

FEATURES

Epitaxial planar die construction.
Ultra-small surface mount package.

MARKING: MB1

MAXIMUM RATINGS (TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current -Continuous	I_C	0.6	A
Collector Power Dissipation	P_C	0.3	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	-55 to +150	°C

MMBT2222 (NPN)


ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V_{CBO}	$I_C=10\mu A, I_E=0$	60			V
Collector-emitter breakdown voltage	V_{CEO}	$I_C=10mA, I_B=0$	30			V
Emitter-base breakdown voltage	V_{EBO}	$I_E=10\mu A, I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}=50V, I_E=0$			0.01	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=3V, I_C=0$			0.01	μA
DC current gain	h_{FE}	$V_{CE}=10V, I_C=150mA$	100		300	
		$V_{CE}=10V, I_C=0.1mA$	35			
		$V_{CE}=10V, I_C=1.0mA$	50			
		$V_{CE}=10V, I_C=10mA$	75			
		$V_{CE}=10V, I_C=500mA$	30			
		$V_{CE}=1V, I_C=150mA$	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=500mA, I_B=50mA$ $I_C=150mA, I_B=15mA$			1.6 0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=500mA, I_B=50mA$ $I_C=150mA, I_B=15mA$			2.6 1.3	V
Transition frequency	f_T	$V_{CE}=20V, I_C=20mA$ $f=100MHz$	250			MHz
Output capacitance	C_{obo}	$V_{CB}=10V, I_E=0, f=1MHz$			8.0	pF
Input capacitance	C_{ibo}	$V_{EB}=0.5V, I_C=0, f=1MHz$			30	pF
Delay time	t_d	$V_{cc}=30V, V_{BE(off)}=0.5V$			10	ns

Rise time	t_r			25	ns
Storage time	T_s	$V_{CC}=30V, I_C=150mA$		225	ns
Fall time	t_f	$I_{B1}=I_{B2}=15mA$		60	ns

MMBT2222 Typical Characteristics

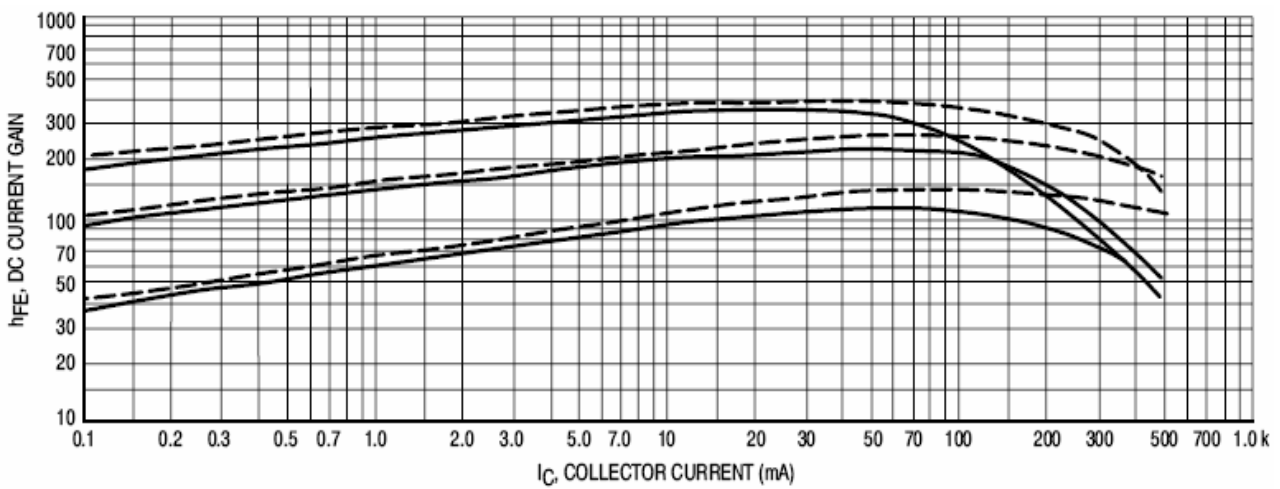


Figure 1. DC Current Gain

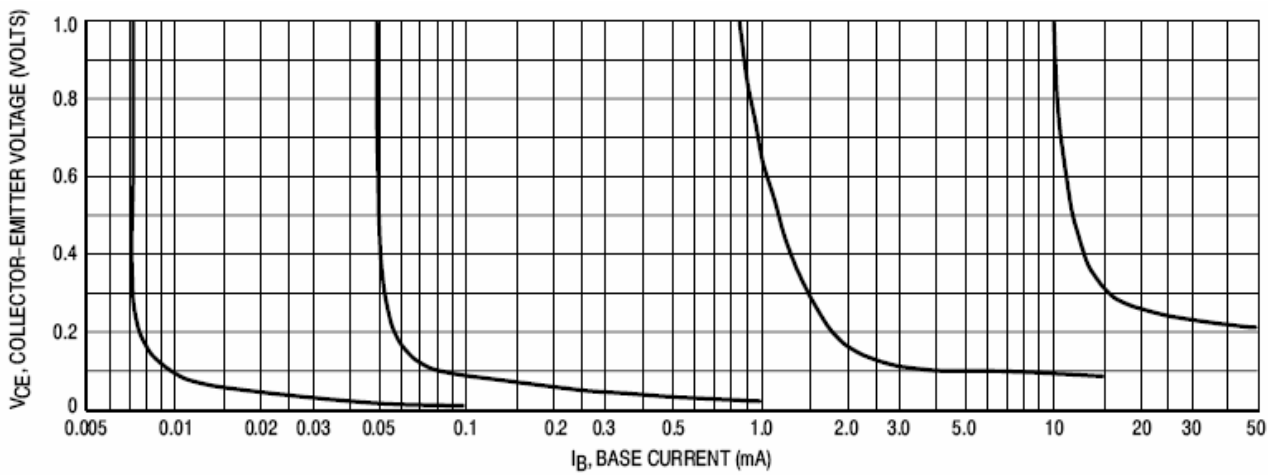


Figure 2. Collector Saturation Region