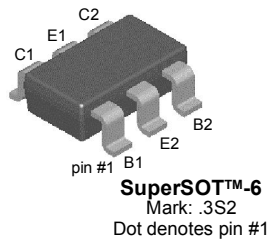


# FMBM5551

## NPN General Purpose Amplifier

- This device has matched dies
- Sourced from process 16.
- See MMBT5551 for characteristics



### Absolute Maximum Ratings \*

Symbol	Parameter	Value	Units
$V_{CEO}$	Collector-Emitter Voltage	160	V
$V_{CBO}$	Collector-Base Voltage	180	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current (DC)	600	mA
$P_C$	Collector Dissipation ( $T_C = 25^\circ\text{C}$ )	0.7	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 ~ 150	$^\circ\text{C}$
$T_{\theta JA}$	Thermal Resistance, Junction to Ambient	180	$^\circ\text{C/W}$

\* Pd total, for both transistors. For each transistor, Pd = 350mW

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

Symbol	Parameter	Conditions	Min.	Max	Units
<b>Off Characteristics</b>					
$BV_{CEO}$	Collector-Emitter Voltage	$I_C = 1\text{mA}, I_B = 0$	160		V
$BV_{CBO}$	Collector-Base Voltage	$I_C = 100\mu\text{A}, I_E = 0$	180		V
$BV_{EBO}$	Emitter-Base Voltage	$I_C = 10\mu\text{A}, I_C = 0$	6		V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 120\text{V}$ $V_{CB} = 120\text{V}, T_a = 100^\circ\text{C}$		50	nA $\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 4\text{V}$		50	nA
<b>On Characteristics</b>					
$h_{FE1}$	DC Current Gain	$V_{CE} = 5\text{V}, I_C = 1\text{mA}$	80		
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	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	80	250	
DIVID2	Variation Ratio of $h_{FE2}$ Between Die 1 and Die 2	$h_{FE2}(\text{Die1})/h_{FE2}(\text{Die2})$	0.95	1.05	

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

Symbol	Parameter	Conditions	Min.	Max	Units
$h_{FE3}$	DC Current Gain	$V_{CE} = 5V, I_C = 50mA$	30		
DIVID3	Variation Ratio of $h_{FE3}$ Between Die 1 and Die 2	$h_{FE3}(\text{Die1})/h_{FE3}(\text{Die2})$	0.9	1.1	
$V_{CE(\text{sat})}$	Collector-Emitter Saturation Voltage	$I_C = 10mA, I_B = 1mA$ $I_C = 50mA, I_B = 5mA$		0.15 0.2	V V
$V_{BE(\text{sat})}$	Base-Emitter Saturation Voltage	$I_C = 10mA, I_B = 1mA$ $I_C = 50mA, I_B = 5mA$		1 1	V V
$V_{BE(\text{on})}$	Base-Emitter On Voltage	$V_{CE} = 5V, I_C = 10mA$		1	V
DEL	Difference of $V_{BE(\text{on})}$ Between Die1 and Die 2	$V_{BE(\text{on})}(\text{Die1}) - V_{BE(\text{on})}(\text{Die2})$	-8	8	mV
<b>Small Signal Characteristics</b>					
$C_{ob}$	Output Capacitance	$V_{CB} = 10V, f = 1MHz$		6	pF
$C_{ib}$	Input Capacitance	$V_{CB} = 0.5V, f = 1MHz$		20	pF
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 10V, I_C = 10mA, f = 100MHz$	100	300	MHz
NF	Noise Figure	$V_{CE} = 5V, I_C = 200\mu A, f = 1MHz,$ $R_S = 20K\Omega, B = 200Hz$		8	dB
$h_{fe}$	Small Signal Current Gain	$V_{CE} = 10V, I_C = 1.0mA, f = 1.0KHz$	50	250	

