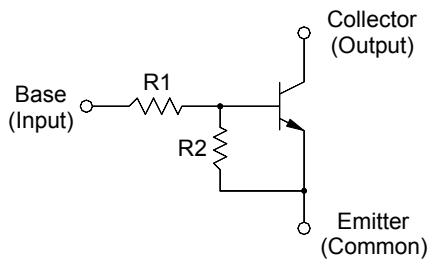




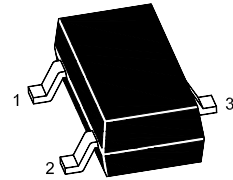
# MMBTRC101SS~MMBTRC106SS NPN Digital Transistor

## Features

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process



**SOT-23  
(TO-236)**



1.Base 2.Emitter 3.Collector

## Resistor Values/Marking Code

Type	R1 (K $\Omega$ )	R2 (K $\Omega$ )	Marking
MMBTRC101SS	4.7	4.7	1BR
MMBTRC102SS	10	10	2BR
MMBTRC103SS	22	22	3BR
MMBTRC104SS	47	47	4BR
MMBTRC105SS	2.2	47	5BR
MMBTRC106SS	4.7	47	6BR

## Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

Parameter		Symbol	Value	Unit
Output Voltage		$V_o$	50	V
Input Voltage	MMBTRC101SS	$V_i$	20, -10	V
	MMBTRC102SS		30, -10	
	MMBTRC103SS		40, -10	
	MMBTRC104SS		40, -10	
	MMBTRC105SS		12, -5	
	MMBTRC106SS		20, -5	
Output Current		$I_o$	100	mA
Total Power Dissipation		$P_{tot}$	200	mW
Junction Temperature		$T_j$	150	$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	- 55 to + 150	$^\circ\text{C}$



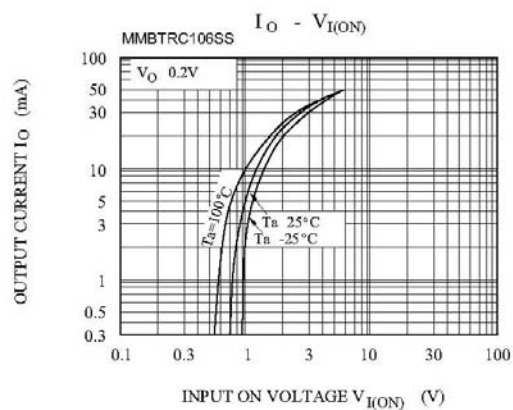
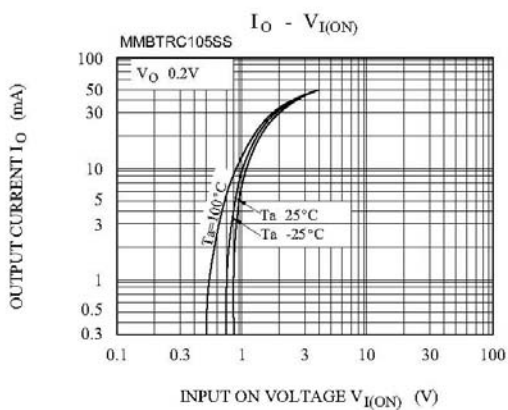
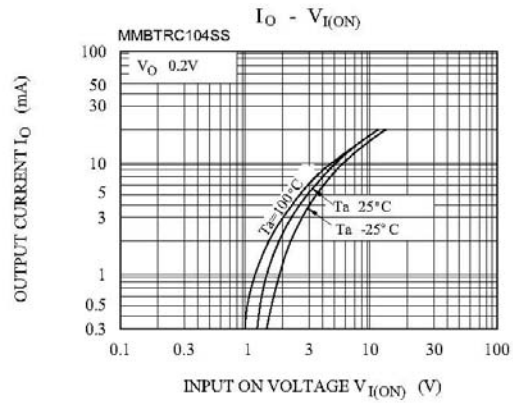
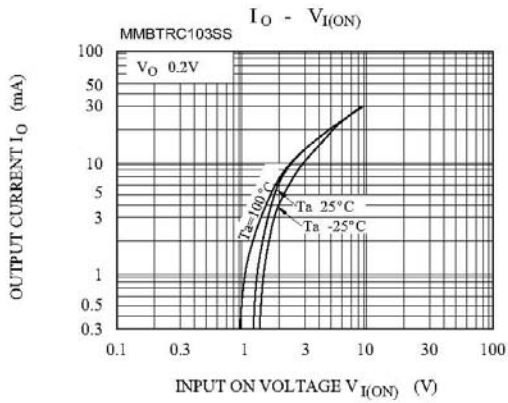
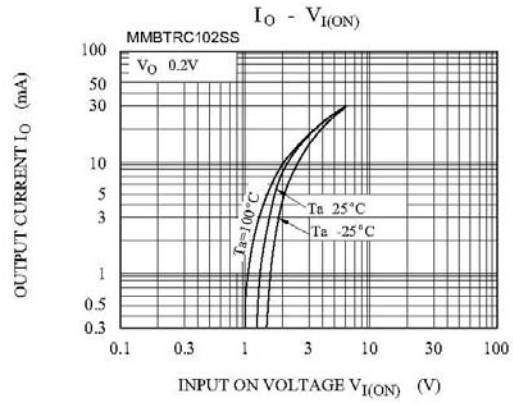
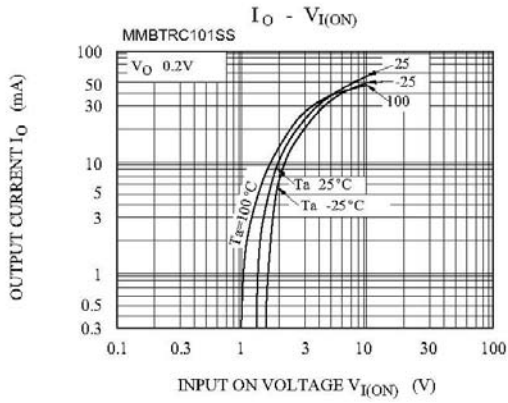
# MMBTRC101SS~MMBTRC106SS NPN Digital Transistor

