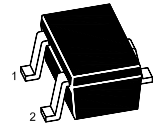


# MMBT2907W / MMBT2907AW

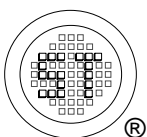
**PNP Silicon Epitaxial Planar Medium Power Transistor**  
for switching and amplifier applications



1.Base 2.Emitter 3.Collector  
SOT-323 Plastic Package

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

Parameter	Symbol	Value		Unit
		MMBT2907W	MMBT2907AW	
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	$T_s$	-55 to +150		$^\circ\text{C}$



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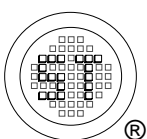


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# MMBT2907W / MMBT2907AW

## 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 $-V_{CE} = 10\text{ V}$ , $-I_C = 150\text{ mA}$	$h_{FE}$	100	300	-
at $-V_{CE} = 10\text{ V}$ , $-I_C = 500\text{ mA}$	MMBT2907W $h_{FE}$	30	-	-
	MMBT2907AW $h_{FE}$	50	-	-
Collector Base Voltage at $-I_C = 10\text{ }\mu\text{A}$	$-V_{CBO}$	60	-	V
Collector Emitter Voltage at $-I_C = 10\text{ mA}$	MMBT2907W MMBT2907AW $-V_{CEO}$	40 60	-	V
Emitter Base Voltage at $-I_E = 10\text{ }\mu\text{A}$	$-V_{EBO}$	5	-	V
Collector Base Cutoff Current at $-V_{CB} = 50\text{ V}$	$-I_{CBO}$	-	100	nA
Collector Emitter Cutoff Current at $-V_{CB} = 30\text{ V}$	$-I_{CES}$	-	100	nA
Emitter Base Cutoff Current at $-V_{EB} = 3\text{ V}$	$-I_{EBO}$	-	100	nA
Collector Emitter Saturation Voltage at $-I_C = 150\text{ mA}$ , $-I_B = 15\text{ mA}$ $-I_C = 500\text{ mA}$ , $-I_B = 50\text{ mA}$	$-V_{CE(sat)}$	- -	0.4 1.6	V
Base Emitter Saturation Voltage at $-I_C = 150\text{ mA}$ , $-I_B = 15\text{ mA}$ $-I_C = 500\text{ mA}$ , $-I_B = 50\text{ mA}$	$-V_{BE(sat)}$	- -	1.3 2.6	V
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
Emitter Input Capacitance at $-V_{EB} = 2\text{ V}$ , $f = 100\text{ KHz}$	$C_{ib}$	-	30	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



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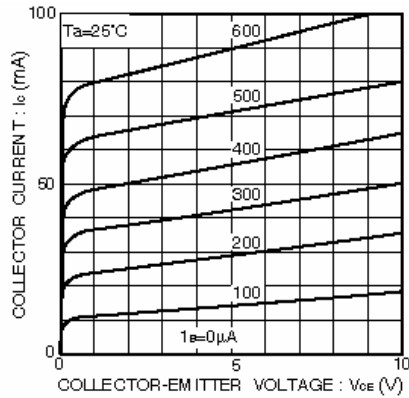


Fig. 1 Grounded emitter output characteristics

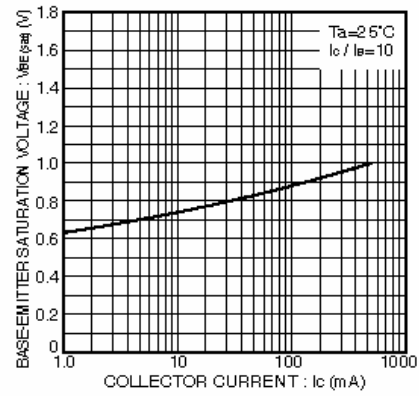


Fig. 2 Base-emitter saturation voltage vs. collector current

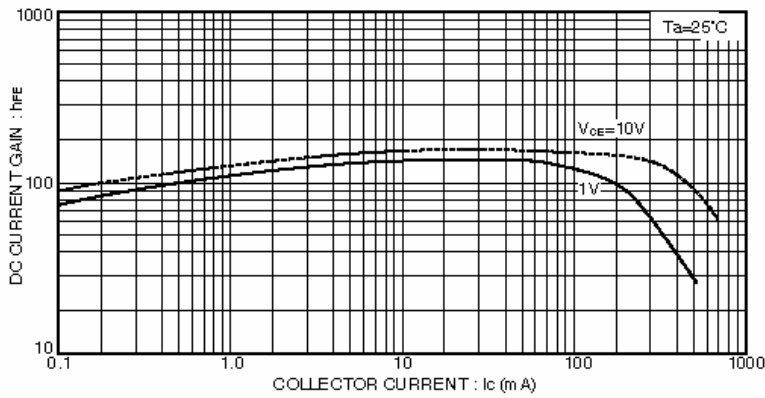
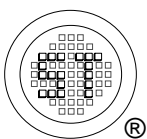


Fig.3 DC current gain vs. collector current (I)



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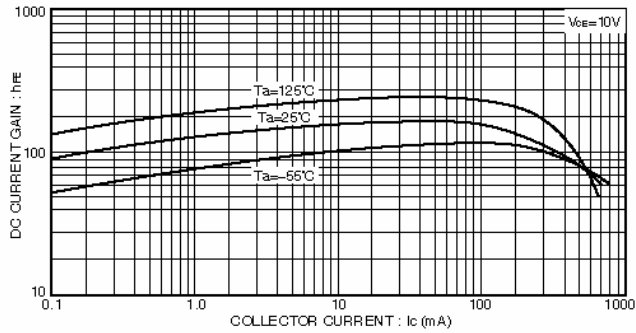


