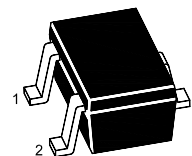


## MMBT2907W / MMBT2907AW

**PNP Silicon Epitaxial Planar Medium Power Transistor**  
for switching and amplifier applications



1.Base 2.Emitter 3.Collector  
SOT-323 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
Total Power Dissipation	$P_{tot}$	200	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

## MMBT2907W / MMBT2907AW

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

Parameter	Symbol	Min.	Max.	Unit	
DC Current Gain at $-V_{CE} = 10\text{ V}$ , $-I_C = 0.1\text{ mA}$	MMBT2907W	$h_{FE}$	35	-	-
	MMBT2907AW	$h_{FE}$	75	-	-
at $-V_{CE} = 10\text{ V}$ , $-I_C = 1\text{ mA}$	MMBT2907W	$h_{FE}$	50	-	-
	MMBT2907AW	$h_{FE}$	100	-	-
at $-V_{CE} = 10\text{ V}$ , $-I_C = 10\text{ mA}$	MMBT2907W	$h_{FE}$	75	-	-
	MMBT2907AW	$h_{FE}$	100	-	-
at $-V_{CE} = 10\text{ V}$ , $-I_C = 150\text{ mA}$	MMBT2907W	$h_{FE}$	100	300	-
	MMBT2907AW	$h_{FE}$	30	-	-
at $-V_{CE} = 10\text{ V}$ , $-I_C = 500\text{ mA}$	MMBT2907W	$h_{FE}$	50	-	-
	MMBT2907AW	$h_{FE}$	-	-	-
Collector Base Cutoff Current at $-V_{CB} = 50\text{ V}$	$-I_{CBO}$	-	100	nA	
Collector Emitter Cutoff Current at $-V_{CE} = 30\text{ V}$	$-I_{CES}$	-	100	nA	
Emitter Base Cutoff Current at $-V_{EB} = 3\text{ V}$	$-I_{EBO}$	-	100	nA	
Collector Base Breakdown Voltage at $-I_C = 10\text{ }\mu\text{A}$	$-V_{(BR)CBO}$	60	-	V	
Collector Emitter Breakdown Voltage at $-I_C = 10\text{ mA}$	MMBT2907W MMBT2907AW	$-V_{(BR)CEO}$	40	-	V
			60	-	
Emitter Base Breakdown Voltage at $-I_E = 10\text{ }\mu\text{A}$	$-V_{(BR)EBO}$	5	-	V	
Collector Emitter 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	
		-	1.6		
Base Emitter 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	
		-	2.6		
Transition Frequency at $-V_{CE} = 20\text{ V}$ , $I_E = 50\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	200	-	MHz	
Collector Output Capacitance at $-V_{CB} = 10\text{ V}$ , $f = 100\text{ KHz}$	$C_{ob}$	-	8	pF	
Turn-on Time at $-V_{CC} = 30\text{ V}$ , $-V_{BE(OFF)} = 1.5\text{ V}$ , $-I_C = 150\text{ mA}$ , $-I_{B1} = 15\text{ mA}$	$t_{on}$	-	50	ns	
Delay Time at $-V_{CC} = 30\text{ V}$ , $-V_{BE(OFF)} = 1.5\text{ V}$ , $-I_C = 150\text{ mA}$ , $-I_{B1} = 15\text{ mA}$	$t_d$	-	10	ns	
Rise Time at $-V_{CC} = 30\text{ V}$ , $-V_{BE(OFF)} = 1.5\text{ V}$ , $-I_C = 150\text{ mA}$ , $-I_{B1} = 15\text{ mA}$	$t_r$	-	40	ns	
Turn-off Time at $-V_{CC} = 30\text{ V}$ , $-I_C = 150\text{ mA}$ , $I_{B1} = I_{B2} = -15\text{ mA}$	$t_{off}$	-	100	ns	
Storage Time at $-V_{CC} = 30\text{ V}$ , $-I_C = 150\text{ mA}$ , $I_{B1} = I_{B2} = -15\text{ mA}$	$t_{stg}$	-	80	ns	
Fall Time at $-V_{CC} = 30\text{ V}$ , $-I_C = 150\text{ mA}$ , $I_{B1} = I_{B2} = -15\text{ mA}$	$t_f$	-	30	ns	

