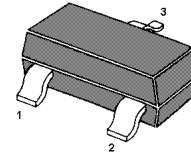


**NPN Silicon Epitaxial Planar Transistor**

for switching and AF amplifier applications.

The transistor is subdivided into four groups O, Y, G and L, according to its DC current gain. As complementary type the PNP transistor MMBTSA1015 is recommended.


 1. Base 2. Emitter 3. Collector  
SOT-23 Plastic Package

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	60	V
Collector Emitter Voltage	$V_{CEO}$	50	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	150	mA
Base Current	$I_B$	50	mA
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  $T_{amb}=25^\circ\text{C}$** 

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $V_{CE}=6\text{V}$ , $I_C=2\text{mA}$  Current Gain Group  at $V_{CE}=6\text{V}$ , $I_C=150\text{mA}$	O	$h_{FE}$	70	-	140	-
	Y	$h_{FE}$	120	-	240	-
	G	$h_{FE}$	200	-	400	-
	L	$h_{FE}$	350	-	700	-
		$h_{FE}$	25	-	-	-
Collector Saturation Voltage at $I_C=100\text{mA}$ , $I_B=10\text{mA}$	$V_{CE(sat)}$	-	-	0.25	V	
Base Saturation Voltage at $I_C=100\text{mA}$ , $I_B=10\text{mA}$	$V_{BE(sat)}$	-	-	1	V	
Collector Cutoff Current at $V_{CB}=60\text{V}$ at $V_{EB}=5\text{V}$	$I_{CBO}$	-	-	0.1	$\mu\text{A}$	
	$I_{EBO}$	-	-	0.1	$\mu\text{A}$	
Gain Bandwidth Product at $V_{CE}=10\text{V}$ , $I_C=1\text{mA}$	$f_T$	80	-	-	MHz	
Output Capacitance at $V_{CB}=10\text{V}$ , $f=1\text{MHz}$	$C_{OB}$	-	2	3	pF	
Noise Figure at $V_{CE}=6\text{V}$ , $I_C=0.1\text{mA}$ , $f=1\text{KHz}$ , $R_G=10\text{K}\Omega$	NF	-	1	1	dB	

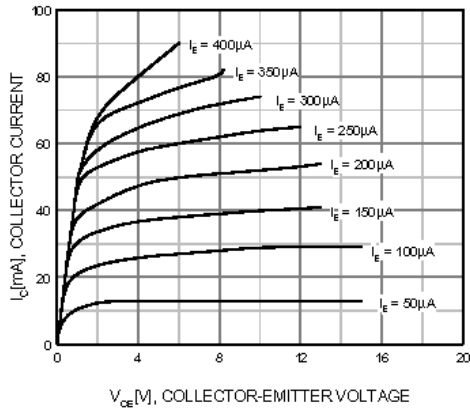


Figure 1. Static Characteristic

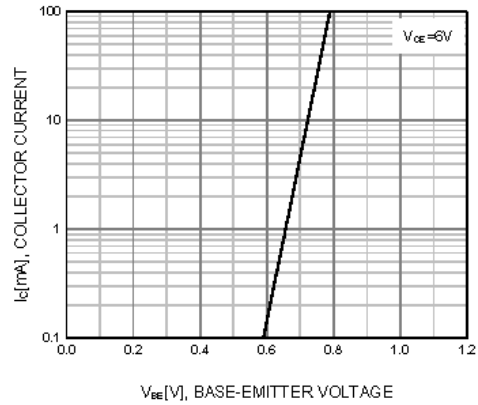


Figure 2. Transfer Characteristic

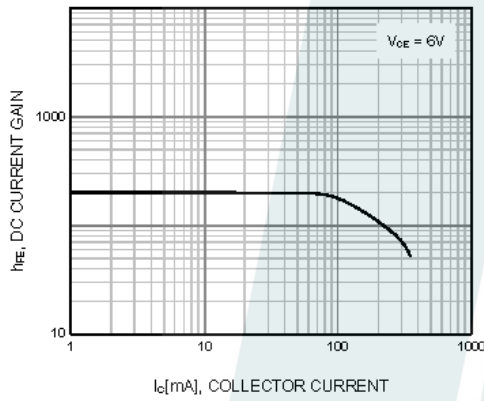


Figure 3. DC current Gain

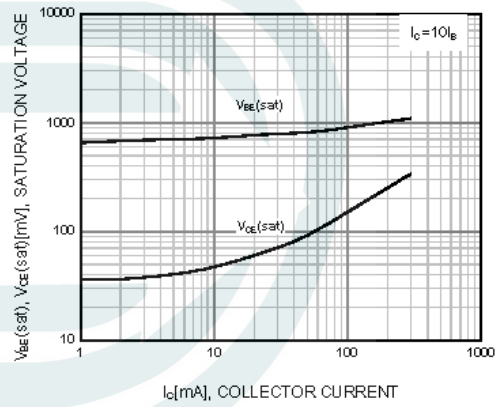


Figure 4. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

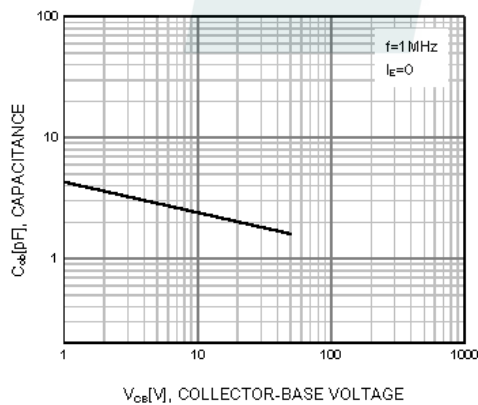


Figure 5. Output Capacitance

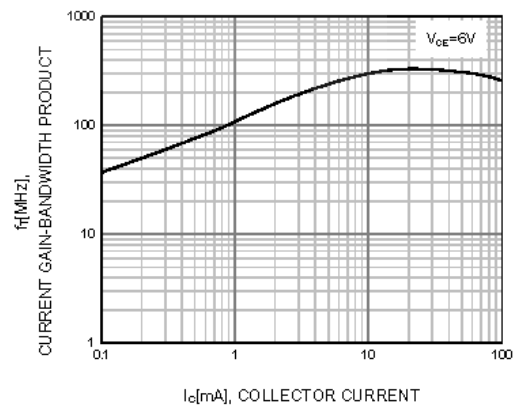


Figure 6. Current Gain Bandwidth Product

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