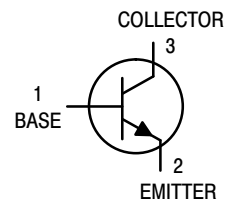


# HIGH VOLTAGE SWITCHING TRANSISTOR

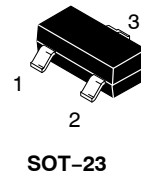
## ■ FEATURES

- \* High Collector-Emitter Voltage:  $V_{CE0}=160V$
- \* High current gain



## ■ ORDERING INFORMATION

Device	Package	Shipping†
MMBT5551	SOT-23 (Pb-Free)	3000 / Tape & Reel



†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

**■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)**

PARAMETER	SYMBOL	RATINGS	UNIT
Collector -Base Voltage	V <sub>CB0</sub>	180	V
Collector -Emitter Voltage	V <sub>CEO</sub>	160	V
Emitter -Base Voltage	V <sub>EBO</sub>	6	V
DC Collector Current	I <sub>C</sub>	600	mA
Power Dissipation	P <sub>D</sub>	625	mW
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>STG</sub>	-40 ~ +150	°C

Note Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

**■ ELECTRICAL CHARACTERISTICS (Ta= 25°C, unless otherwise specified)**

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	V <sub>CB0</sub>	I <sub>C</sub> =100μA, I <sub>E</sub> =0	180			V
Collector-Emitter Breakdown Voltage	V <sub>CEO</sub>	I <sub>C</sub> =1mA, I <sub>B</sub> =0	160			V
Emitter-Base Breakdown Voltage	V <sub>EBO</sub>	I <sub>E</sub> =10μA, I <sub>C</sub> =0	6			V
Collector Cut-off Current	I <sub>CB0</sub>	V <sub>CB</sub> =120V, I <sub>E</sub> =0			50	nA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>BE</sub> =4V, I <sub>C</sub> =0			50	nA
DC Current Gain(note)	h <sub>FE</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =1mA V <sub>CE</sub> =5V, I <sub>C</sub> =10mA V <sub>CE</sub> =5V, I <sub>C</sub> =50mA	80 80 80	160	400	
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA I <sub>C</sub> =50mA, I <sub>B</sub> =5mA			0.15 0.2	V
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA I <sub>C</sub> =50mA, I <sub>B</sub> =5mA			1 1	V
Current Gain Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =5mA, f=30MHz	100		300	MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz			6.0	pF
Noise Figure	NF	I <sub>C</sub> =0.25mA, V <sub>CE</sub> =5V R <sub>S</sub> =1kΩ, f=10Hz ~ 15.7kHz			8	dB

