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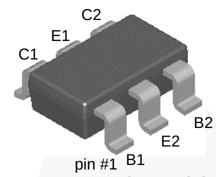
FAIRCHILD

April 2015

FMBM5401
PNP General-Purpose Amplifier

Description

This device has matched dies in SuperSOT-6.



SuperSOT™-6
Mark: .4S2

Ordering Information

Part Number	Marking	Package	Packing Method
FMBM5401	4S2	SSOT 6L	Tape and Reel

Absolute Maximum Ratings[(1),(2)]

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
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 to +150	°C

Notes:

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

Thermal Characteristics[(3)]

Values are at T_A = 25°C unless otherwise noted.

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

Note:

3. Device mounted on a 1 in 2 pad of 2 oz copper.

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
BV_{CEO}	Collector-Emitter Breakdown Voltage(4)	I_C = -1.0 mA, I_B = 0	-150		V
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = -100 µA, I_E = 0	-160		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = -10 µA, I_C = 0	-5.0		V
I_{CBO}	Collector Cut-Off Current	V_{CB} = -120 V, I_E = 0		-50	nA
		V_{CB} = -120 V, I_E = 0, T_A = 100°C		-50	µA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = -3.0 V, I_C = 0		-50	nA
h_{FE1}	DC Current Gain(4)	V_{CE} = -5 V, I_C = -1 mA	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(4)	V_{CE} = -5 V, I_C = -10 mA	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(4)	V_{CE} = -5 V, I_C = -50 mA	50		
DIVID3	Variation Ratio of h_{FE3} Between Die 1 and Die 2	h_{FE3}(Die1) / h_{FE3}(Die2)	0.9	1.1	
V_{CE}(sat)	Collector-Emitter Saturation Voltage(4)	I_C = -10 mA, I_B = -1 mA		-0.2	V
		I_C = -50 mA, I_B = -5 mA		-0.5	
V_{BE}(sat)	Base-Emitter Saturation Voltage(4)	I_C = -10 mA, I_B = -1 mA		-1	V
		I_C = -50 mA, I_B = -5 mA		-1	
V_{BE}(on)	Base-Emitter On Voltage(4)	V_{CE} = -5 V, I_C = -10 mA		-1	V
DEL	Difference of V_{BE}(on) Between Die1 and Die 2	V_{BE}(on)(Die1) - V_{BE}(on)(Die2)	-8	8	mV
f_T	Current Gain Bandwidth Product	V_{CE} = -10 V, I_C = -10 mA, f = 100 MHz	100	300	MHz
C_{ob}	Output Capacitance	V_{CB} = -10 V, I_E = 0, f = 1 MHz		6.0	pF
NF	Noise Figure	V_{CE} = -5.0 V, I_C = -250 µA, R_S = 1.0 kΩ, f = 10 Hz to 15.7 kHz		8.0	dB

Note:

