

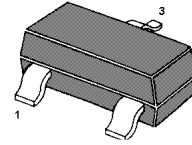
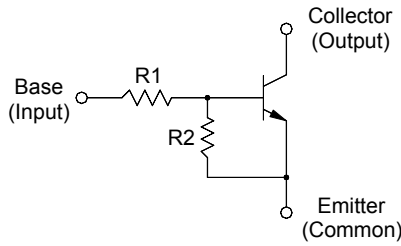
# MMBTRC107SS...MMBTRC109SS

## 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



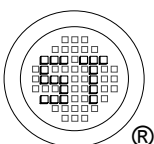
1. Base 2. Emitter 3. Collector  
SOT-23 Plastic Package

### Resistor Values

Type	R1 (KΩ)	R2 (KΩ)
MMBTRC107SS	10	47
MMBTRC108SS	22	47
MMBTRC109SS	47	22

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

Parameter		Symbol	Value	Unit
Output Voltage		$V_o$	50	V
Input Voltage	MMBTRC107SS	$V_i$	30, -6	V
	MMBTRC108SS		40, -7	
	MMBTRC109SS		40, -15	
Output Current		$I_o$	100	mA
Total Power Dissipation		$P_{tot}$	200	mW
Junction Temperature		$T_j$	150	$^\circ\text{C}$
Storage Temperature Range		$T_s$	- 55 to + 150	$^\circ\text{C}$



**SEMTECH ELECTRONICS LTD.**

(Subsidiary of Sino-Tech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002  
Certificate No. 05103



ISO 14001:2004  
Certificate No. 7116



ISO 9001:2000  
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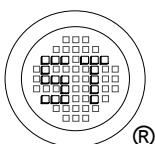
Dated : 13/04/2007

# MMBTRC107SS...MMBTRC109SS

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_O = 5\text{ V}$ , $I_O = 10\text{ mA}$	$G_I$	80	-	-	-
MMBTRC107SS		80	-	-	-
MMBTRC108SS		80	-	-	-
MMBTRC109SS		70	-	-	-
Output Cutoff Current at $V_O = 50\text{ V}$	$I_{O(OFF)}$	-	-	500	nA
Input Current at $V_I = 5\text{ V}$	$I_I$	-	-	0.88	mA
MMBTRC107SS		-	-	0.36	
MMBTRC108SS		-	-	0.16	
MMBTRC109SS		-	-	-	
Output Voltage at $I_O = 10\text{ mA}$ , $I_I = 0.5\text{ mA}$	$V_{O(ON)}$	-	-	0.3	V
Input Voltage (ON) at $V_O = 0.2\text{ V}$ , $I_O = 5\text{ mA}$	$V_{I(ON)}$	-	-	1.8	V
MMBTRC107SS		-	-	2.6	
MMBTRC108SS		-	-	5.8	
MMBTRC109SS		-	-	-	
Input Voltage (OFF) at $V_O = 5\text{ V}$ , $I_O = 0.1\text{ mA}$	$V_{I(OFF)}$	0.5	-	-	V
MMBTRC107SS		0.6	-	-	
MMBTRC108SS		1.5	-	-	
MMBTRC109SS		-	-	-	
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.



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