Note: Pulse test: PW<300μs, Duty Cycle<2%

**■ CLASSIFICATION OF h<sub>FE</sub>**

RANK	A	B	C
RANGE	80-170	150-240	200-400

■ TYPICAL CHARACTERISTICS

Fig.1 Collector Output Capacitance

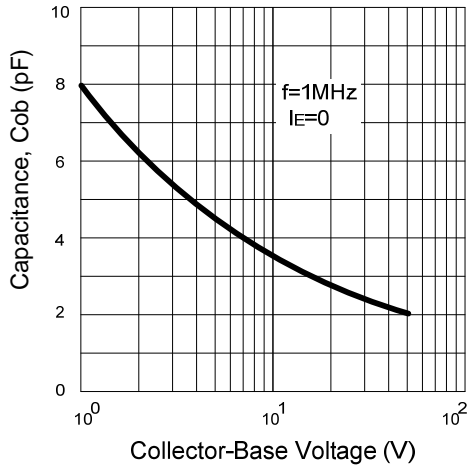


Fig.2 DC Current Gain

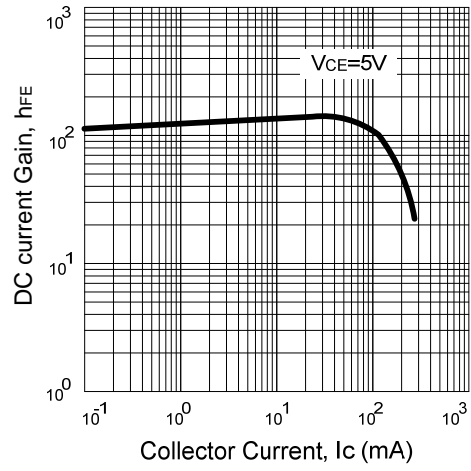


Fig.3 Base-Emitter on Voltage

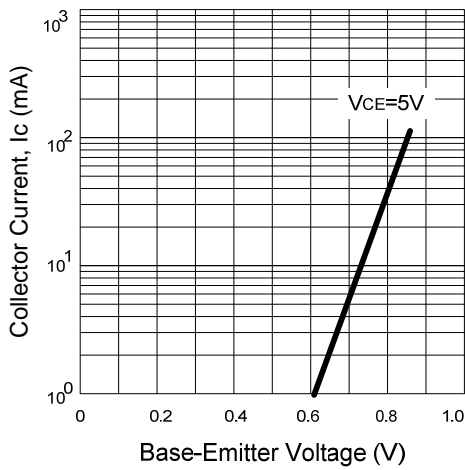


Fig.4 Saturation Voltage

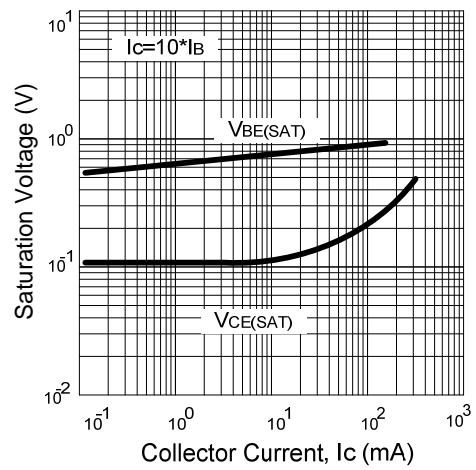
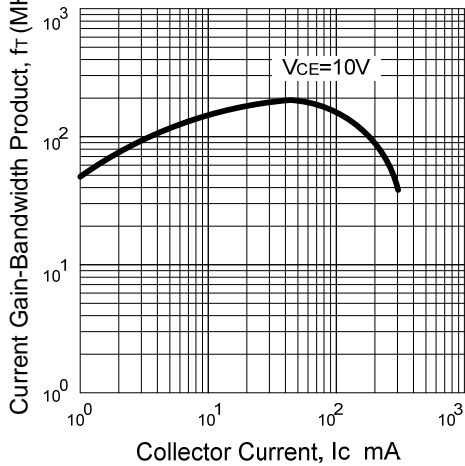
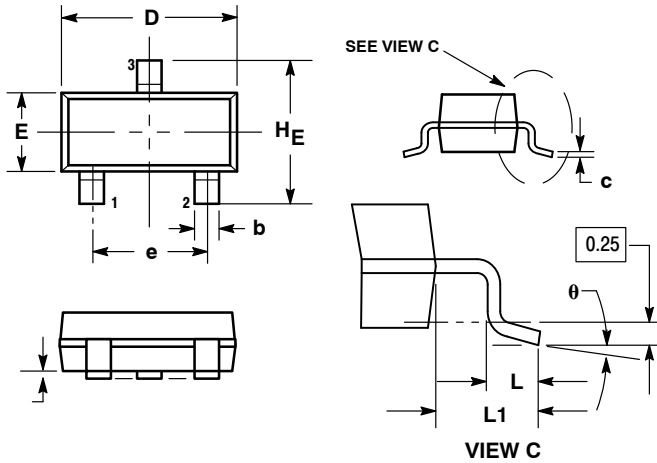


Fig.5 Current Gain-Bandwidth Product



PACKAGE DIMENSIONS

SOT-23



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
  4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.40	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

- STYLE 6:  
 PIN 1. BASE  
 2. EMITTER  
 3. COLLECTOR

SOLDERING FOOTPRINT