## MMBT2907W / MMBT2907AW

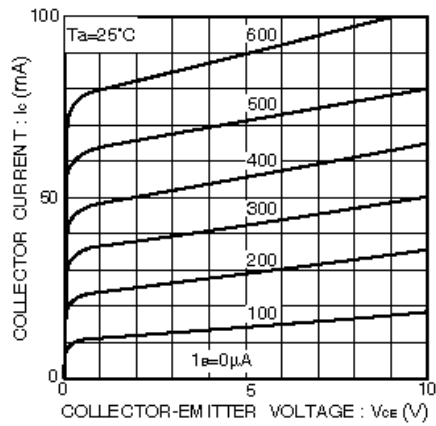


Fig.1 Grounded emitter output characteristics

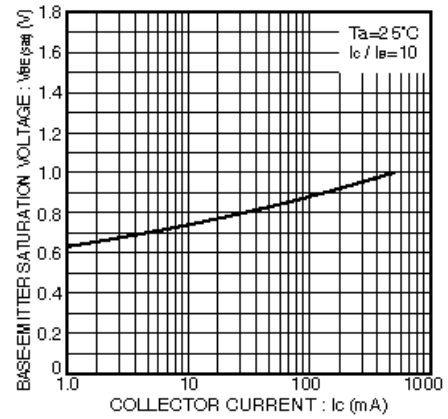


Fig.2 Base-emitter saturation voltage vs. collector current

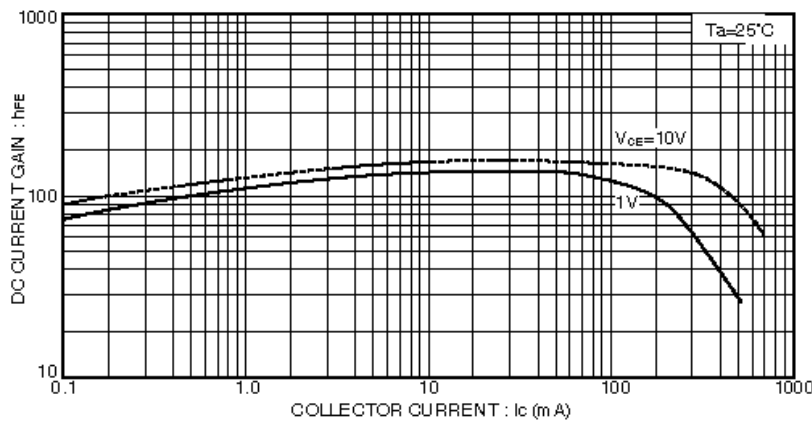


Fig.3 DC current gain vs. collector current (I)

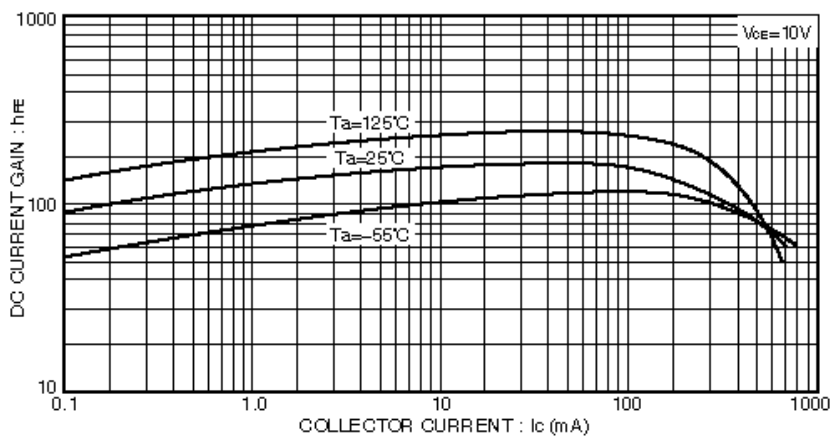


Fig.4 DC current gain vs. collector current (II)

