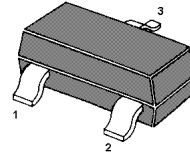
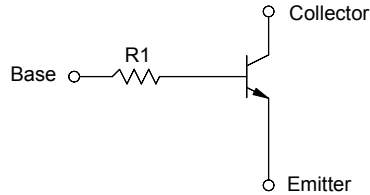


# MMBTRC231S...MMBTRC234S

## NPN Silicon Epitaxial Planar Transistor

For switching, audio muting, interface circuit and driver circuit applications



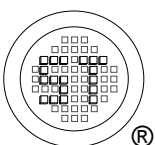
1. Base 2. Emitter 3. Collector  
TO-236 Plastic Package

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	30	V
Collector Emitter Voltage	$V_{CEO}$	15	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	600	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 $V_{CE} = 5\text{ V}$ , $I_C = 50\text{ mA}$	$h_{FE}$	200	-	800	-
Collector Base Breakdown Voltage at $I_C = 50\text{ }\mu\text{A}$	$V_{(BR)CBO}$	30	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	15	-	-	V
Emitter Base Breakdown Voltage at $I_E = 50\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	-	V
Collector Base Cutoff Current at $V_{CB} = 30\text{ V}$	$I_{CBO}$	-	-	0.5	$\mu\text{A}$
Collector Emitter Saturation Voltage at $I_C = 50\text{ mA}$ , $I_B = 2.5\text{ mA}$	$V_{CE(sat)}$	-	-	80	mV
Transition Frequency at $V_{CE} = 10\text{ V}$ , $-I_E = 50\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	-	200	-	MHz
Input Resistor					
	MMBTRC231S		2.2		
	MMBTRC233S	R1	10	-	K $\Omega$
	MMBTRC234S		4.7		



**SEMTECH ELECTRONICS LTD.**



ISO/TS 16949 : 2009  
Certificate No. 160713000

ISO14001 : 2004  
Certificate No. 7116

ISO 9001 : 2008  
Certificate No. 90719410

BS-OHSAS 18001 : 2007  
Certificate No. 7116

IECQ QC 080000  
Certificate No. PRC-18P16-1483