DESCRIPTION

The MMBT5551L is available in SOT-23 package.

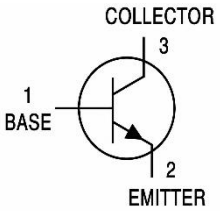
FEATURE

- Epitaxial planar die construction.
- Complementary NPN type available (MMBT5401L).
- Also available in lead free version.

APPLICATIONS

- Ideal for medium power amplification and switching.

PIN DESCRIPTION



ORDERING INFORMATION

Package Type	Part Number
SOT-23	MMBT5551L
Note	SPQ: 3,000pcs/Reel
AiT provides all RoHS Compliant Products	

PIN#	DESCRIPTION
1	BASE
2	EMITTER
3	COLLECTOR

ABSOLUTE MAXIMUM RATINGS

T_A = 25°C, unless otherwise specified

V_{CBO}, Collector-Base Voltage	180V
V_{CEO}, Collector-Emitter Voltage	160V
V_{EBO}, Emitter-Base Voltage	6V
I_C, Collector Current	0.6A
P_C, Collector Power Dissipation	0.35mW
$R_{\theta JA}$, Thermal resistance from Junction to ambient	357°C/W
T_J, Junction Temperature	150°C
T_{STG}, Storage Temperature Range	-55 ~150°C

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=100μA, I_E=0	180	-	-	
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=0.1mA, I_B=0	160	-	-	
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	6	-	-	
Collector cut-off current	I_{CBO}	I_E= 0; V_{CB} = 120V	-	-	50	μA
Emitter cut-off current	I_{EBO}	I_C= 0; V_{EB},= 4V	-	-	50	μA
DC current gain	$h_{FE(1)}$	V_{CE}=5V; I_C=1mA	80	-	-	
	$h_{FE(2)}$	V_{CE}=5V; I_C=10mA	100	-	300	
	$h_{FE(3)}$	V_{CE}=5V; I_C=50mA	30	-	-	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=10mA; I_B=1mA	-	-	0.15	V
		I_C=50mA; I_B=5mA			0.2	
Base-emitter voltage	V_{BE1}	I_C=10mA; I_B=1mA	-	0.62	1	V
	V_{BE2}	I_C=50mA; I_B=5mA	-	-	1	V
Transition frequency	f_T	V_{CE}=5V, I_C=10mA, f=100MHz	100	-	300	MHz
Output capacitance	C_{obo}	I_E=10mA; V_{CE}=10V; F=1.0MHz	-	-	6.0	pF