## MMBT2907W / MMBT2907AW

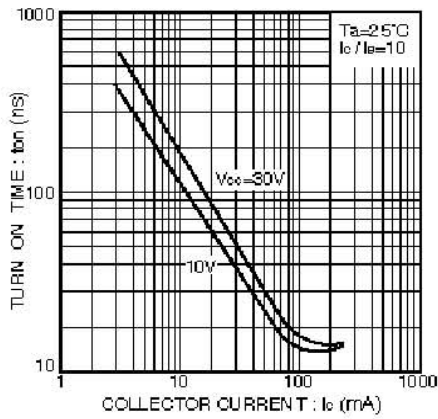


Fig.5 Turn-on time vs. collector current

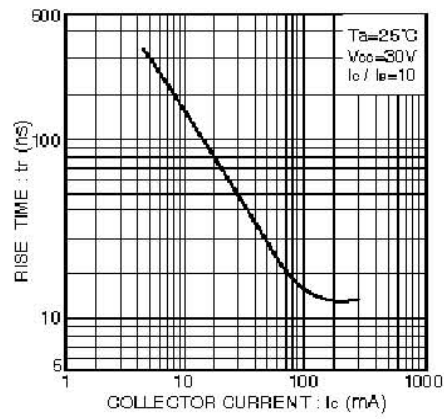


Fig.6 Rise time vs. collector current

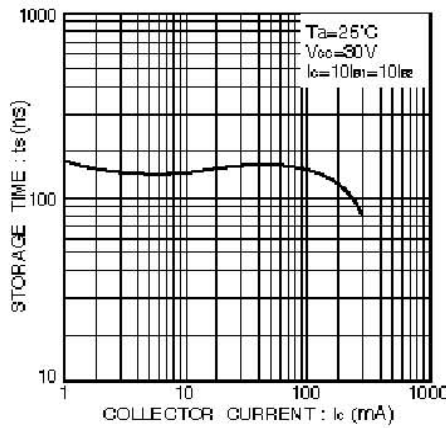


Fig.7 Storage time vs. collector current

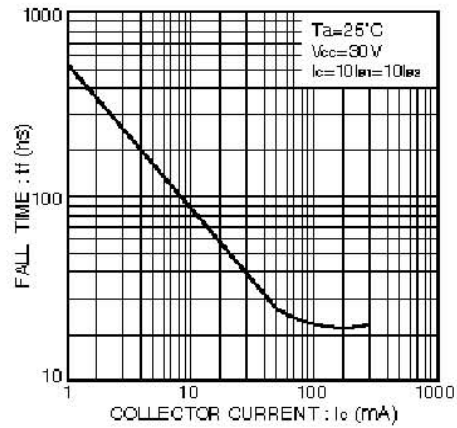


Fig.8 Fall time vs. collector current

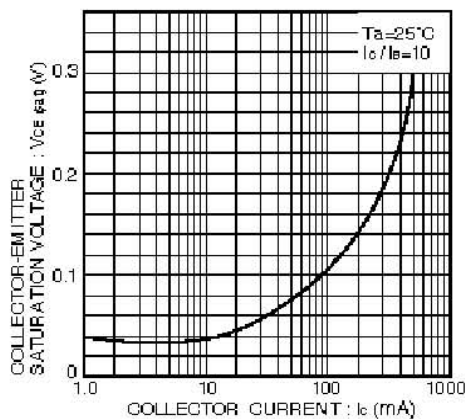


Fig.9 Collector-emitter saturation voltage vs. collector current

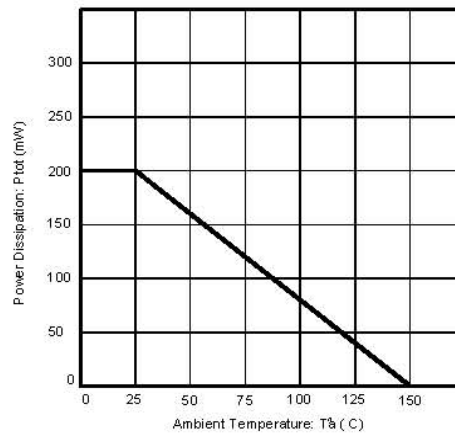


Fig.10 Power Dissipation vs. Ambient Temperature