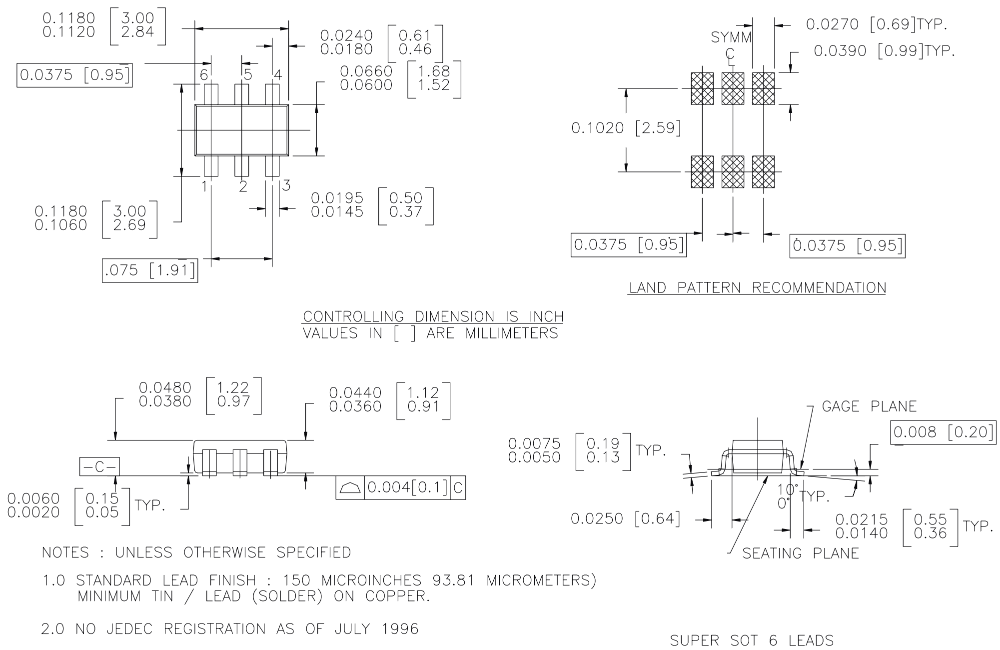
Typical Performance Characteristics (Continued)

Figure 7.Input and Output Capacitance vs Reverse Voltage



Mechanical Dimensions

SuperSOT™-6



Dimensions in Millimeters

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Rev. I15