

# HMBT2222AU

TRANSISTOR (NPN)

## FEATURES

- Epitaxial planar die construction
- Complementary PNP Type available(HMBT2907A)

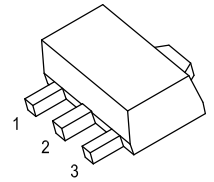
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MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$  unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{CB0}$	Collector-Base Voltage	75	V
$V_{CEO}$	Collector-Emitter Voltage	40	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current -Continuous	600	mA
$P_C$	Collector Power Dissipation	0.5	W
$T_J, T_{stg}$	Operation Junction and Storage Temperature Range	-55 ~150	$^{\circ}\text{C}$

## SOT-89

1. BASE
2. COLLECTOR
3. EMITTER

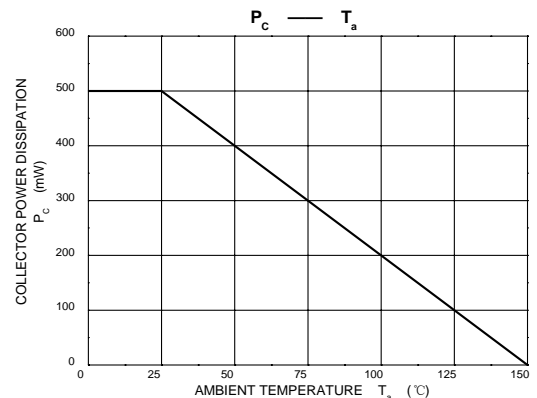
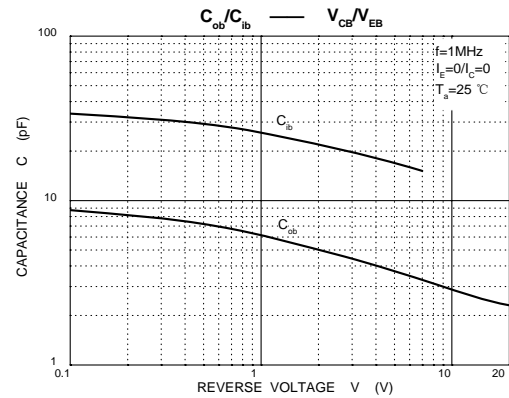
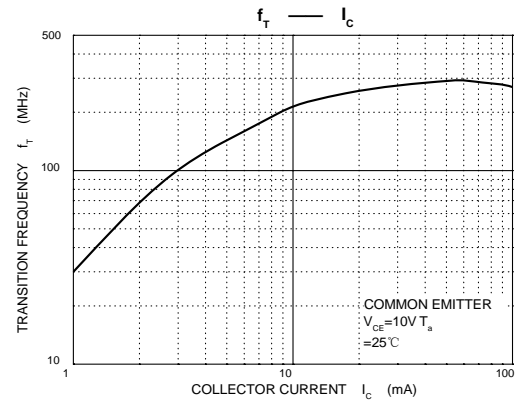
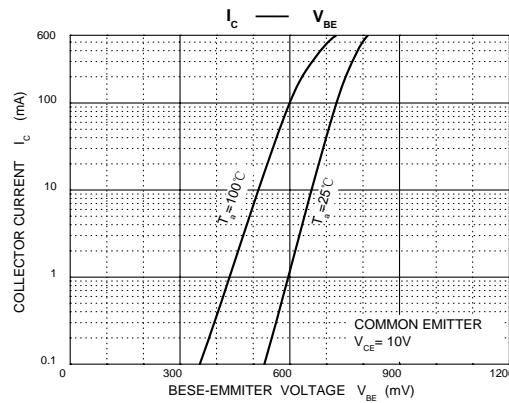
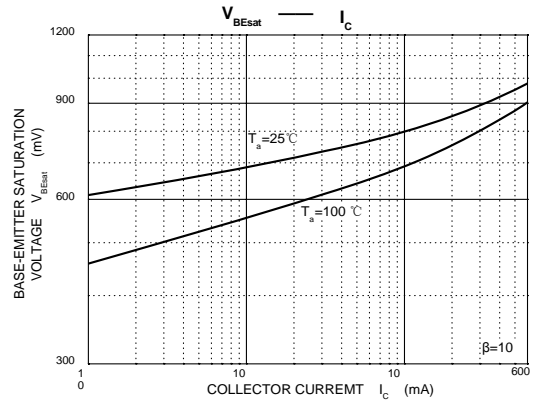
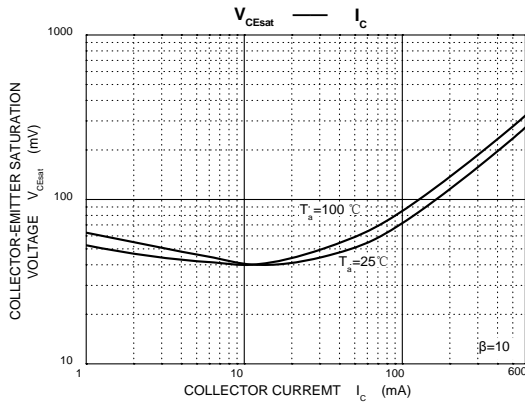
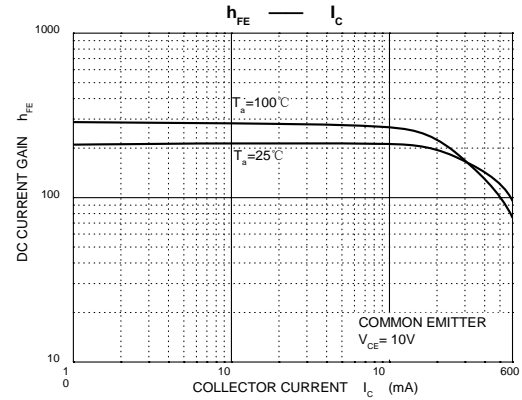
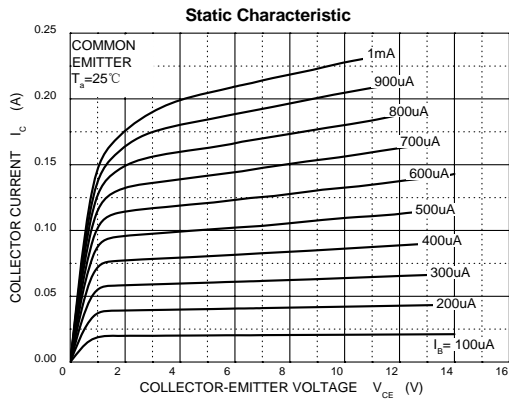


## ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	75		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	6		V
Collector cut-off current	$I_{CBO}$	$V_{CB}=60\text{V}, I_E=0$		0.01	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$		0.01	$\mu\text{A}$
DC current gain	$h_{FE(1)}$	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	35		
	$h_{FE(2)}$	$V_{CE}=10\text{V}, I_C=1\text{mA}$	50		
	$h_{FE(3)}$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	75		
	$h_{FE(4)}$	$V_{CE}=10\text{V}, I_C=150\text{mA}$	100	300	
	$h_{FE(5)}$	$V_{CE}=1\text{V}, I_C=150\text{mA}$	50		
	$h_{FE(6)}$	$V_{CE}=10\text{V}, I_C=500\text{mA}$	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		1	V
	$V_{CE(sat)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		2.0	V
	$V_{BE(sat)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	0.6	1.2	V
Transition frequency	$f_T$	$V_{CE}=10\text{V}, I_C=20\text{mA}, f=100\text{MHz}$	300		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		8	pF
Delay time	$t_d$	$V_{CC}=30\text{V}, I_C=150\text{mA}$		10	ns
Rise time	$t_r$	$V_{BE(off)}=0.5\text{V}, I_{B1}=15\text{mA}$		25	ns
Storage time	$t_s$	$V_{CC}=30\text{V}, I_C=150\text{mA}$		225	ns
Fall time	$t_f$	$I_{B1}=I_{B2}=15\text{mA}$		60	ns

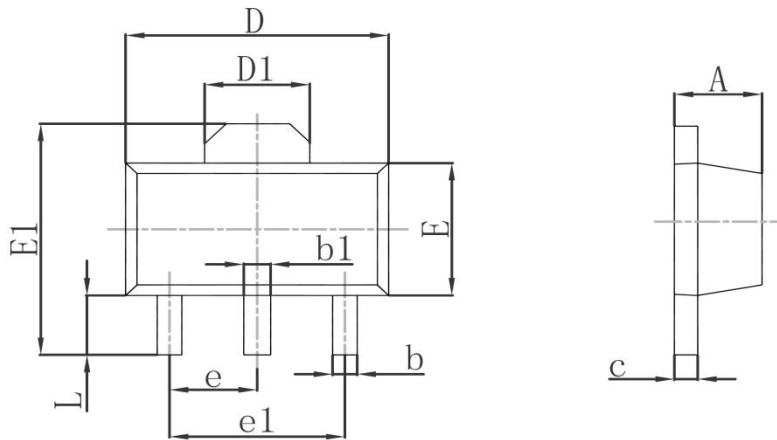
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## Typical Characteristics



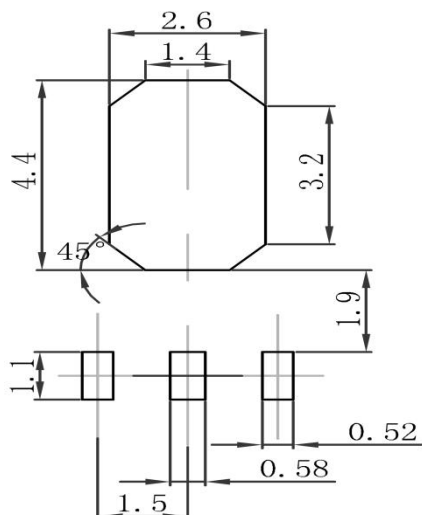
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## SOT-89 Package Outline Dimensions



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