Characteristics at  $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_O = 5\text{ V}$ , $I_O = 10\text{ mA}$	$G_I$				
MMBTRC101SS		30	-	-	-
MMBTRC102SS		50	-	-	-
MMBTRC103SS		70	-	-	-
MMBTRC104SS		80	-	-	-
MMBTRC105SS		80	-	-	-
MMBTRC106SS		80	-	-	-
Output Cutoff Current at $V_O = 50\text{ V}$	$I_{O(OFF)}$	-	-	500	nA
Input Current at $V_I = 5\text{ V}$	$I_I$				
MMBTRC101SS		-	-	1.8	mA
MMBTRC102SS		-	-	0.88	
MMBTRC103SS		-	-	0.36	
MMBTRC104SS		-	-	0.18	
MMBTRC105SS		-	-	3.6	
MMBTRC106SS		-	-	1.8	
Output Voltage at $I_O = 10\text{ mA}$ , $I_I = 0.5\text{ mA}$	$V_{O(ON)}$	-	-	0.3	V
Input Voltage (ON) at $V_O = 0.2\text{ V}$ , $I_O = 5\text{ mA}$	$V_{I(ON)}$				
MMBTRC101SS		-	-	2	V
MMBTRC102SS		-	-	2.4	
MMBTRC103SS		-	-	3	
MMBTRC104SS		-	-	5	
MMBTRC105SS		-	-	1.1	
MMBTRC106SS		-	-	1.3	
Input Voltage (OFF) at $V_O = 5\text{ V}$ , $I_O = 0.1\text{ mA}$	$V_{I(OFF)}$	1 0.5	- -	- -	V
Transition Frequency at $V_O = 10\text{ V}$ , $I_O = 5\text{ mA}$	$f_T^{1)}$	-	200	-	MHz