4. Pulse test: Pulse width ≤ 300 ms, duty cycle ≤ 2%

Typical Performance Characteristics

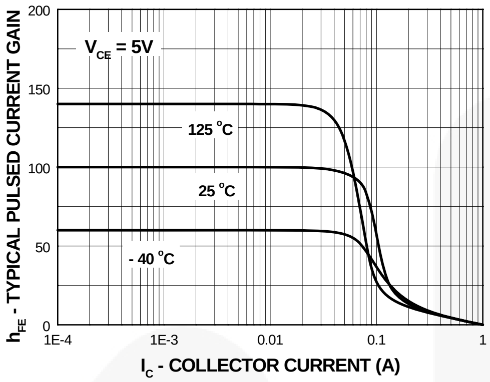


Figure 1. Typical Pulsed Current Gain vs. Collector Current

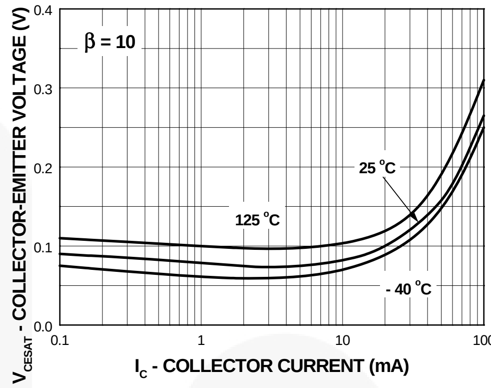


Figure 2. Collector-Emitter Saturation Voltage vs. Collector Current

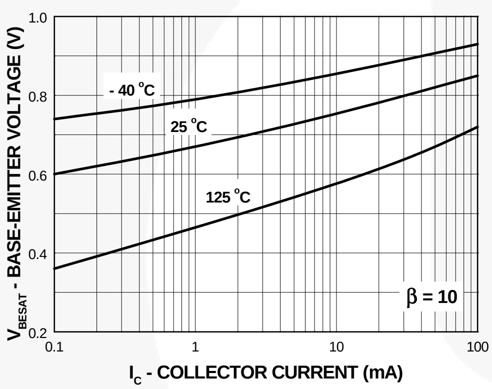


Figure 3. Base-Emitter Saturation Voltage vs. Collector Current

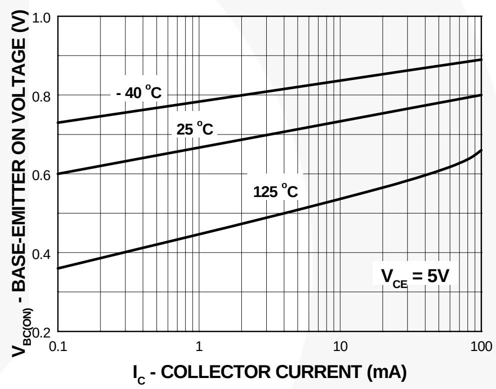


Figure 4. Base-Emitter On Voltage vs.Collector Current

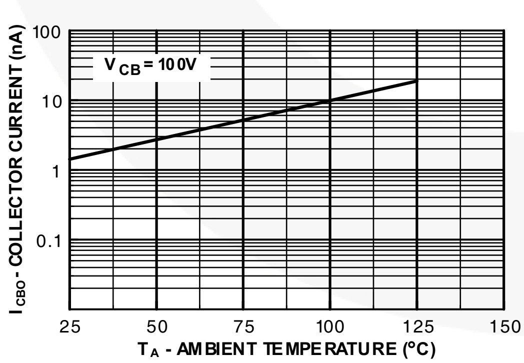


Figure 5. Collector Cut-Off Current vs. Ambient Temperature

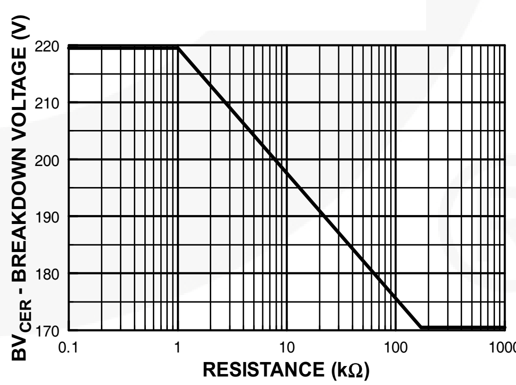


Figure 6. Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base

Typical Performance Characteristics (Continued)

