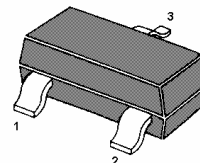


NPN Silicon Epitaxial Planar Transistor

for switching and AF amplifier applications

As complementary types the PNP transistor MMBT9015 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}	50	V
Collector Emitter Voltage	V_{CEO}	45	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current	I_C	100	mA
Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_s	- 55 to + 150	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $V_{CE} = 5\text{ V}$, $I_C = 1\text{ mA}$	MMBT9014B h_{FE}	110	220	-
	MMBT9014C h_{FE}	200	450	-
	MMBT9014D h_{FE}	420	800	-
Collector Cutoff Current at $V_{CB} = 50\text{ V}$	I_{CBO}	-	50	nA
Emitter Cutoff Current at $V_{EB} = 5\text{ V}$	I_{EBO}	-	50	nA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	50	-	V
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	45	-	V
Emitter Base Breakdown Voltage at $I_E = 100\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	V
Collector Emitter Saturation Voltage at $I_C = 100\text{ mA}$, $I_B = 5\text{ mA}$	$V_{CE(sat)}$	-	0.6	V
Base Emitter Saturation Voltage at $I_C = 100\text{ mA}$, $I_B = 5\text{ mA}$	$V_{BE(sat)}$	-	1	V
Gain Bandwidth Product at $V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$	f_T	100	-	MHz
Output Capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{OB}	-	6	pF
Noise Figure at $V_{CE} = 5\text{ V}$, $I_C = 200\text{ }\mu\text{A}$, $f = 1\text{ KHz}$, $R_G = 2\text{ K}\Omega$	NF	-	10	dB

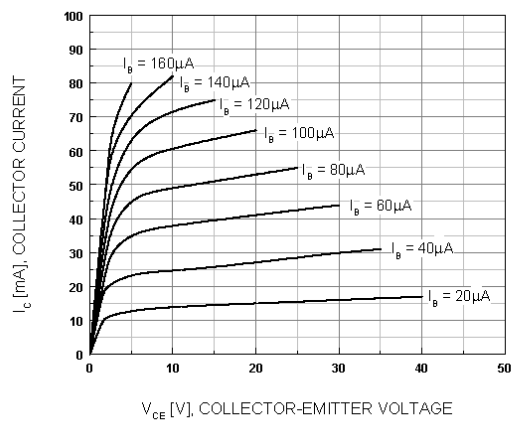


Figure 1. Static Characteristic

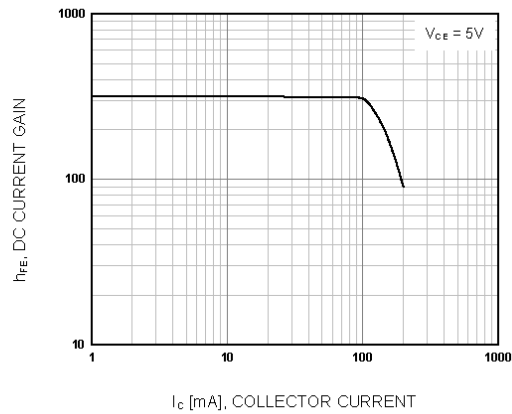


Figure 2. DC current Gain

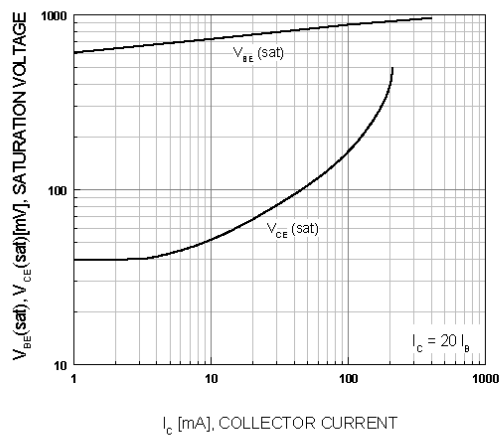


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

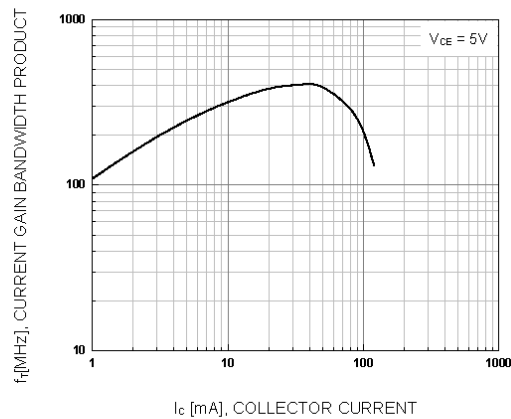


Figure 4. Current Gain Bandwidth Product