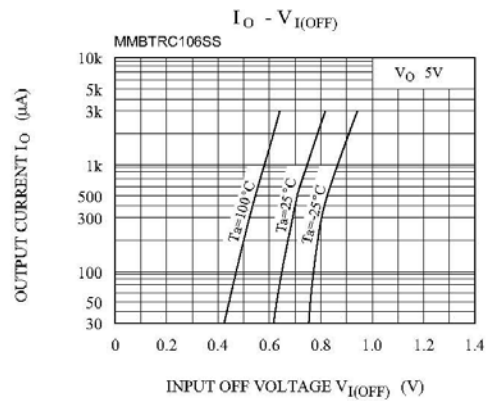
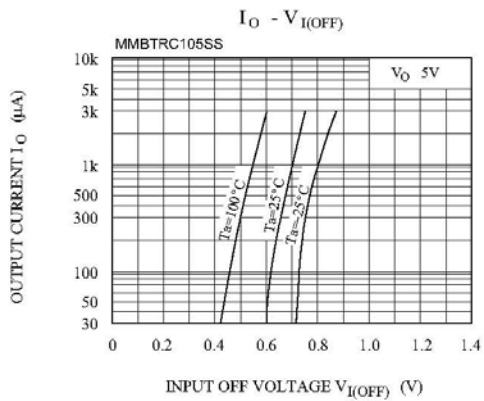
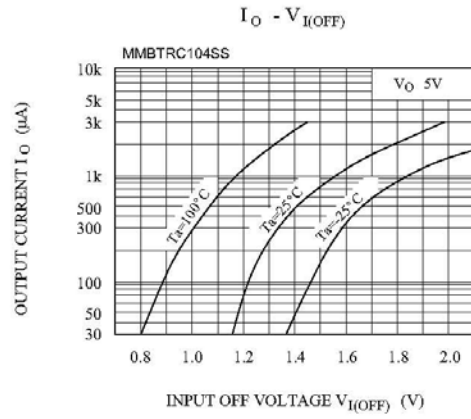
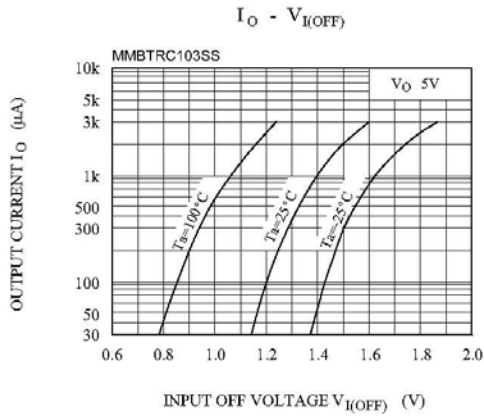
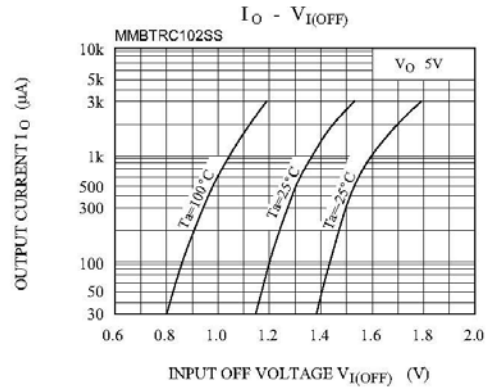
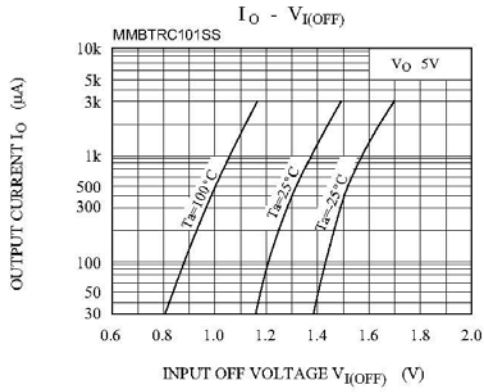


