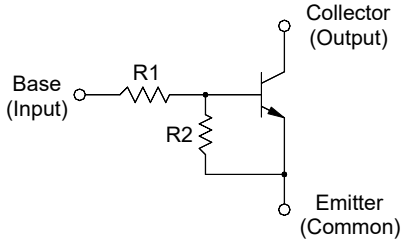
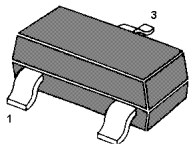
MMBTRC107SS~MMBTRC109SS

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)
MMBTRC107SS	10	47
MMBTRC108SS	22	47
MMBTRC109SS	47	22

Absolute Maximum Ratings (T_a = 25 ℃)

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	℃
Storage Temperature Range		T_{Stg}	- 55 to + 150	℃

Dated: 22/02/2021 Rev: 02

Characteristics at T_a = 25 ℃

Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_O = 5 V, I_O = 10 mA	MMBTRC107SS MMBTRC108SS MMBTRC109SS	G_I	80 80 70	- - -	- - -	- - -
Output Cutoff Current at V_O = 50 V		$I_{O(OFF)}$	-	-	500	nA
Input Current at V_I = 5 V	MMBTRC107SS MMBTRC108SS MMBTRC109SS	I_I	- - -	- - -	0.88 0.36 0.16	mA
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	MMBTRC107SS MMBTRC108SS MMBTRC109SS	$V_{I(ON)}$	- - -	- - -	1.8 2.6 5.8	V
Input Voltage (OFF) at V_O = 5 V, I_O = 0.1 mA	MMBTRC107SS MMBTRC108SS MMBTRC109SS	$V_{I(OFF)}$	0.5 0.6 1.5	- - -	- - -	V
Transition Frequency at V_O = 10 V, I_O = 5 mA		f_T [1)]	-	200	-	MHz

[1)] Characteristic of transistor only.

