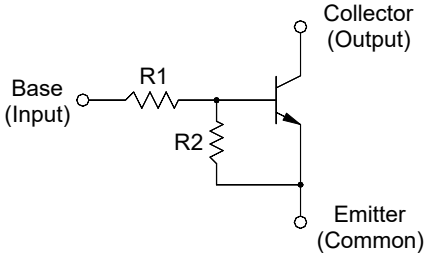
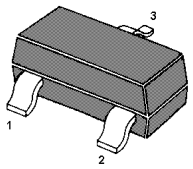
MMBTRC101SS~MMBTRC106SS

NPN Silicon Epitaxial Planar Transistor

for switching and interface circuit and drive circuit applications





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

Features

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

Resistor Values

Type	R1 (KΩ)	R2 (KΩ)
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 °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	°C
Storage Temperature Range		T_{stg}	- 55 to + 150	°C

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Characteristics at T_a = 25℃

Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain						
at V_O = 5 V, I_O = 10 mA	MMBTRC101SS	G_I	30	-	-	-
	MMBTRC102SS		50	-	-	-
	MMBTRC103SS		70	-	-	-
	MMBTRC104SS		80	-	-	-
	MMBTRC105SS		80	-	-	-
	MMBTRC106SS		80	-	-	-
Output Cutoff Current at V_O = 50 V		$I_{O(OFF)}$	-	-	500	nA
Input Current						
at V_I = 5 V	MMBTRC101SS	I_I	-	-	1.8	mA
	MMBTRC102SS		-	-	0.88	
	MMBTRC103SS		-	-	0.36	
	MMBTRC104SS		-	-	0.18	
	MMBTRC105SS		-	-	3.6	
	MMBTRC106SS		-	-	1.8	
Output Voltage at I_O = 10 mA, I_I = 0.5 mA		$V_{O(ON)}$	-	-	0.3	V
Input Voltage (ON)						
at V_O = 0.2 V, I_O = 5 mA	MMBTRC101SS	$V_{I(ON)}$	-	-	2	V
	MMBTRC102SS		-	-	2.4	
	MMBTRC103SS		-	-	3	
	MMBTRC104SS		-	-	5	
	MMBTRC105SS		-	-	1.1	
	MMBTRC106SS		-	-	1.3	
Input Voltage (OFF)						
at V_O = 5 V, I_O = 0.1 mA	MMBTRC101SS~104SS	$V_{I(OFF)}$	1	-	-	V
	MMBTRC105SS~106SS		0.5	-	-	
Transition Frequency at V_O = 10 V, I_O = 5 mA		f_T [1)]	-	200	-	MHz

[1)] Characteristic of transistor only.