TYPICAL CHARACTERISTICS

Fig 1. Typical Pulsed Current Gain vs. Collector Current

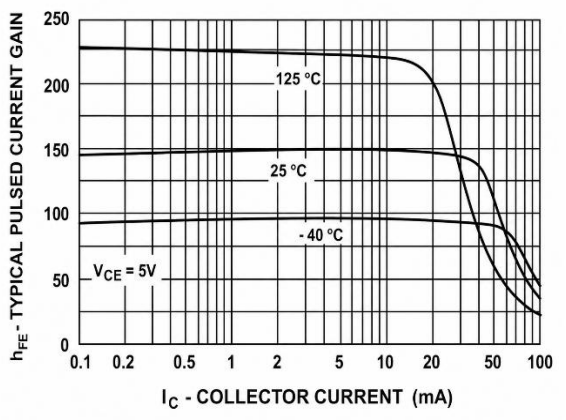


Fig 2. Collector-Emitter Saturation Voltage vs. Collector Current

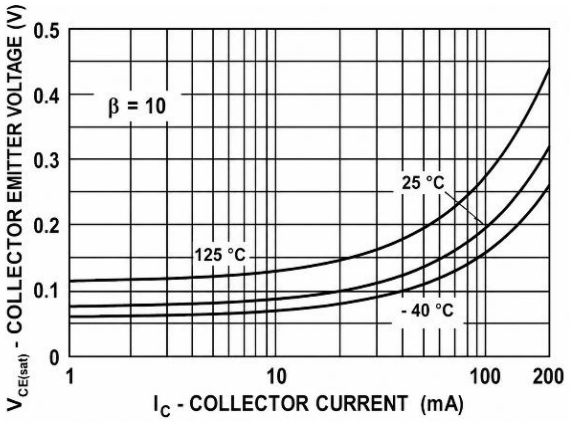


Fig 3. Base-Emitter Saturation Voltage vs. Collector Current

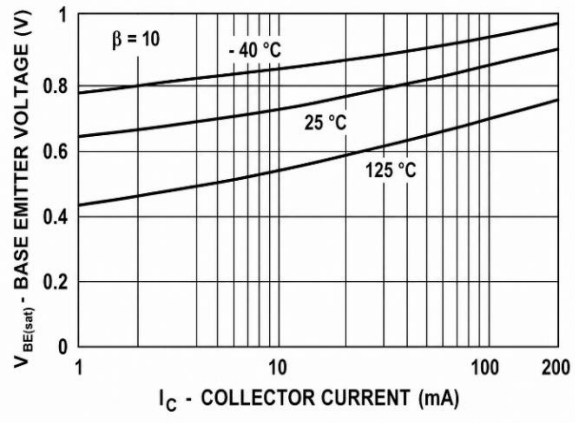


Fig 4. Base-Emitter ON Voltage vs. Collecto Current

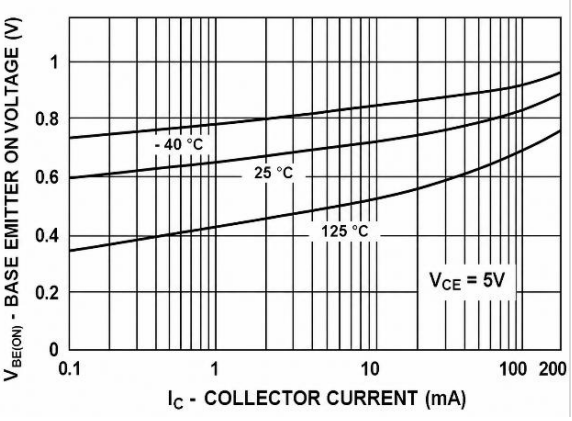


Fig 5. Collector Cutoff Current vs. Ambient vs. Ambient Temperature

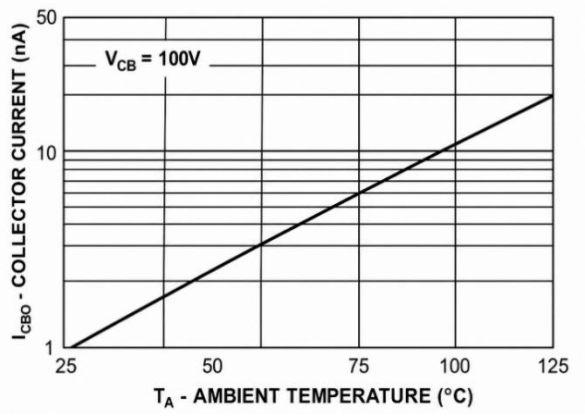


Fig 6. Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base

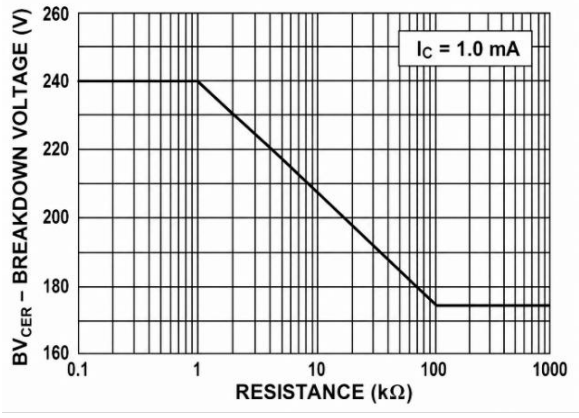