Fig.4 DC current gain vs. collector current (II)

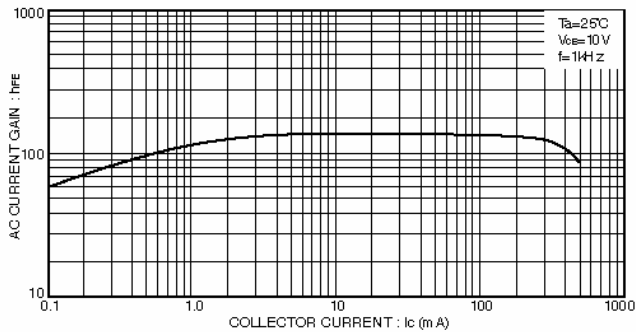


Fig.5 AC current gain vs. collector current

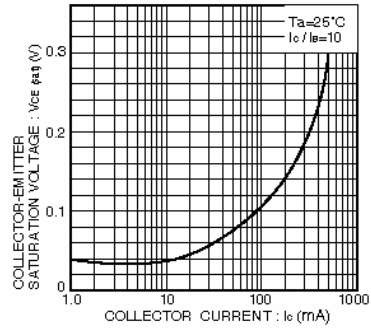


Fig.6 Collector-emitter saturation voltage vs. collector current

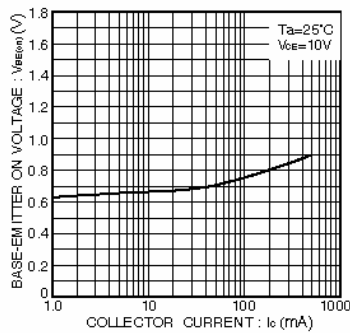


Fig.7 Grounded emitter propagation characteristics

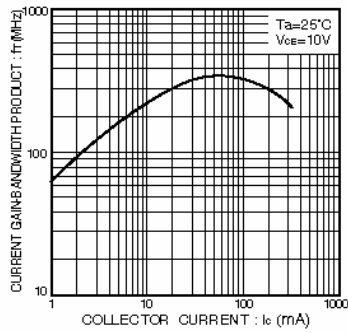


Fig.8 Gain bandwidth product vs. collector current

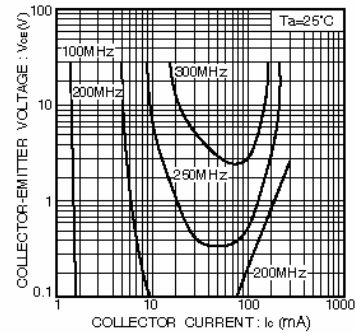
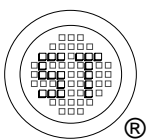


Fig.9 Gain bandwidth product



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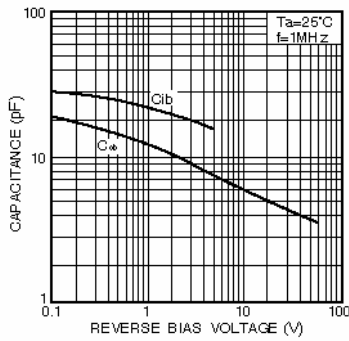


Fig. 10 Input/output capacitance vs. voltage

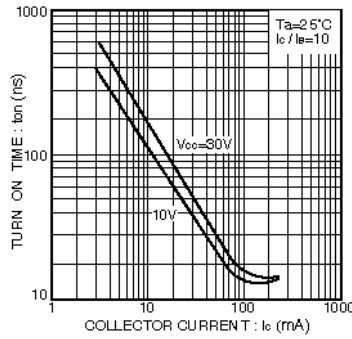


Fig. 11 Turn-on time vs. collector current

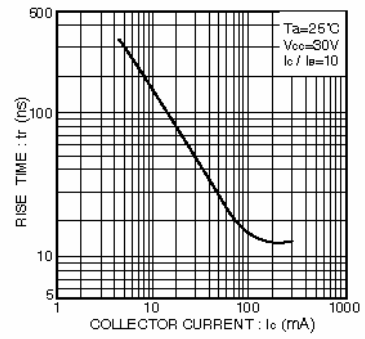


Fig. 12 Rise time vs. collector current

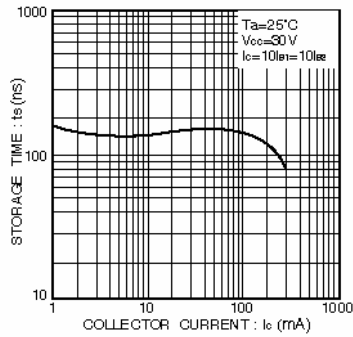


Fig. 13 Storage time vs. collector current

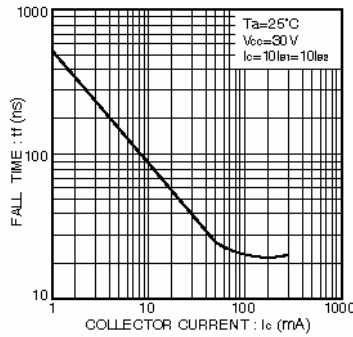
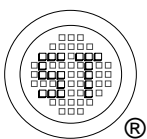


Fig. 14 Fall time vs. collector current



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