Electrical Characteristics Curves（MMBTRC108SS）

Fig 1. Output Current Vs. Input Voltage

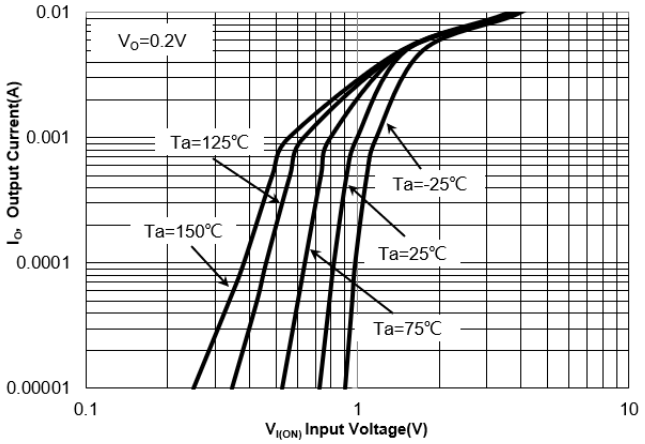


Fig 2. Output Current Vs. Input Voltage

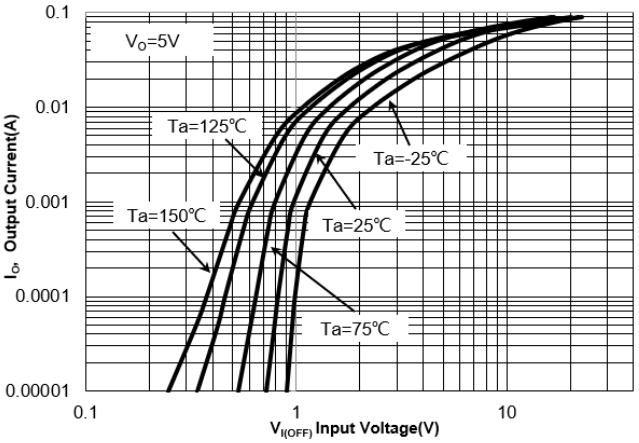


Fig 3. DC Current Gain Vs. Output Current

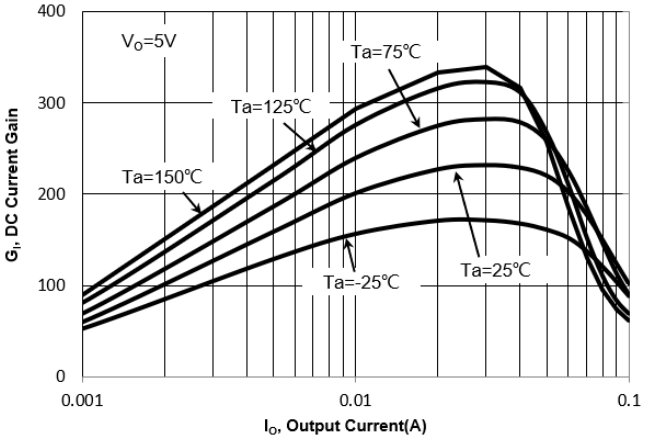


Fig 4. Output Voltage Vs. Output Current

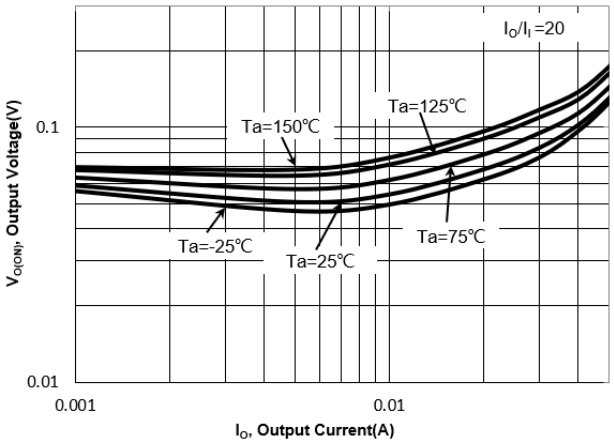
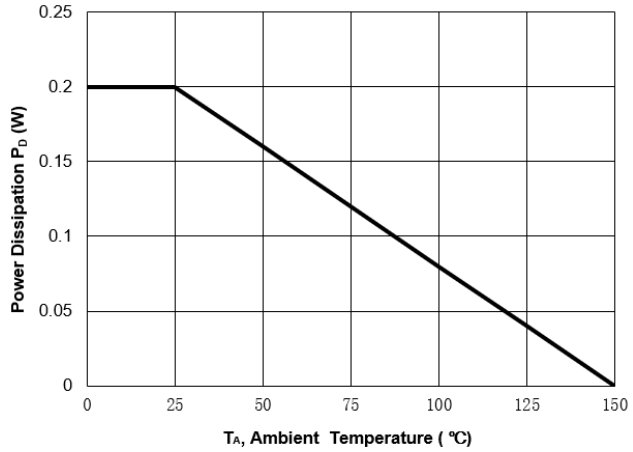
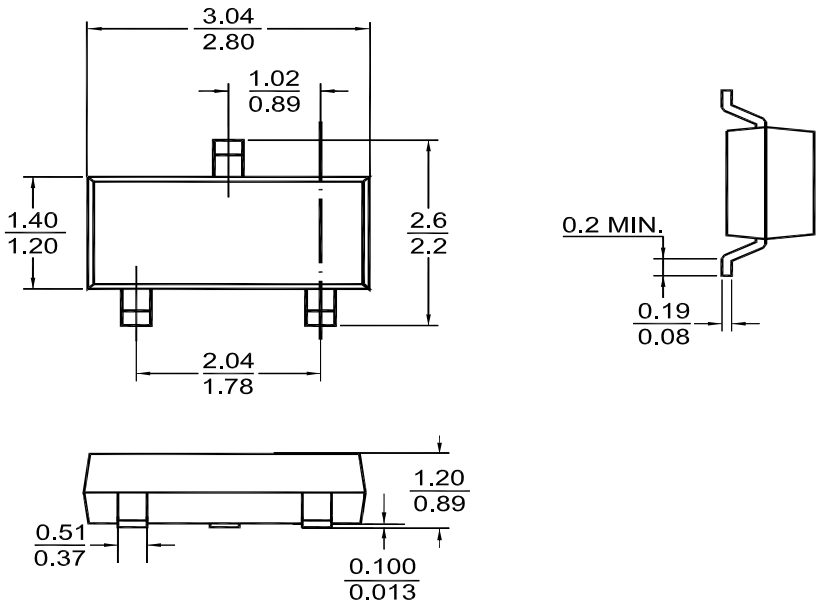


Fig 5. Power Derating Curve

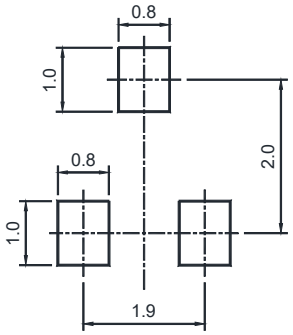


PACKAGE OUTLINE

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



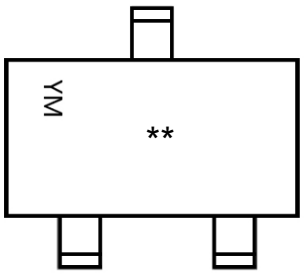
Recommended Soldering Footprint



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.

MMBTRC107SS:XP

MMBTRC108SS:XR

MMBTRC109SS:XX

"YM" = Date Code Marking

"Y" = Year

"M" = Month

Font type: Arial