## Typical Characteristics

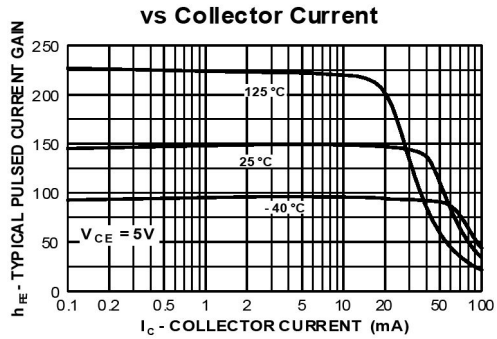


Figure 1. Typical Pulsed Current Gain vs Collector Current

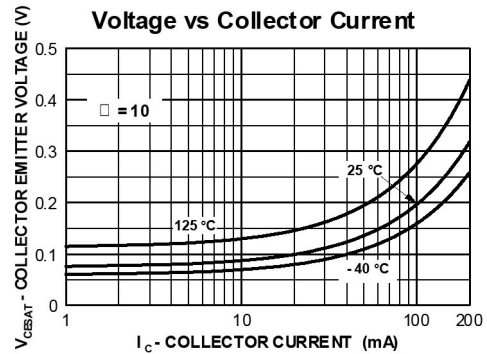


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

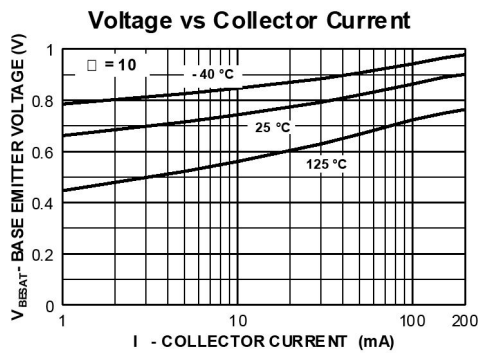


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

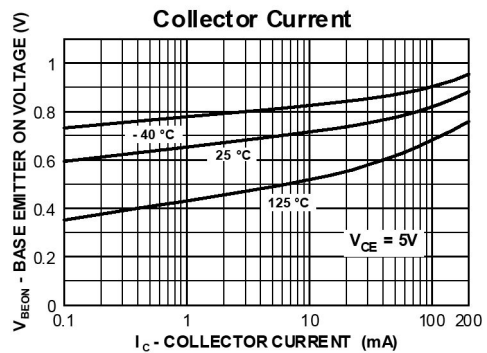


Figure 4. Base-Emitter On Voltage vs Collector Current

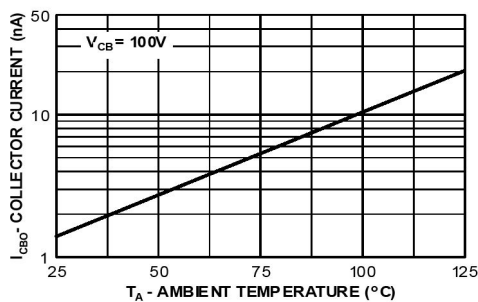


Figure 5. Collector Cutoff Current vs Ambient Temperature

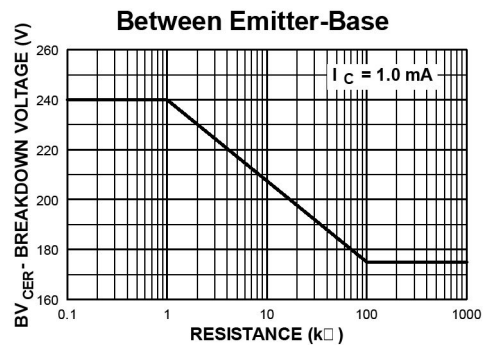


Figure 6. Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base

## Typical Characteristics (Continued)

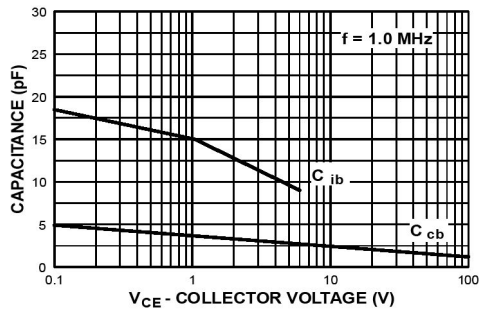


Figure 1. Input and Output Capacitance vs Reverse Voltage

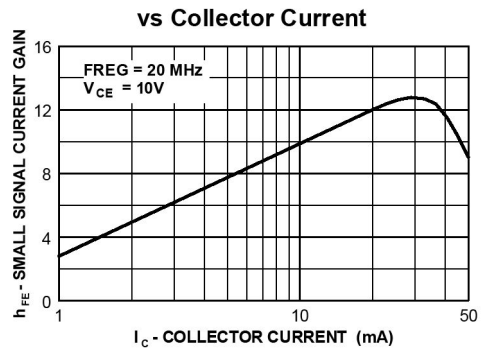
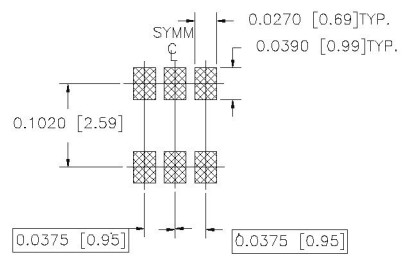
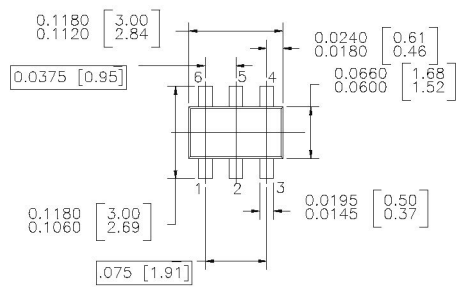


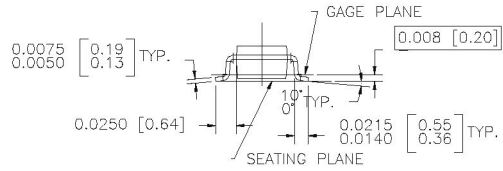
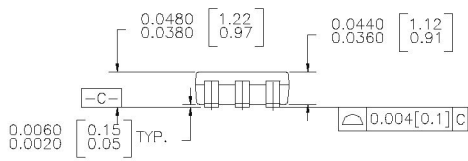
Figure 2. Small Signal current Gain vs Collector Current

## Mechanical Dimensions

# SuperSOT™-6



CONTROLLING DIMENSION IS INCH  
VALUES IN [ ] ARE MILLIMETERS



NOTES : UNLESS OTHERWISE SPECIFIED

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

2.0 NO JEDEC REGISTRATION AS OF JULY 1996


SUPER SOT 6 LEADS

Dimensions in Millimeters



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FACT Quiet Series™	MillerDrive™	SMART START™	TinyWire™
FACT®	Motion-SPM™	SPM®	µSerDes™
FAST®	OPTOLOGIC®	STEALTH™	UHC®
FastvCore™	OPTOPLANAR®	SuperFET™	UniFET™
FPS™	 ®	SuperSOT™-3	VCX™
FRFET®	PDP-SPM™	SuperSOT™-6	
Global Power Resource <sup>SM</sup>	Power220®		

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