

HMBT2907U-HMBT2907AU

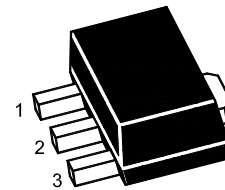
PNP Silicon Epitaxial Planar Transistor

for switching and AF amplifier applications.

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

MARKING: HMBT2907U:2907

HMBT2907AU:2907A



1.Base 2.Collector 3.Emitter
SOT-89 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}	-40	V
HMBT2907U HMBT2907AU		-60	
Emitter Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-600	mA
Power Dissipation	P_{tot}	625	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

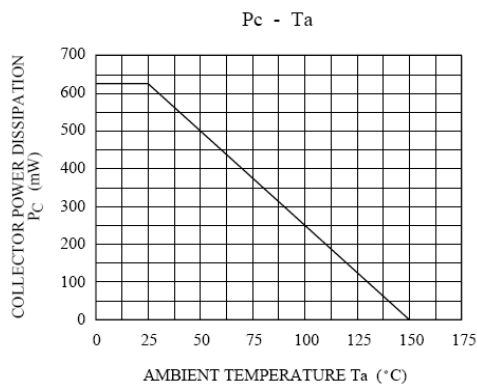
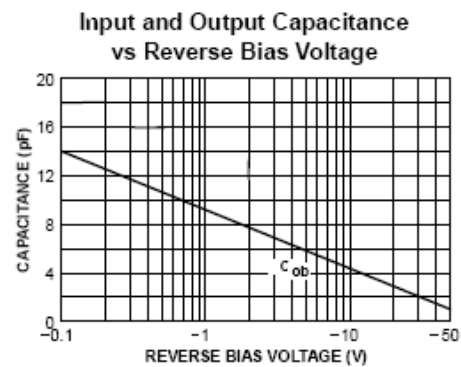
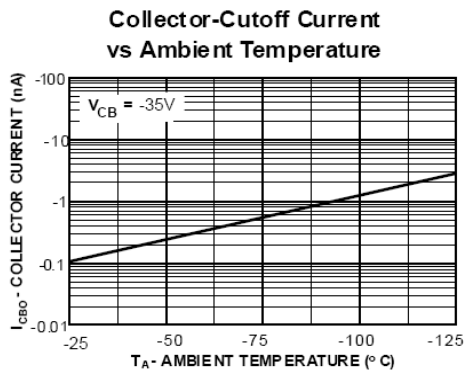
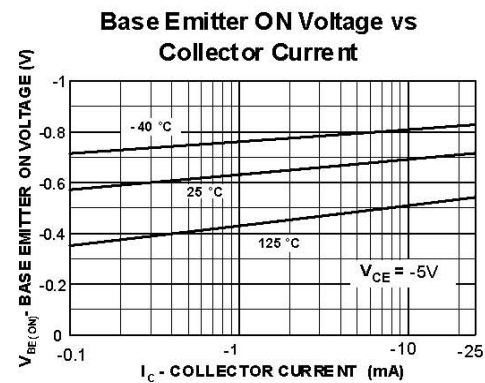
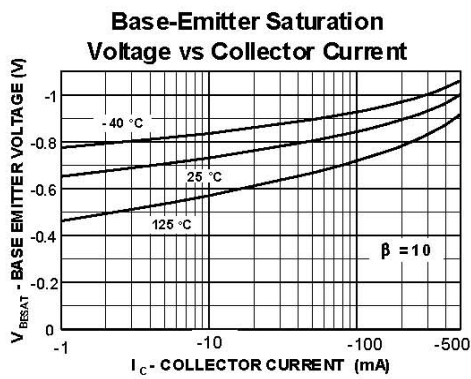
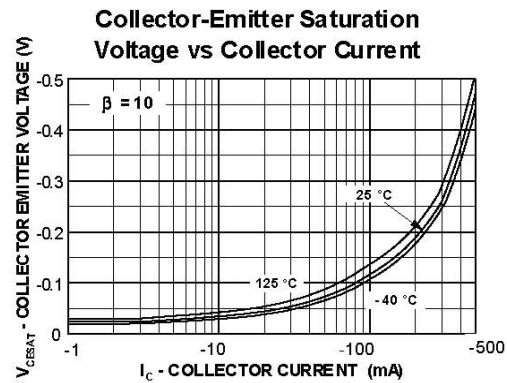
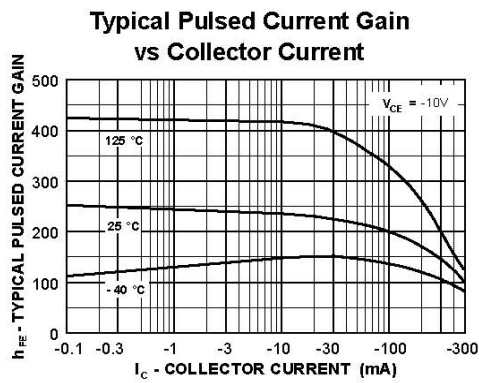
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Characteristics at $T_a = 25^\circ\text{C}$

