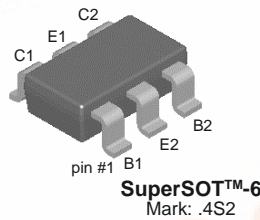




FMBM5401

PNP General Purpose Amplifier

- This device has matched dies in SuperSOT-6.



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 be impaired.

Notes:

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

Electrical Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

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



Electrical Characteristics (Continued) $T_C = 25^\circ\text{C}$ unless otherwise noted

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

* Pulse Test: Pulse Width $\leq 300\text{ms}$, Duty Cycle $\leq 2.0\%$

Thermal Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

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

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

Typical Performance Characteristics

Figure 1. Typical Pulsed Current Gain vs Collector Current

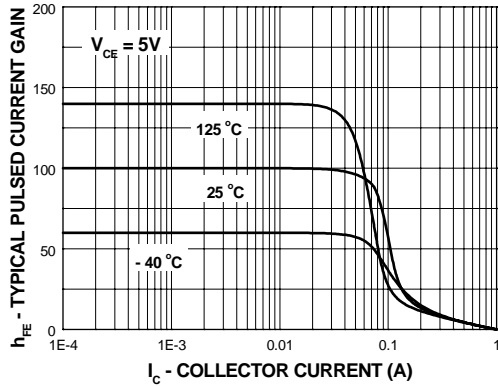


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

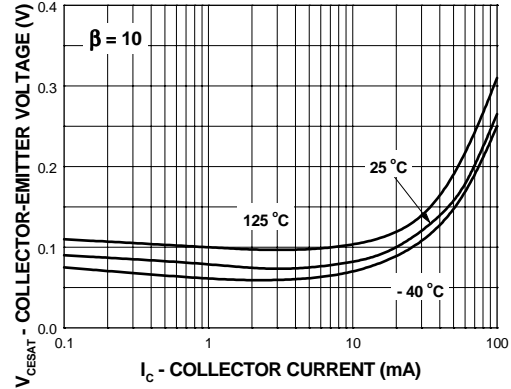


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

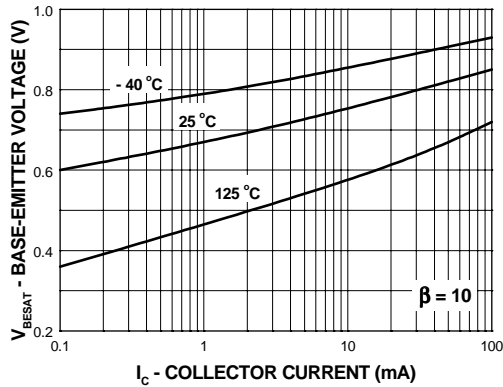


Figure 4. Base-Emitter On Voltage vs Collector Current

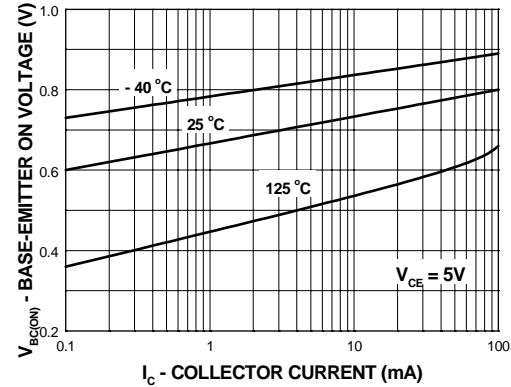


Figure 5. Collector-Cutoff Current vs Ambient Temperature

