

FEATURES

- Darlington Amplifier

Marking:

MMBTA13 :K2D MMBTA14 :K3D

Maximum Ratings (Ta=25 °C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	30	V
Collector-Emitter Voltage	V _{CEO}	30	V
Emitter-Base Voltage	V _{EBO}	10	V
Collector Current -Continuous	I _C	0.3	A
Collector Power dissipation	P _C	0.3	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55to +150	°C
Thermal Resistance Junction to Ambient	R _{θJA}	417	°C/W

MMBTA13/14 (NPN)



ELECTRICAL CHARACTERISTICS (@ Ta=25 °C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	V _{CBO}	I _C = 100μA, I _E =0	30		V
Collector-emitter breakdown voltage	V _{CEO}	I _C = 100uA, I _B =0	30		V
Collector-emitter breakdown voltage	V _{EBO}	I _E = 100μA, I _C =0	10		V
Collector cut-off current	I _{CBO} *	V _{CB} =30 V, I _E =0		0.1	μA
Emitter cut-off current	I _{EBO} *	V _{EB} = 10V, I _C =0		0.1	μA
DC current gain	h _{FE(1)} *	V _{CE} =5V, I _C = 10mA MMBTA13	5000		
		MMBTA14	10000		
	h _{FE(2)} *	V _{CE} =5V, I _C = 100mA MMBTA13	10000		
		MMBTA14	20000		
Collector-emitter saturation voltage	V _{CE(sat)} *	I _C =100mA, I _B =0.1mA		1.5	V
Base-emitter saturation voltage	V _{BE(sat)} *	I _C =100mA, I _B =0.1mA		2	V
Base-emitter voltage	V _{BE} *	V _{CE} =5V, I _C = 100mA		2.0	V
Transition frequency	f _T	V _{CE} =5V, I _C = 10mA, f=100MHz	125		MHz
Collector output capacitance	C _{ob}	V _{CB} =10V, I _E =0, f=1MHz		12	pF

* Pulse Test : pulse width≤300μs, duty cycles≤2%.

MMBTA13/14 Typical Characteristics

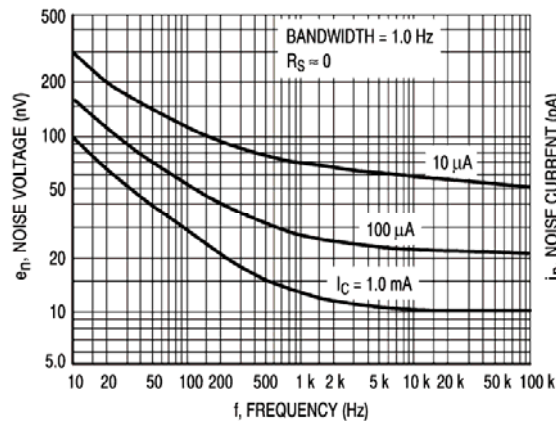


Figure 2. Noise Voltage

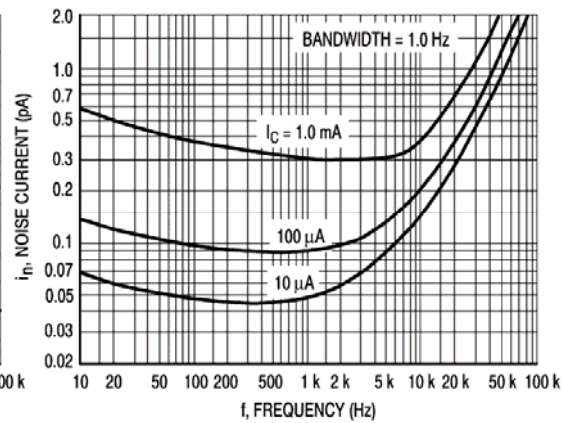


Figure 3. Noise Current

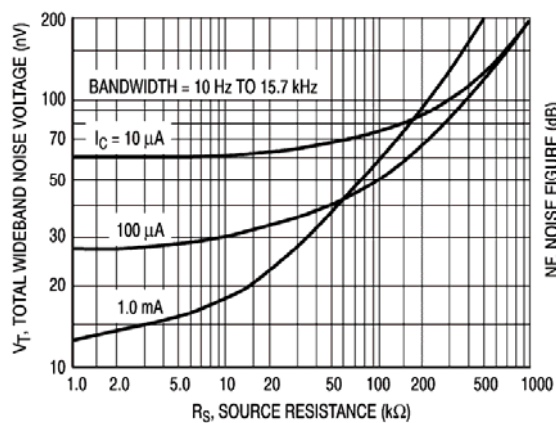


Figure 4. Total Wideband Noise Voltage

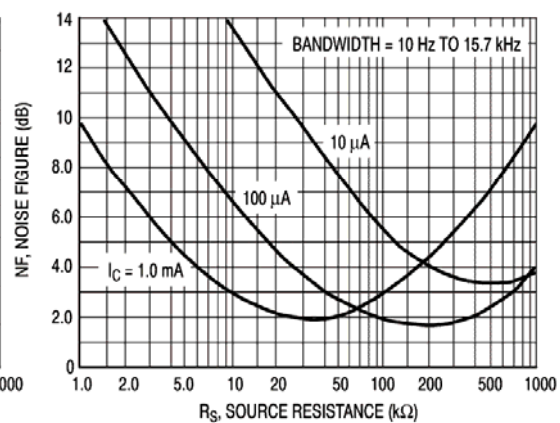


Figure 5. Wideband Noise Figure

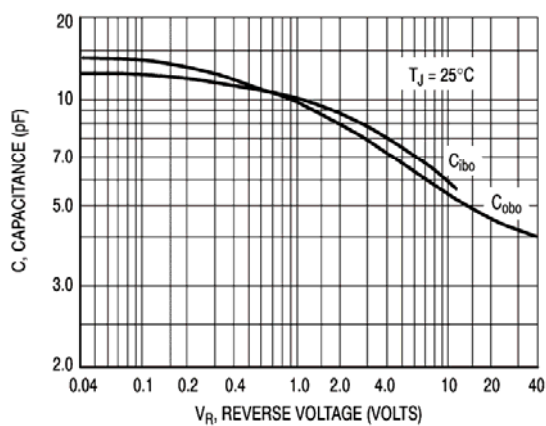


Figure 6. Capacitance

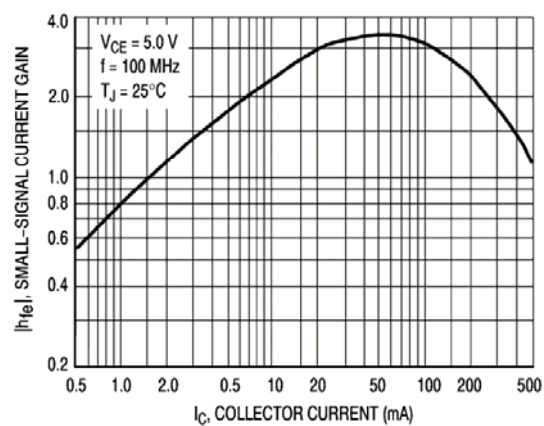


Figure 7. High Frequency Current Gain