

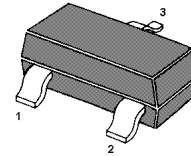
# MMBT2907 / MMBT2907A



## PNP Silicon Epitaxial Planar Transistor

for switching and AF amplifier applications.

The transistor is subdivided into one group according to its DC current gain.



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

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

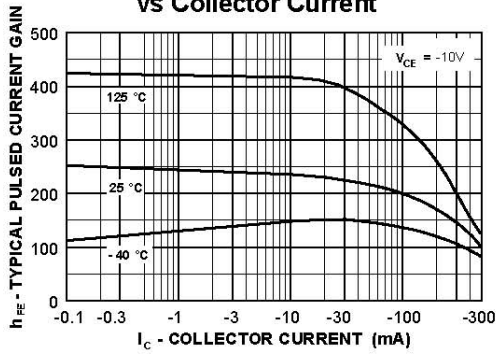
Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	60	V
Collector Emitter Voltage	$-V_{CEO}$	40 60	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	600	mA
Power Dissipation	$P_{tot}$	350	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

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

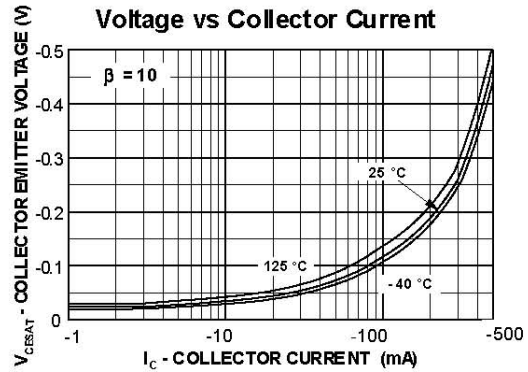
Parameter	Symbol	Min.	Max.	Unit	
DC Current Gain at $-I_C = 0.1\text{ mA}$ , $-V_{CE} = 10\text{ V}$ at $-I_C = 1\text{ mA}$ , $-V_{CE} = 10\text{ V}$ at $-I_C = 10\text{ mA}$ , $-V_{CE} = 10\text{ V}$ at $-I_C = 150\text{ mA}$ , $-V_{CE} = 10\text{ V}$ at $-I_C = 500\text{ mA}$ , $-V_{CE} = 10\text{ V}$	MMBT2907 MMBT2907A	$h_{FE}$ $h_{FE}$	35 75	- -	- -
	MMBT2907 MMBT2907A	$h_{FE}$ $h_{FE}$	50 100	- -	- -
	MMBT2907 MMBT2907A	$h_{FE}$ $h_{FE}$	75 100	- -	- -
	MMBT2907	$h_{FE}$	100	300	-
	MMBT2907	$h_{FE}$	30	-	-
	MMBT2907A	$h_{FE}$	50	-	-
Collector Base Cutoff Current at $-V_{CB} = 50\text{ V}$	MMBT2907	$-I_{CBO}$	-	20	nA
	MMBT2907A	$-I_{CBO}$	-	10	nA
Collector Base Breakdown Voltage at $-I_C = 10\text{ }\mu\text{A}$		$-V_{(BR)CBO}$	60	-	V
Collector Emitter Breakdown Voltage at $-I_C = 10\text{ mA}$	MMBT2907	$-V_{(BR)CEO}$	40	-	V
	MMBT2907A	$-V_{(BR)CEO}$	60	-	V
Emitter Base Breakdown Voltage at $-I_E = 10\text{ }\mu\text{A}$		$-V_{(BR)EBO}$	5	-	V
Collector Saturation Voltage at $-I_C = 150\text{ mA}$ , $-I_B = 15\text{ mA}$ at $-I_C = 500\text{ mA}$ , $-I_B = 50\text{ mA}$		$-V_{CE(sat)}$	-	0.4	V
		$-V_{CE(sat)}$	-	1.6	V
Base Saturation Voltage at $-I_C = 150\text{ mA}$ , $-I_B = 15\text{ mA}$ at $-I_C = 500\text{ mA}$ , $-I_B = 50\text{ mA}$		$-V_{BE(sat)}$	-	1.3	V
		$-V_{BE(sat)}$	-	2.6	V
Gain Bandwidth Product at $-I_C = 50\text{ mA}$ , $-V_{CE} = 20\text{ V}$ , $f = 100\text{ MHz}$		$f_T$	200	-	MHz
Collector Output Capacitance at $-V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$		$C_{ob}$	-	8	pF
Turn-on Time at $-V_{CC} = 30\text{ V}$ , $-I_C = 150\text{ mA}$ , $-I_{B1} = 15\text{ mA}$		$t_{on}$	-	45	ns
Delay Time at $-V_{CC} = 30\text{ V}$ , $-I_C = 150\text{ mA}$ , $-I_{B1} = 15\text{ mA}$		$t_d$	-	10	ns
Rise Time at $-V_{CC} = 30\text{ V}$ , $-I_C = 150\text{ mA}$ , $-I_{B1} = 15\text{ mA}$		$t_r$	-	40	ns
Turn-off Time at $-V_{CC} = 6\text{ V}$ , $-I_C = 150\text{ mA}$ , $-I_{B1} = -I_{B2} = 15\text{ mA}$		$t_{off}$	-	100	ns
Storage Time at $-V_{CC} = 6\text{ V}$ , $-I_C = 150\text{ mA}$ , $-I_{B1} = -I_{B2} = 15\text{ mA}$		$t_s$	-	80	ns
Fall Time at $-V_{CC} = 6\text{ V}$ , $-I_C = 150\text{ mA}$ , $-I_{B1} = -I_{B2} = 15\text{ mA}$		$t_f$	-	30	ns