Electrical Characteristics Curves（MMBTRC104SS）

Fig 1. Output Current Vs. Input Voltage

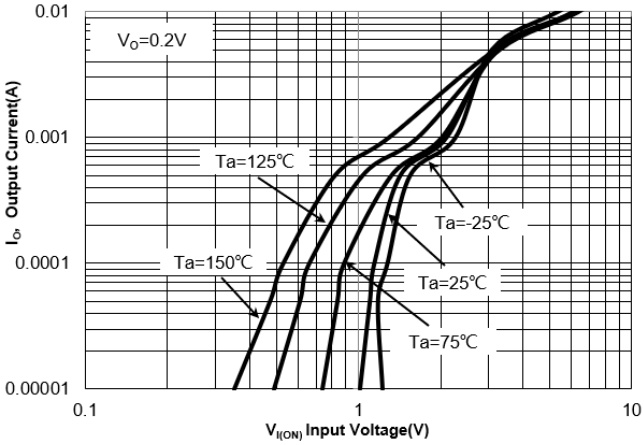


Fig 2. Output Current Vs. Input Voltage

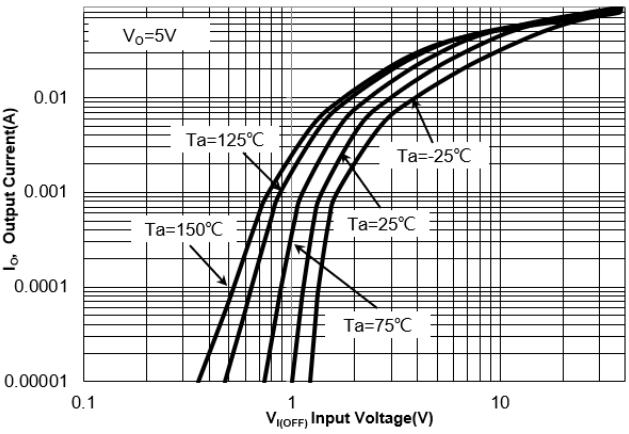


Fig 3. DC Current Gain Vs. Output Current

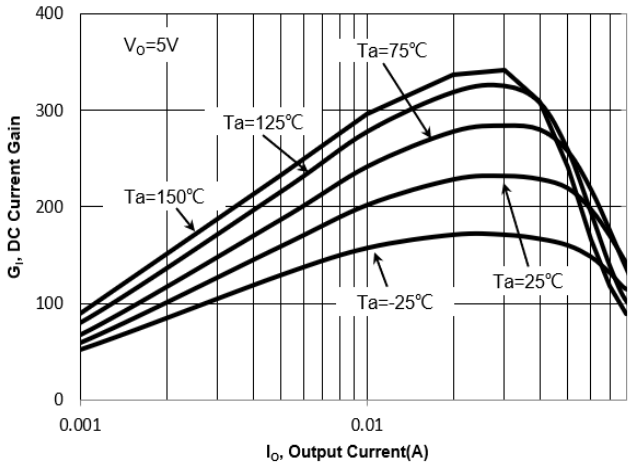


Fig 4. Output Voltage Vs. Output Current

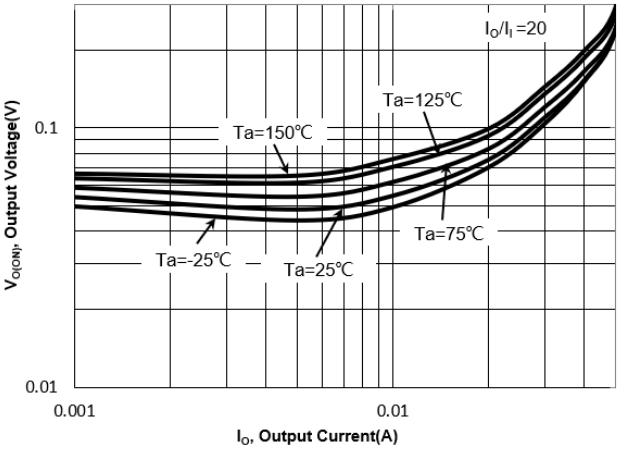
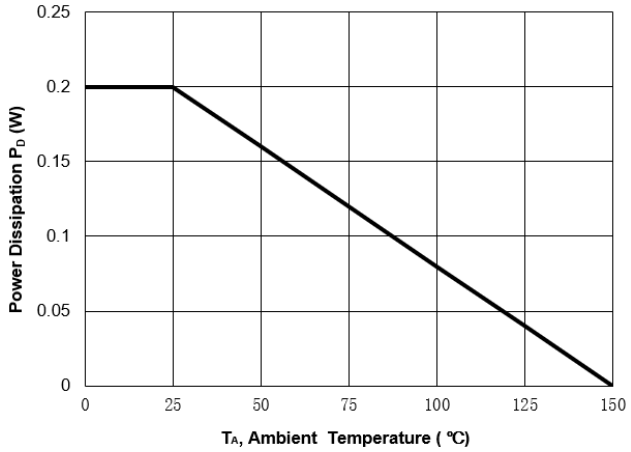
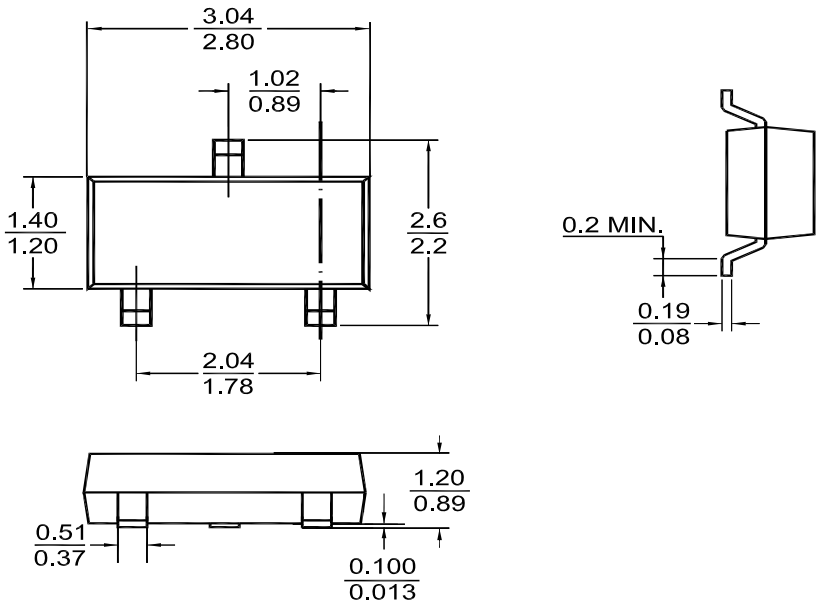


Fig 5. Power Derating Curve

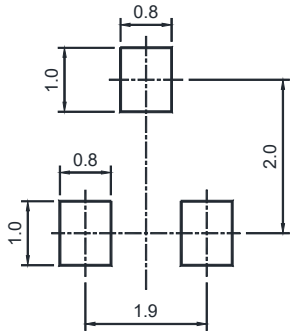


PACKAGE OUTLINE

Plastic surface mounted package (Dimensions in mm) **TO-236**



Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
TO-236	8	4 ± 0.1	0.157 ± 0.004	178	7	3,000

Marking information

" ** " = Part No.

MMBTRC101SS:HP MMBTRC102SS:HN

MMBTRC103SS:HR MMBTRC104SS:HX

MMBTRC105SS:HY MMBTRC106SS:HZ

"YM" = Date Code Marking

"Y" = Year

"M" = Month

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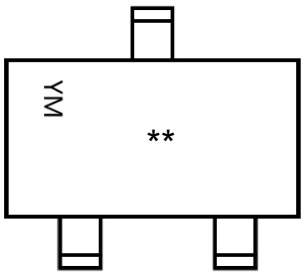

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