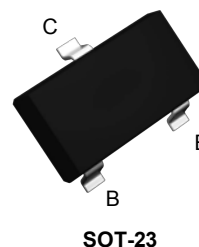


Features

- Ideal for medium power amplification and switching
- Complementary PNP MMBT5401
- Power dissipation of 300mW

Applications

- General purpose amplifier
- Switching



Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	180	V
Collector-Emitter Voltage	V _{CEO}	160	V
Emitter-Base Voltage	V _{EBO}	6.0	V
Collector Current-Continuous	I _C	600	mA
Collector Power Dissipation	P _C	300	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	416	°C/W
Operating Temperature	T _J	-55 to +150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

Classifications Of h_{FE}

Rank	MMBT5551-L	MMBT5551-H
Range @V _{CE} =5V, I _C =10mA	100-200	200-300

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

Parameter	Symbol	Test Conditions	Min	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}$, $I_E=0$	180	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}^1$	$I_C=1\text{mA}$, $I_B=0$	160	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}$, $I_C=0$	6	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB}=120\text{V}$, $I_E=0$	-	50	nA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=4\text{V}$, $I_C=0$	-	50	nA
DC Current Gain	$h_{FE(1)}^1$	$V_{CE}=5\text{V}$, $I_C=1\text{mA}$	80	-	-
	$h_{FE(2)}^1$	$V_{CE}=5\text{V}$, $I_C=10\text{mA}$	100	300	
	$h_{FE(3)}^1$	$V_{CE}=5\text{V}$, $I_C=50\text{mA}$	30	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)1}^1$	$I_C=10\text{mA}$, $I_B=1\text{mA}$	-	0.15	V
	$V_{CE(sat)2}^1$	$I_C=50\text{mA}$, $I_B=5\text{mA}$	-	0.2	V
Base-Emitter Saturation Voltage	$V_{BE(sat)1}^1$	$I_C=10\text{mA}$, $I_B=1\text{mA}$	-	1	V
	$V_{BE(sat)2}^1$	$I_C=50\text{mA}$, $I_B=5\text{mA}$	-	1	V
Transition Frequency	f_T	$V_{CE}=10\text{V}$, $I_C=10\text{mA}$, $f=100\text{MHz}$	100	300	MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$	-	6	pF

Note:

1. Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$.