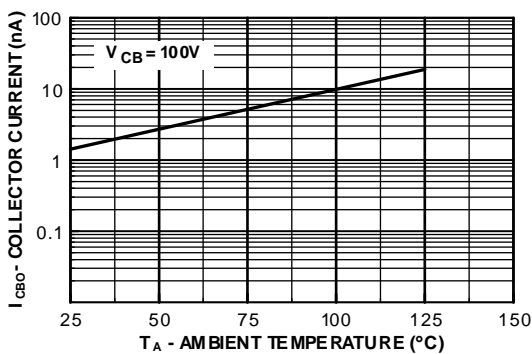
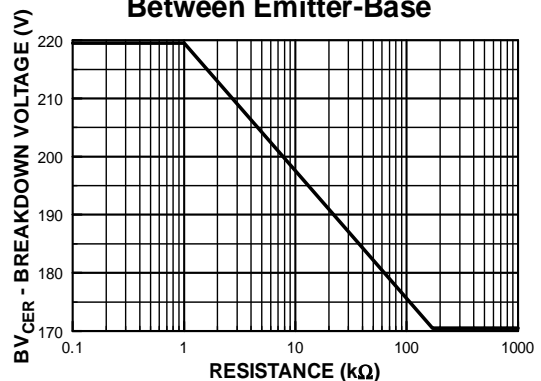
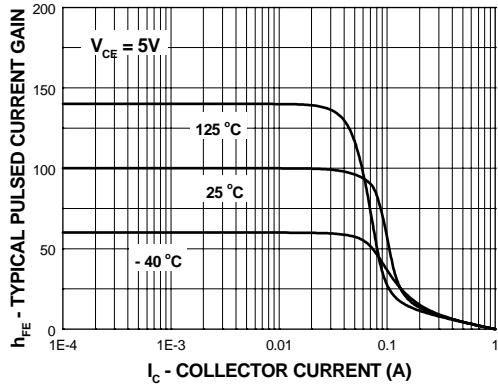


Figure 6. Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base Between Emitter-Base



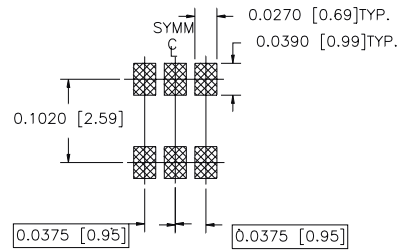
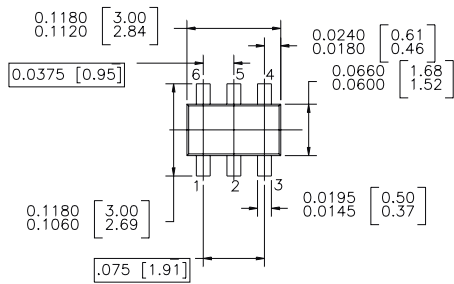
Typical Performance Characteristics (Continued)

Figure 7. Input and Output Capacitance vs Reverse Voltage

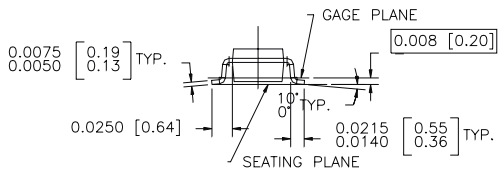
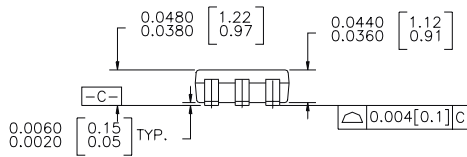


Mechanical Dimensions

SuperSOT™-6



CONTROLLING DIMENSION IS INCH
VALUES IN [] ARE MILLIMETERS



NOTES : UNLESS OTHERWISE SPECIFIED

1.0 STANDARD LEAD FINISH : 150 MICRONS (93.81 MICROMETERS)
MINIMUM TIN / LEAD (SOLDER) ON COPPER.

2.0 NO JEDEC REGISTRATION AS OF JULY 1996

SUPER SOT 6 LEADS

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E ² CMOSTM	I ² C™	MSX™	QT Optoelectronics™	TinyLogic®
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FACT™	ImpliedDisconnect™	OCX™	RapidConfigure™	TruTranslation™
FACT Quiet Series™		OCXPro™	RapidConnect™	UHC™
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The Power Franchise®		OPTOPLANAR™	SILENT SWITCHER®	UniFET™
Programmable Active Droop™		PACMAN™	SMART START™	VCX™

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