Parameter		Symbol	Min.	Max.	Unit
DC Current Gain					
at $I_C = -0.1\text{ mA}$, $V_{CE} = -10\text{ V}$	HMBT2907U	h_{FE}	35	-	--
	HMBT2907AU	h_{FE}	75	-	-
at $I_C = -1\text{ mA}$, $V_{CE} = -10\text{ V}$	HMBT2907U	h_{FE}	50	-	--
	HMBT2907AU	h_{FE}	100	-	-
at $I_C = -10\text{ mA}$, $V_{CE} = -10\text{ V}$	HMBT2907U	h_{FE}	75	-	--
	HMBT2907AU	h_{FE}	100	-	-
at $I_C = -150\text{ mA}$, $V_{CE} = -10\text{ V}$		h_{FE}	100	300	
at $I_C = -500\text{ mA}$, $V_{CE} = -10\text{ V}$	HMBT2907U	h_{FE}	30	-	
	HMBT2907AU	h_{FE}	50	-	
Collector Base Cutoff Current					
at $V_{CB} = -50\text{ V}$	HMBT2907U	I_{CBO}	--	-20	nA
	HMBT2907AU	I_{CBO}		-10	nA
Collector Base Breakdown Voltage		$V_{(BR)CBO}$	-60	-	V
Collector Emitter Breakdown Voltage					
at $I_C = -10\text{ mA}$	HMBT2907U	$V_{(BR)CEO}$	-40	--	V
	HMBT2907AU	$V_{(BR)CEO}$	-60		V
Emitter Base Breakdown Voltage		$V_{(BR)EBO}$	-5	-	V
Collector Saturation Voltage					
at $I_C = -150\text{ mA}$, $I_B = -15\text{ mA}$		$V_{CE(sat)}$	--	-0.4	V
at $I_C = -500\text{ mA}$, $I_B = -50\text{ mA}$		$V_{CE(sat)}$		-1.6	V
Base Saturation Voltage					
at $I_C = -150\text{ mA}$, $I_B = -15\text{ mA}$		$V_{BE(sat)}$	--	-1.3	V
at $I_C = -500\text{ mA}$, $I_B = -50\text{ mA}$		$V_{BE(sat)}$		-2.6	V
Gain Bandwidth Product		f_T	200	-	MHz
Collector Output Capacitance		C_{ob}	-	8	pF
Turn-on Time		t_{on}	-	45	ns
at $V_{CC} = -30\text{ V}$, $I_C = -150\text{ mA}$, $I_{B1} = -15\text{ mA}$					
Delay Time		t_d	-	10	ns
at $V_{CC} = -30\text{ V}$, $I_C = -150\text{ mA}$, $I_{B1} = -15\text{ mA}$					
Rise Time		t_r	-	40	ns
at $V_{CC} = -30\text{ V}$, $I_C = -150\text{ mA}$, $I_{B1} = -15\text{ mA}$					
Turn-off Time		t_{off}	-	100	ns
at $V_{CC} = -6\text{ V}$, $I_C = -150\text{ mA}$, $I_{B1} = I_{B2} = -15\text{ mA}$					
Storage Time		t_s	-	80	ns
at $V_{CC} = -6\text{ V}$, $I_C = -150\text{ mA}$, $I_{B1} = I_{B2} = -15\text{ mA}$					
Fall Time		t_f	-	30	ns
at $V_{CC} = -6\text{ V}$, $I_C = -150\text{ mA}$, $I_{B1} = I_{B2} = -15\text{ mA}$					

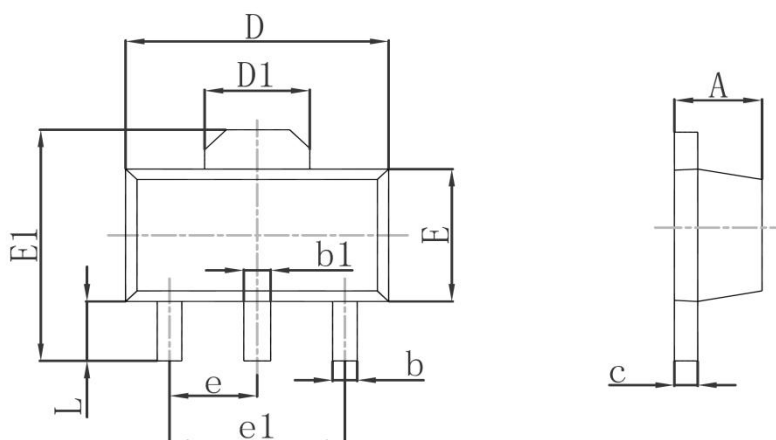
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Typical Characteristics



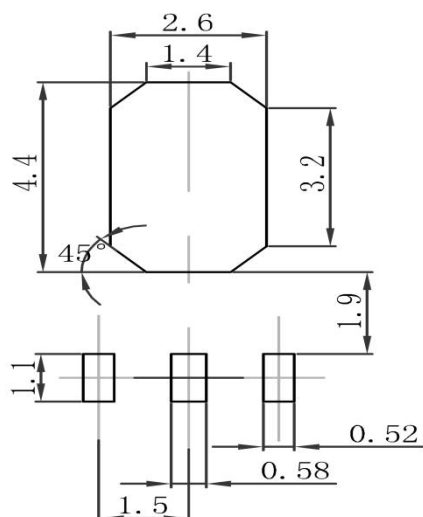
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SOT-89 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550REF		0.061REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP		0.060TYP	
e1	3.000TYP		0.118TYP	
L	0.900	1.200	0.035	0.047

SOT-89 Suggested Pad Layout

**Note:**

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only