Fig 7. Input and Output Capacitance vs. Reverse vs. Reverse Voltage

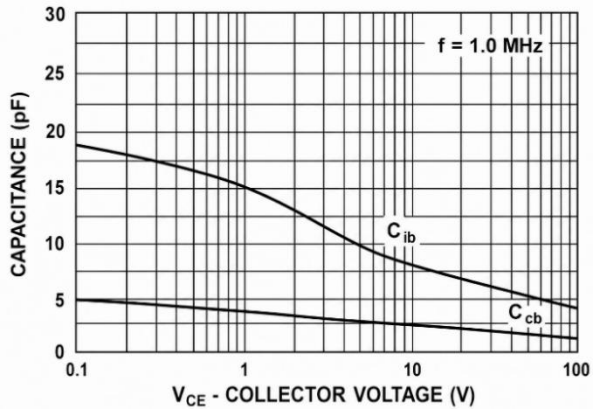
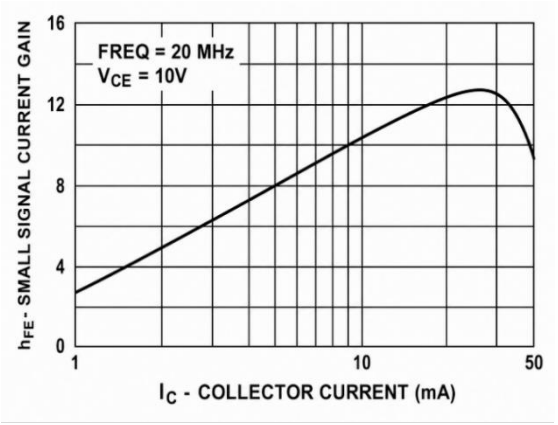
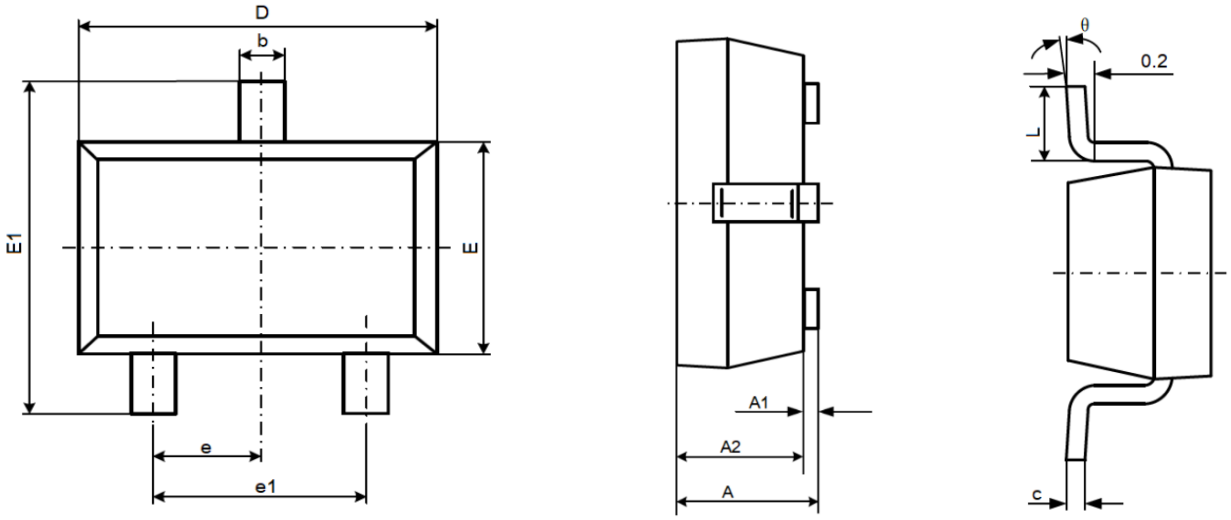


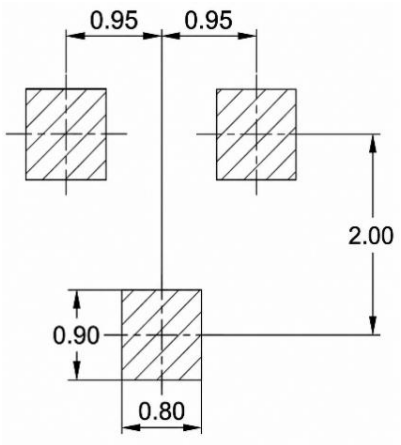
Fig 8. Small Signal Current Gain vs. Collector vs. Collector Current



PACKAGE INFORMATION

Dimension in SOT-23 Package (Unit: mm)





Suggested Pad Layout

Symbol	Dimensions	
	Min	Max
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.820	3.020
E	1.500	1.700
E1	2.650	2.950
e	0.950 BSC	
e1	1.800	2.000
L	0.300	0.600
θ	0°	8°

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