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MMBTH10

NPN VHF/UHF Transistors

Features

- Designed for VHF/UHF Amplifier applications and high output VHF Oscillators
- High current gain bandwidth product
- Marking Code: 3EM

Maximum Ratings

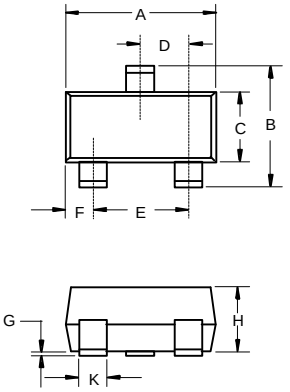
Symbol	Rating	Rating	Unit
V_{CEO}	Collector-Emitter Voltage	25	V
V_{CBO}	Collector-Base Voltage	30	V
V_{EBO}	Emitter-Base Voltage	3.0	V
I_C	Collector Current-Continuous (1)	50	mA
P_C	Power dissipation (2)	225	mW
T_J	Junction Temperature	-55 to +150	^{O}C
T_{STG}	Storage Temperature	-55 to +150	^{O}C

Electrical Characteristics @ 25^{0}C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
OFF CHARACTERISTICS				
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage (I_C=1.0mAdc, I_B=0)	25	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_C=100uAdc, I_E=0)	30	---	Vdc
$V_{(BR)EBO}$	Collector-Emitter Breakdown Voltage (I_E=10uAdc, I_C=0)	3.0	---	Vdc
I_{CBO}	Collector-Base Cutoff Current (V_{CB}=25Vdc,I_E=0)	---	100	nAdc
I_{EBO}	Emitter-Base Cutoff Current (V_{EB}=2.0Vdc, I_C=0)	---	100	nAdc
ON CHARACTERISTICS				
h_{FE}	DC Current Gain (I_C=4.0mAdc, V_{CE}=10Vdc)	60	---	---
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (I_C=4.0mAdc, I_B=400uAdc)	---	0.5	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage (I_C=4.0mAdc,V_{CE}=10Vdc)	---	0.95	Vdc
SMALL SIGNAL CHARACTERISTICS				
f_T	Current-Gain-Bandwidth Product (V_{CE}=10V, f=100MHz, I_C=4.0mA)	650	---	MHz
C_{CB}	Collector-Base Capacitance (V_{CB}=10V, f=1.0MHz, I_E=0)	---	0.7	pF
C_{RB}	Collector-Base Feedback Capacitance (V_{CB}=10V, f=1.0MHz, I_E=0)	---	0.65	pF

Note: 1. Valid provided that terminals are kept at ambient temperature.
2. Pulse test: Pulse width<300us, duty cycle<2%

SOT-23



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.110	.120	2.80	3.04	
B	.083	.098	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

Suggested Solder Pad Layout