Electrical Characteristic Curves

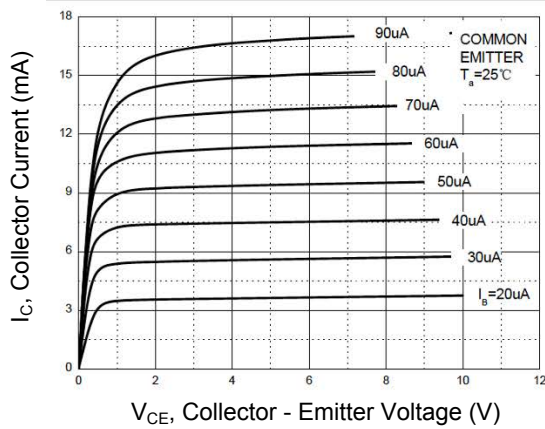


Figure 1. Static Characteristics

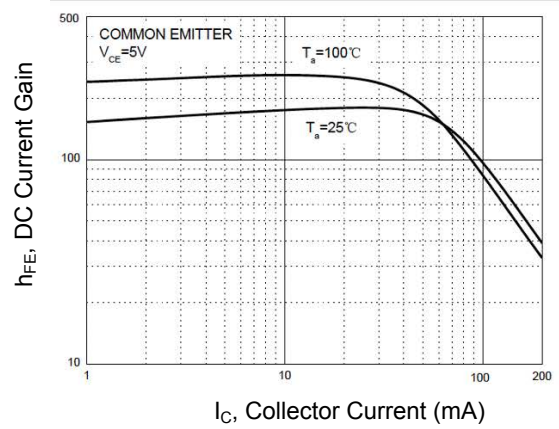


Figure 2. DC Current Gain vs. Collector Current

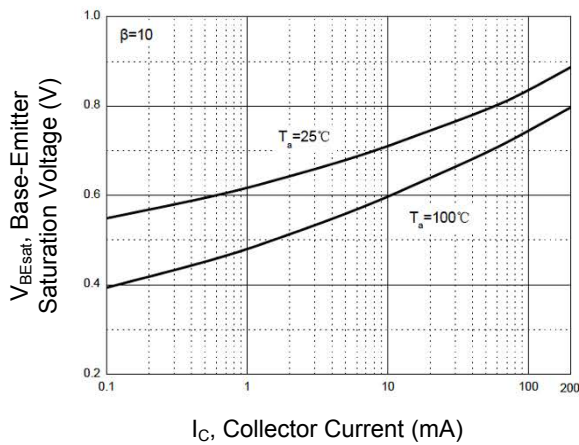


Figure 3. Base - Emmitter Saturation Voltage vs. Collector Current

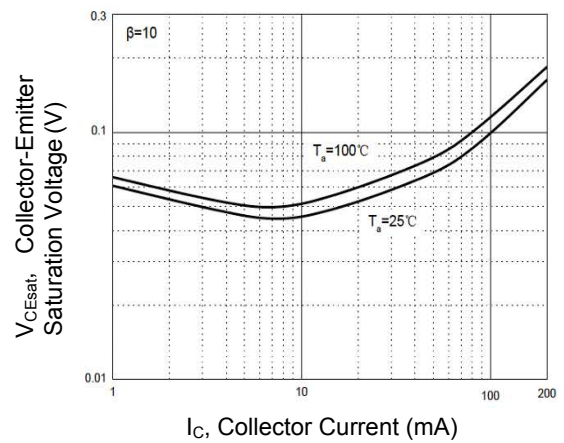


Figure 4. Collector - Emmitter Saturation Voltage vs. Collector Current

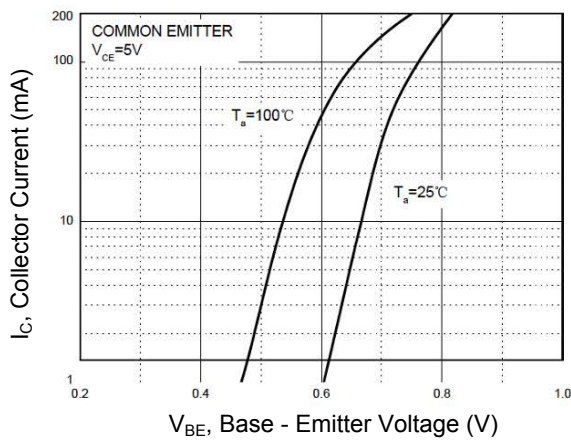


Figure 5. Collector Current vs. Base - Emmitter Voltage

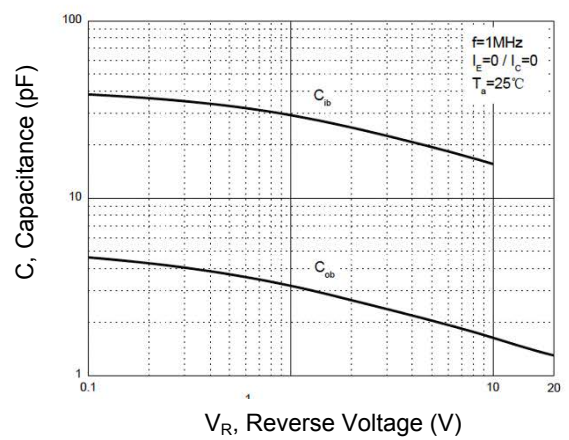


Figure 6. Capacitance Characteristics

Electrical Characteristic Curves

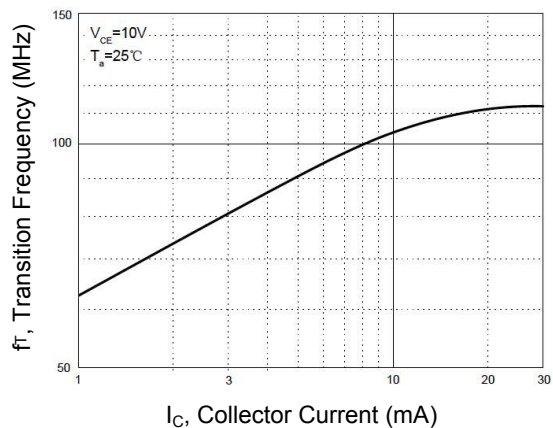


Figure 7. Transition Frequency vs. Collector Current

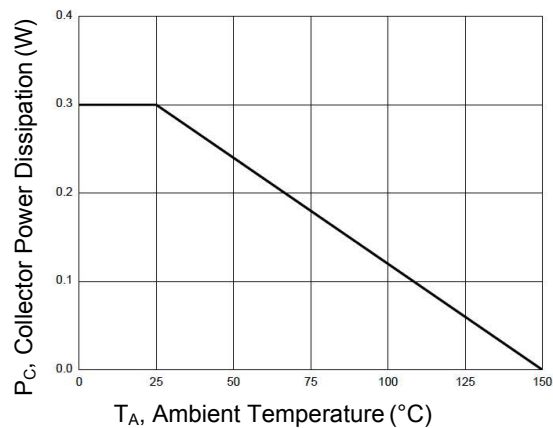
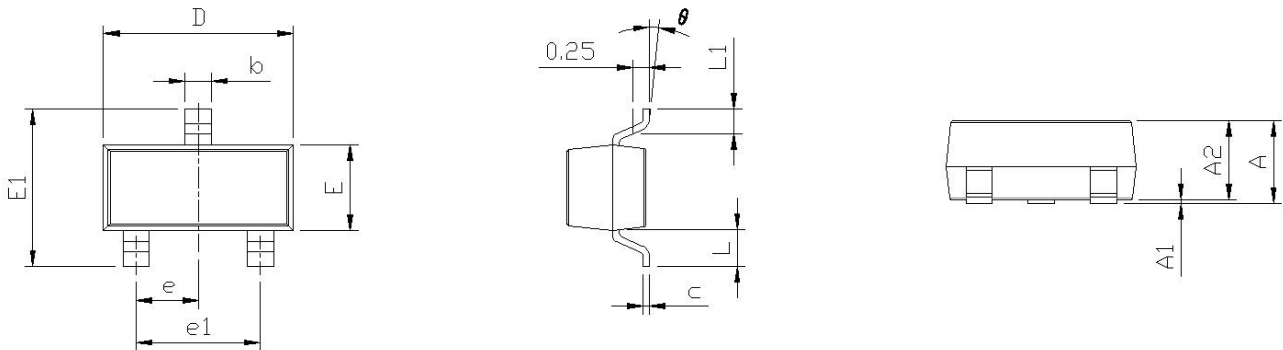


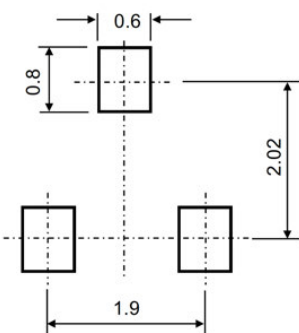
Figure 8. Power Dissipation vs Ambient Temperature

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Recommended Pad Layout



Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

Order Information

Device	Package	Marking	Quantity	HSF Status
MMBT5551	SOT-23	G1	3,000pcs / Reel	RoHS Compliant