# MMBTRC101SS~MMBTRC106SS NPN Digital Transistor



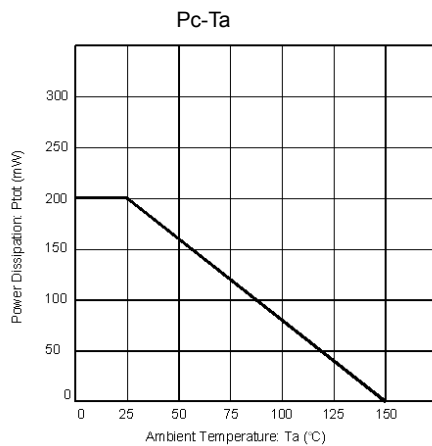
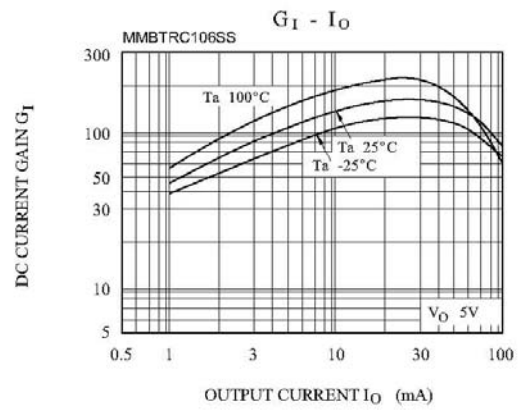
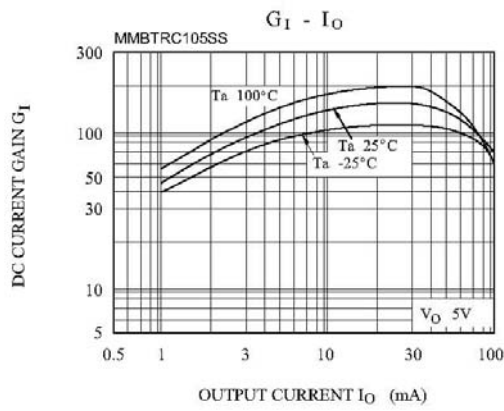
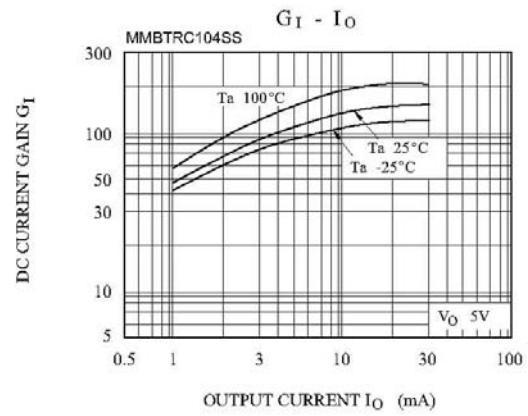
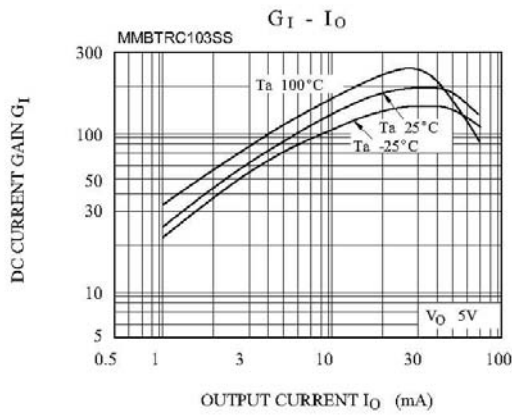
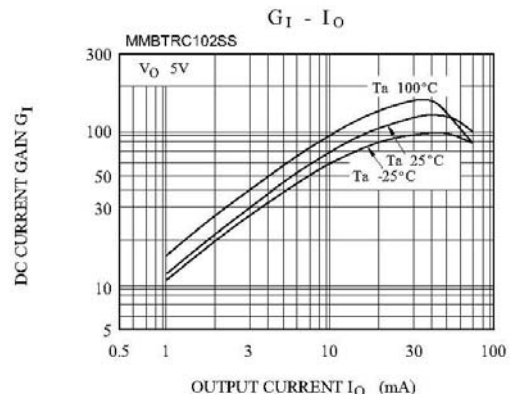
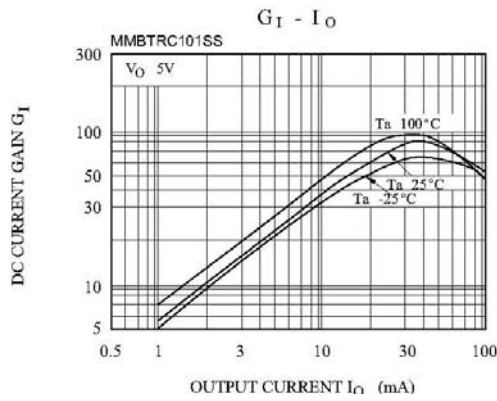


