

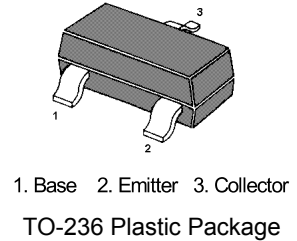
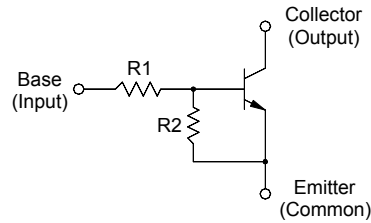
MMBTRC116SS...MMBTRC122SS

NPN Silicon Epitaxial Planar Transistor

for switching, interface circuit and drive circuit applications

Features

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

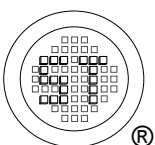


Resistor Values

Type	R1 (KΩ)	R2 (KΩ)
MMBTRC116SS	1	10
MMBTRC117SS	2.2	2.2
MMBTRC118SS	2.2	10
MMBTRC119SS	4.7	10
MMBTRC120SS	10	4.7
MMBTRC121SS	47	10
MMBTRC122SS	100	100

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

Parameter		Symbol	Value	Unit
Output Voltage		V_O	50	V
Input Voltage	MMBTRC116SS	V_I	10, - 5	V
	MMBTRC117SS		12, - 10	
	MMBTRC118SS		12, - 5	
	MMBTRC119SS		20, - 7	
	MMBTRC120SS		30, - 10	
	MMBTRC121SS		40, - 15	
	MMBTRC122SS		40, - 10	
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	$^\circ\text{C}$



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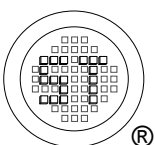
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MMBTRC116SS...MMBTRC122SS

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

Parameter		Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at V _O = 5 V, I _O = 5 mA at V _O = 5 V, I _O = 20 mA at V _O = 5 V, I _O = 10 mA at V _O = 5 V, I _O = 10 mA at V _O = 5 V, I _O = 10 mA at V _O = 5 V, I _O = 5 mA at V _O = 5 V, I _O = 5 mA		G _I	33 20 33 30 24 33 62	- - - - - - -	- - - - - - -	- - - - - - -	
Output Cutoff Current at V _O = 50 V			I _{O(} OFF)	-	-	500	nA
Input Current at V _I = 5 V			I _I	- - - - - - -	- - - - - - -	7.2 3.8 3.8 1.8 0.88 0.16 0.15	mA
MMBT							
M							
B							
T							
R							
C							
Output Voltage at I _O = 10 mA, I _I = 0.5 mA at I _O = 10 mA, I _I = 0.5 mA at I _O = 10 mA, I _I = 0.5 mA at I _O = 10 mA, I _I = 0.5 mA at I _O = 10 mA, I _I = 0.5 mA at I _O = 10 mA, I _I = 0.5 mA at I _O = 5 mA, I _I = 0.25 mA		V _{O(} ON)	- - - - - - -	- - - - - - -	0.3 0.3 0.3 0.3 0.3 0.3 0.3	V	
MMBT							
M							
B							
T							
R							
C							
Input Voltage (ON) at V _O = 0.3 V, I _O = 20 mA at V _O = 0.3 V, I _O = 20 mA at V _O = 0.3 V, I _O = 20 mA at V _O = 0.3 V, I _O = 20 mA at V _O = 0.3 V, I _O = 2 mA at V _O = 0.3 V, I _O = 2 mA at V _O = 0.3 V, I _O = 1 mA		V _{I(} ON)	- - - - - - -	- - - - - - -	3 3 3 2.5 3 5 3	V	
MMBT							
M							
B							
T							
R							
C							
Input Voltage (OFF) at V _{CC} = 5 V, I _O = 100 μA		V _{I(} OFF)	0.3 0.5 0.3 0.3 0.8 1 0.5	- - - - - - -	- - - - - - -	V	
MMBT							
M							
B							
T							
R							
C							
Transition Frequency at V _O = 10 V, I _O = 5 mA		f _T ¹⁾	-	250	-	MHz	

¹⁾ Characteristic of transistor only.



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