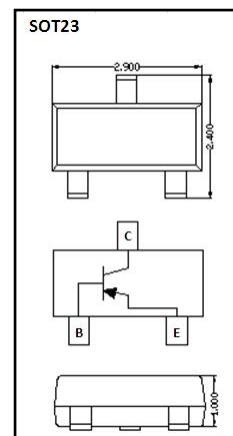


DATA SHEET

MMBT3906

- ◇ Capable of 200mWatts of Power Dissipation and 200mA I_c
- ◇ Operating and Storage Junction Temperatures: -55°C to 150°C
- ◇ Surface Mount SOT-23 Package
- ◇ RoHS compliant / Green EMC

Device Marking Code	
MMBT3906	2A

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

Symbol	Parameter	Value	Unit
V_{CB0}	Collector-Base Voltage	-40	V
V_{CE0}	Collector-Emitter Voltage	-40	V
V_{EB0}	Emitter-Base Voltage	-5	V
I_c	Collector Current	-200	mA
P_c	Collector Power Dissipation	200	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	625	$^{\circ}\text{C}/\text{W}$
T_j	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	$-55 \sim +150$	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS @ 25°C Unless Otherwise Specified

Symbol	Parameter	Test Conditions	Min	Max	Units
V_{CE0}	Collector-Emitter Breakdown Voltage	$I_c = -1.0\text{mA}$, $I_B = 0$	-40		V
V_{CB0}	Collector-Base Breakdown Voltage	$I_c = -10\mu\text{A}$, $I_E = 0$	-40		V
V_{EB0}	Emitter-Base Breakdown Voltage	$I_E = -10\mu\text{A}$, $I_c = 0$	-5.0		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = -40\text{V}$, $I_E = 0$		-100	nA

I_{CEX}	Collector Cutoff Current	$V_{CE}=-30V, V_{BE}=-3.0V$		-50	nA
h_{FE}	DC Current Gain	$I_C=-10mA, V_{CE}=-1.0V$ $I_C=-50mA, V_{CE}=-1.0V$ $I_C=-100mA, V_{CE}=-1.0V$	100 60 30	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=-10mA, I_B=-1.0mA$ $I_C=-50mA, I_B=-5.0mA$		-0.25 -0.4	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=-10mA, I_B=-1.0mA$ $I_C=-50mA, I_B=-5.0mA$	-0.65	-0.85 -0.95	V
f_T	Current Gain-Bandwidth Product	$I_C=-10mA,$ $V_{CE}=-20V, f=100MHz$	250		MHZ
C_{obo}	Output Capacitance	$V_{CB}=-5.0V, I_E=0,$ $f=1.0MHz$		4.5	PF
C_{ibo}	Input Capacitance	$V_{BE}=-0.5V, I_C=0,$ $f=1.0MHz$		10	PF
NF	Noise Figure	($I_C=-100\mu A, V_{CE}=-5.0V,$ $R_s=1.0k\Omega, f=1.0KHz$)		4.0	dB

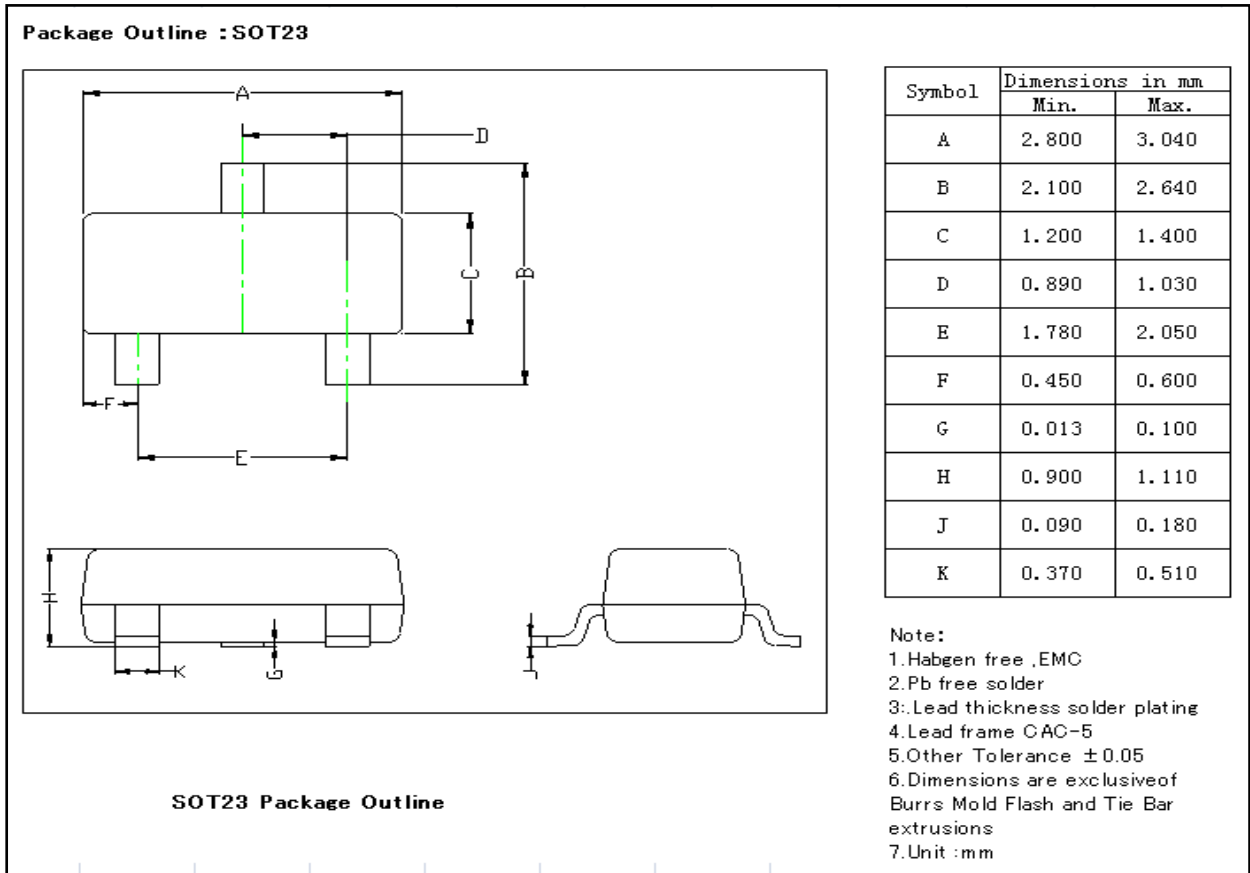
SWITCHING CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min	Max	Units
t_d	Delay Time	$V_{CC}=-3.0V, V_{BE}=-0.5V$		35	ns
t_r	Rise Time	$I_C=-10mA, I_{B1}=I_{B2}=1.0mA$		35	ns
t_s	Storage Time	$V_{CC}=-3.0V, I_C=-10mA$		225	ns
t_f	Fall Time	$I_{B1}=I_{B2}=-1.0mA$		75	ns

ORDERING INFORMATION

Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
MMBT3904	SOT23	Tape & Reel 3000pcs /7" Reel	8mm	4mm	Conductive	

PACKAGE DIMENSIONS



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