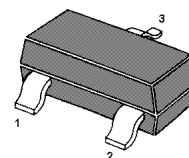
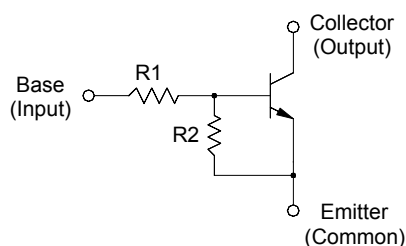


MMBTRC107SS...MMBTRC109SS NPN Silicon Epitaxial Planar Transistor

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 And Mark

Type	R1 (KΩ)	R2 (KΩ)	Marking Code
MMBTRC107SS	10	47	XP
MMBTRC108SS	22	47	XR
MMBTRC109SS	47	22	XD

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	$^\circ\text{C}$

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

Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_O = 5\text{ V}$, $I_O = 10\text{ mA}$	MMBTRC107SS	G_I	80	-	-	-
	MMBTRC108SS		80	-	-	-
	MMBTRC109SS		70	-	-	-
Output Cutoff Current at $V_O = 50\text{ V}$		$I_{O(OFF)}$	-	-	500	nA
Input Current at $V_I = 5\text{ V}$	MMBTRC107SS	I_I	-	-	0.88	mA
	MMBTRC108SS		-	-	0.36	
	MMBTRC109SS		-	-	0.16	
Output Voltage at $I_O = 10\text{ mA}$, $I_I = 0.5\text{ mA}$		$V_{O(ON)}$	-	-	0.3	V
Input Voltage (ON) at $V_O = 0.2\text{ V}$, $I_O = 5\text{ mA}$	MMBTRC107SS	$V_{I(ON)}$	-	-	1.8	V
	MMBTRC108SS		-	-	2.6	
	MMBTRC109SS		-	-	5.8	
Input Voltage (OFF) at $V_O = 5\text{ V}$, $I_O = 0.1\text{ mA}$	MMBTRC107SS	$V_{I(OFF)}$	0.5	-	-	V
	MMBTRC108SS		0.6	-	-	
	MMBTRC109SS		1.5	-	-	
Input Resistance	MMBTRC107SS	R_1	7	10	13	k Ω
	MMBTRC108SS		15.4	22	28.6	
	MMBTRC109SS		32.9	47	61.1	
Resistance ratio	MMBTRC107SS	R_2/R_1	3.7	4.7	5.7	
	MMBTRC108SS		1.7	2.1	2.6	
	MMBTRC109SS		0.37	0.47	0.57	
Transition Frequency at $V_O = 10\text{ V}$, $I_O = 5\text{ mA}$		$f_T^{1)}$	-	200	-	MHz

1) Characteristic of transistor only.

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23