# MMBTRC101SS~MMBTRC106SS NPN Digital Transistor





# MMBTRC101SS~MMBTRC106SS NPN Digital Transistor



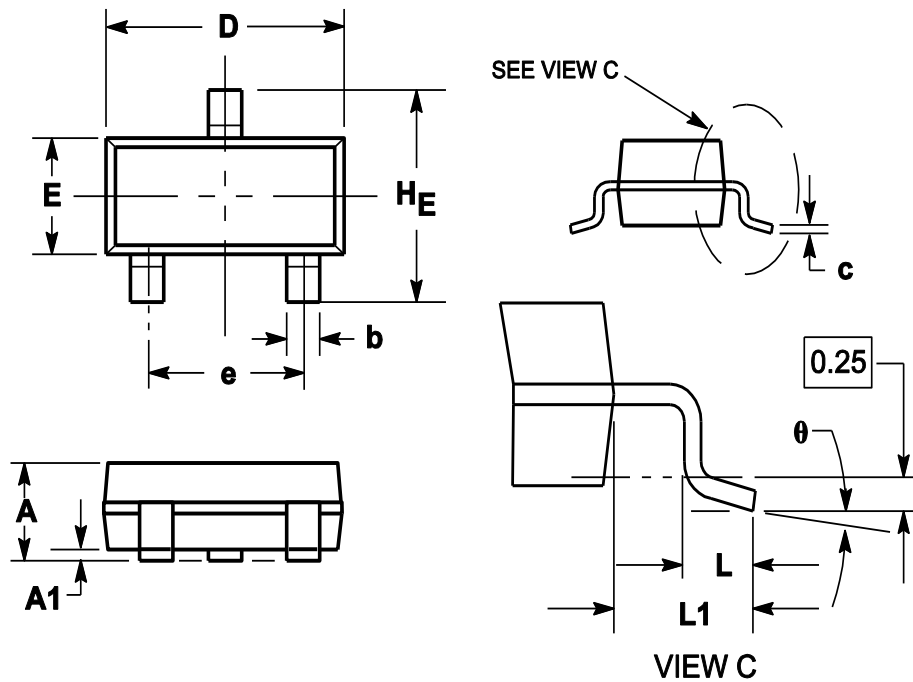


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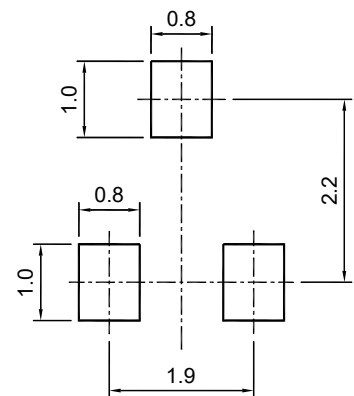
## Package Outline

SOT-23 (TO-236)

Dimensions in mm



Symbol	Dimensions in millimeter		
	Min.	Typ.	Max.
A	0.900	1.025	1.150
A1	0.000	0.050	0.100
b	0.300	0.400	0.500
c	0.080	0.115	0.150
D	2.800	2.900	3.000
E	1.200	1.300	1.400
HE	2.250	2.400	2.550
e	1.800	1.900	2.000
L1	0.550REF		
L	0.300		0.500
$\theta$	0°		8°



SOT-23 (TO-236)

**Recommended soldering pad**