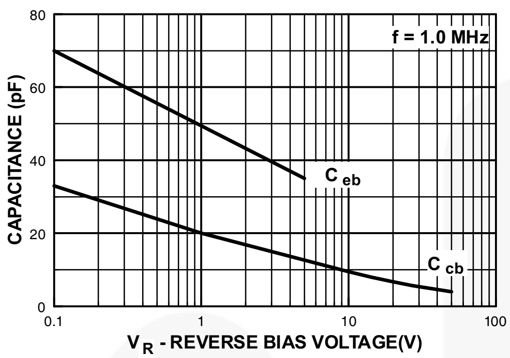


Figure 7. Input and Output Capacitance vs. Reverse Voltage

Physical Dimensions

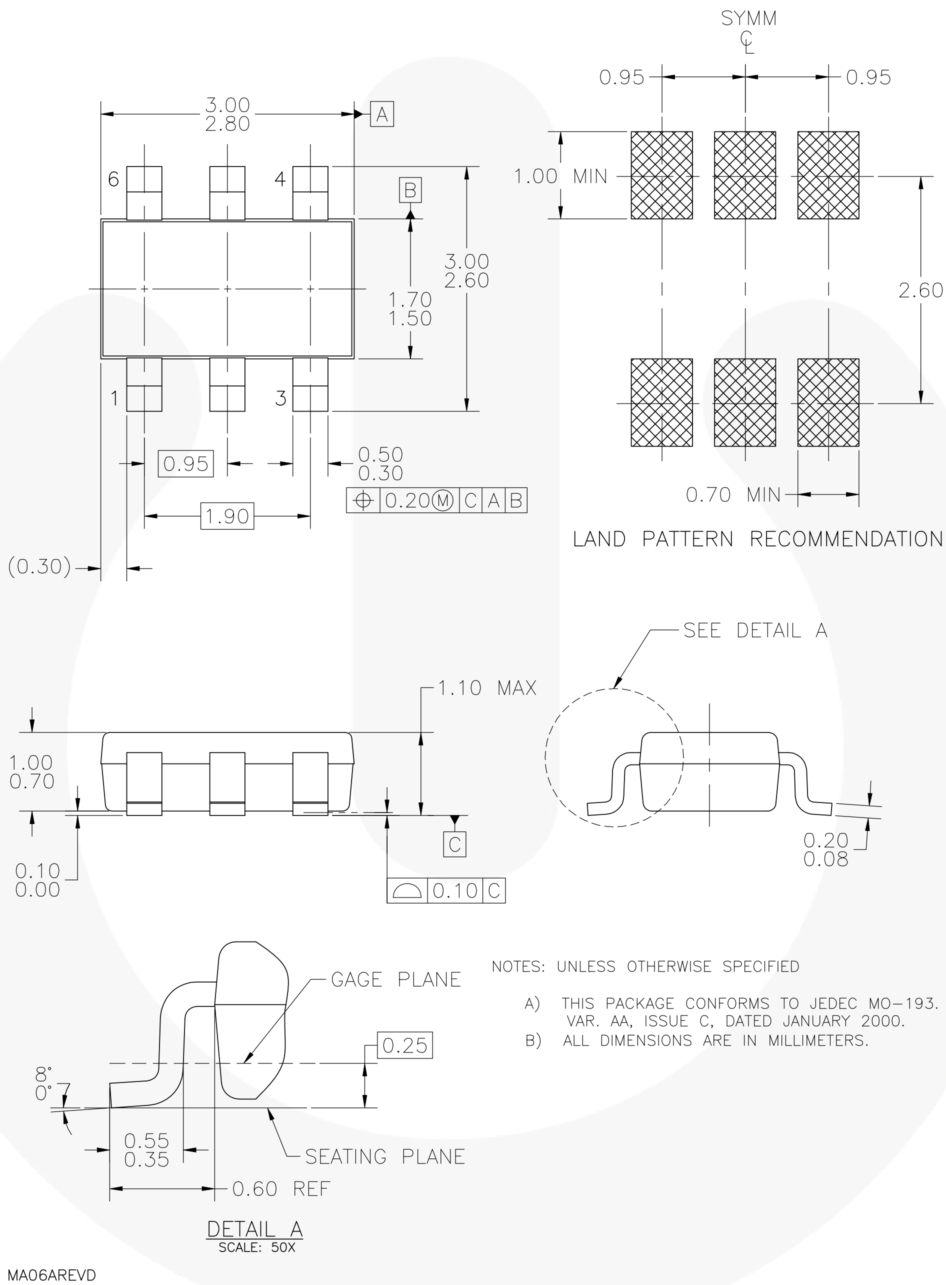


Figure 8. 6-LEAD, SUPERSOT6, JEDEC MO-193, 1.6MM WIDE

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