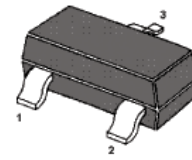
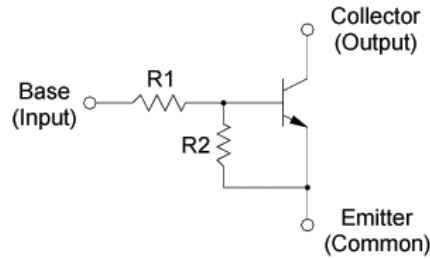


## NPN Silicon Epitaxial Planar Transistor

for switching and interface circuit and drive circuit applications

### Features

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



1. Base 2. Emitter 3. Collector  
SOT-23 Plastic Package

### Resistor Values

Type	R1 (K $\Omega$ )	R2 (K $\Omega$ )
MMBTRC101SS	4.7	4.7
MMBTRC102SS	10	10
MMBTRC103SS	22	22
MMBTRC104SS	47	47
MMBTRC105SS	2.2	47
MMBTRC106SS	4.7	47

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

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	$^\circ\text{C}$

**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

<sup>1)</sup> Characteristic of transistor only.

