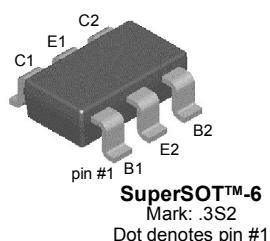


FMBM5551

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
Off Characteristics					
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 50	nA μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 4\text{V}$		50	nA
On Characteristics					
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	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10mA, I_B = 1mA$ $I_C = 50mA, I_B = 5mA$		0.15 0.2	V V
$V_{BE(sat)}$	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	$V_{BE(on)}(\text{Die1}) - V_{BE(on)}(\text{Die2})$	-8	8	mV
Small Signal Characteristics					
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

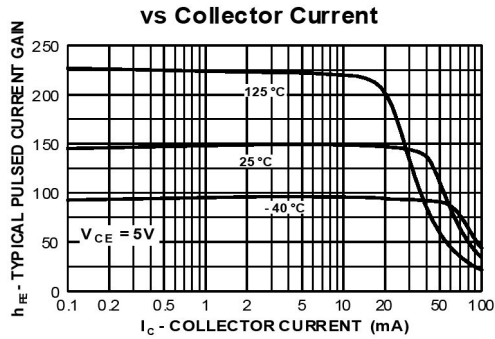


Figure 1. Typical Pulsed Current Gain vs Collector Current

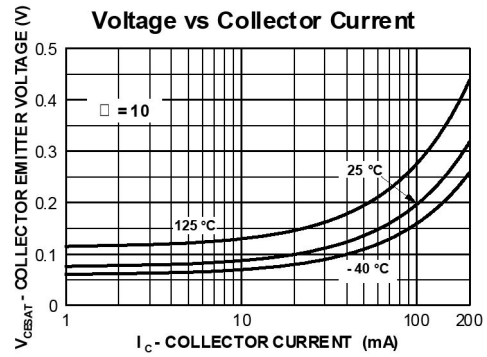


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

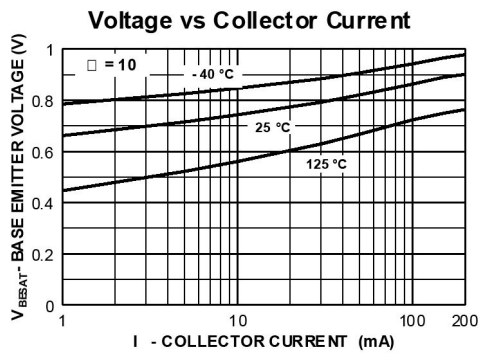


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

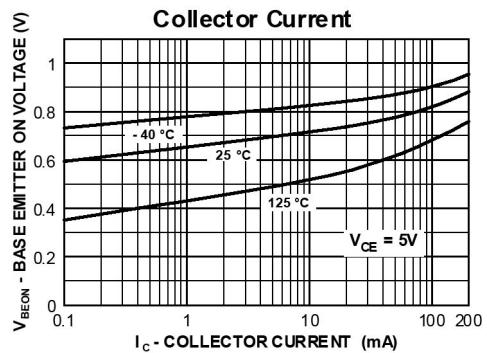


Figure 4. Base-Emitter On Voltage vs Collector Current

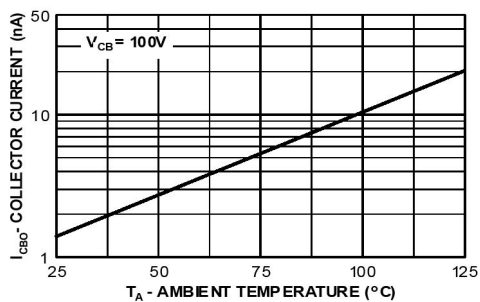


Figure 5. Collector Cutoff Current vs Ambient Temperature

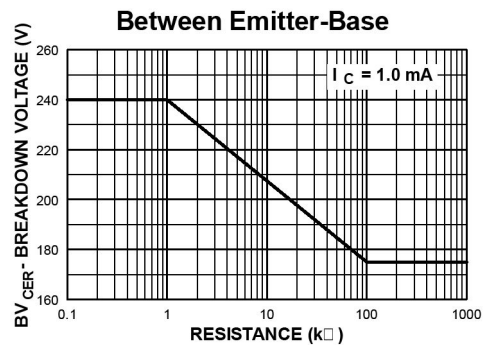


Figure 6. Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base

Typical Characteristics (Continued)

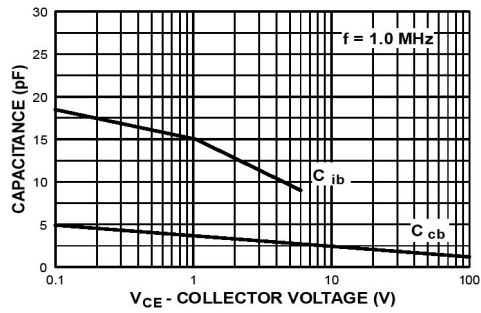


Figure 1. Input and Output Capacitance vs Reverse Voltage

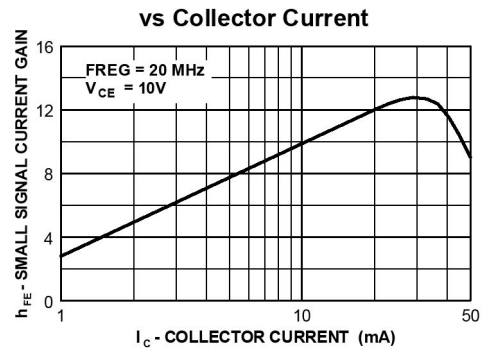
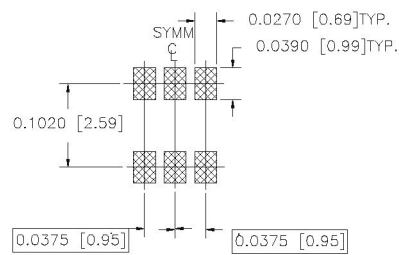
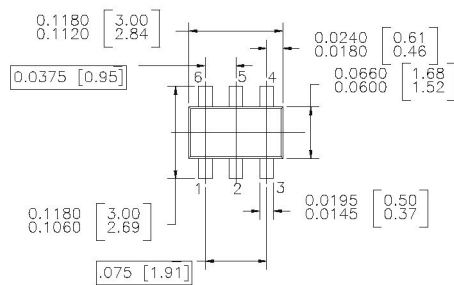


Figure 2. Small Signal current Gain vs Collector Current

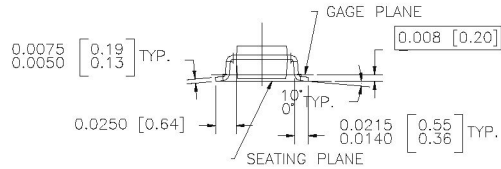
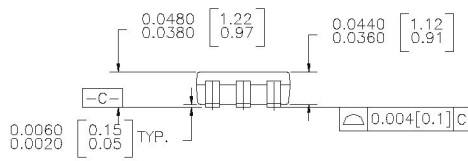
Mechanical Dimensions

SuperSOT™-6



LAND PATTERN RECOMMENDATION

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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