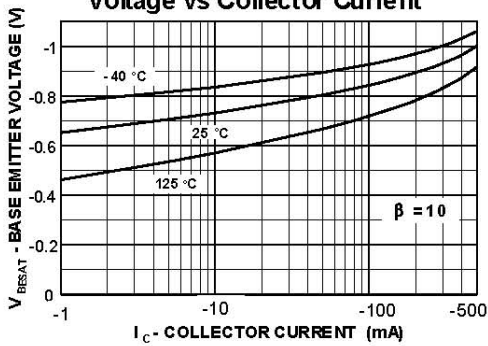
Typical Pulsed Current Gain vs Collector Current



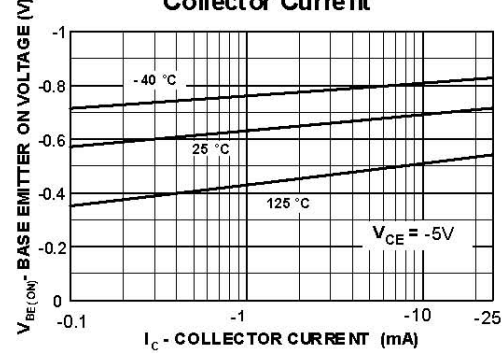
Collector-Emitter Saturation Voltage vs Collector Current



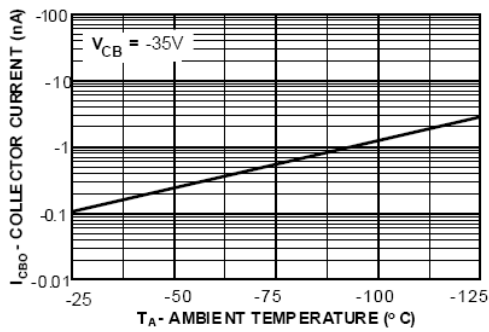
Base-Emitter Saturation Voltage vs Collector Current



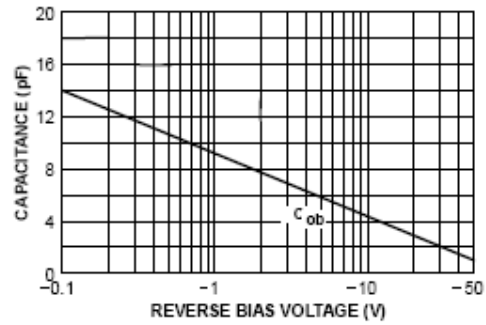
Base Emitter ON Voltage vs Collector Current



Collector-Cutoff Current vs Ambient Temperature



Input and Output Capacitance vs Reverse Bias Voltage



PC-Ta

