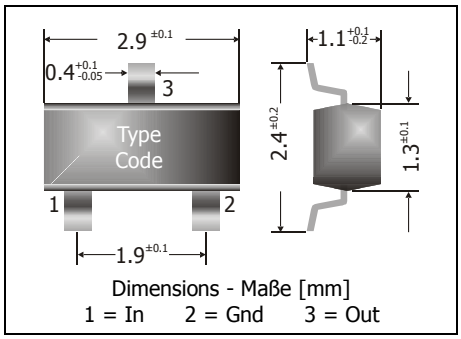
MMBTRC116SS ... MMBTRC121SS

NPN — **Surface Mount Bias Resistor Transistors**
SMD Transistoren mit Eingangsspannungsteiler — **NPN**

Version 2015-05-12



Dimensions - Maße [mm]
1 = In 2 = Gnd 3 = Out

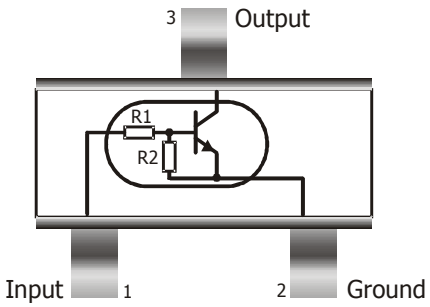
Power dissipation – Verlustleistung	200 mW
Plastic case Kunststoffgehäuse	SOT-23 (TO-236)
Weight approx. – Gewicht ca.	0.01 g

Plastic material has UL classification 94V-0
Gehäusematerial UL94V-0 klassifiziert

Standard packaging taped and reeled
Standard Lieferform gegurtet auf Rolle

Maximum ratings and characteristics (T_A = 25°C) — **Grenz- und Kennwerte (T_A = 25°C)**

		R1 [kΩ]	R2 [kΩ]
Resistor combinations – Widerstandskombinationen			
	MMBTRC116SS	1	10
	MMBTRC117SS	2.2	2.2
	MMBTRC118SS	2.2	10
	MMBTRC119SS	4.7	10
	MMBTRC120SS	10	4.7
	MMBTRC121SS	47	10
Input-voltage – Eingangs-Spannung	V_I		
	MMBTRC116SS	-5 ... +10 V	
	MMBTRC117SS	-10 ... +12 V	
	MMBTRC118SS	-5 ... +12 V	
	MMBTRC119SS	-7 ... +20 V	
	MMBTRC120SS	-10 ... +30 V	
	MMBTRC121SS	-15 ... +40 V	
Output voltage – Ausgangs-Spannung	V_O	50 V	
Output current – Ausgangs-Strom	I_O	100 mA	
Power dissipation – Verlustleistung	P_{tot}	200 mW [1])	
Junction temperature – Sperrschichttemperatur Storage temperature – Lagerungstemperatur	T_j T_S	-55...+150°C -55...+150°C	



1 Valid, if leads are kept at ambient temperature at a distance of 2 mm from case
Gültig wenn die Anschlussdrähte in 2 mm Abstand vom Gehäuse auf Umgebungstemperatur gehalten werden

Characteristics (T_j = 25°C) **Kennwerte (T_j = 25°C)**

		Min.	Typ.	Max.
DC current gain – Kollektor-Basis-Stromverhältnis [1])	G_I			
V_O = 5 V, I_O = 10 mA	MMBTRC116SS	33	–	–
	MMBTRC117SS	20	–	–
	MMBTRC118SS	33	–	–
	MMBTRC119SS	30	–	–
	MMBTRC120SS	24	–	–
	MMBTRC121SS	33	–	–
Output cutoff current – Ausgangs-Reststrom	$I_{O(off)}$	–	–	500 nA
Input current – Eingangsstrom	I_I			
V_I = 5 V	MMBTRC116SS	–	–	7.2 mA
	MMBTRC117SS	–	–	3.8 mA
	MMBTRC118SS	–	–	3.8 mA
	MMBTRC119SS	–	–	1.8 mA
	MMBTRC120SS	–	–	0.88 mA
	MMBTRC121SS	–	–	0.16 mA
Output voltage – Ausgangs-Spannung	$V_{O(on)}$	–	–	0.3 V
Input voltage (on) – Eingangsspannung (Ein)	$V_{I(on)}$			
V_O = 0.3 V, I_O = 20 mA	MMBTRC116SS	–	–	3 V
V_O = 0.3 V, I_O = 20 mA	MMBTRC117SS	–	–	3 V
V_O = 0.3 V, I_O = 20 mA	MMBTRC118SS	–	–	3 V
V_O = 0.3 V, I_O = 20 mA	MMBTRC119SS	–	–	2.5 V
V_O = 0.3 V, I_O = 2 mA	MMBTRC120SS	–	–	3 V
V_O = 0.3 V, I_O = 2 mA	MMBTRC121SS	–	–	5 V
Input resistor tolerance – Toleranz Eingangswiderstand	R1	-30%		+30%
Input voltage (off) – Eingangs-Spannung (Aus)	$V_{I(off)}$			
V_O = 5 V, I_O = 0.1 mA	MMBTRC116SS	0.3		
	MMBTRC117SS	0.5		
	MMBTRC118SS	0.3		
	MMBTRC119SS	0.3		
	MMBTRC120SS	0.8		
	MMBTRC121SS	1		
Transition Frequency – Transitfrequenz (Transistor)				
V_O = 10 V, I_O = 5 mA	f_T	–	250 MHz	–

1 Tested with pulses t_p = 300 µs, duty cycle ≤ 2% – Gemessen mit Impulsen t_p = 300 µs, Schaltverhältnis ≤ 2%