

»Features

$$V_{CE} = 60V$$

$$I_C = 0.2A$$

$$f_T = 300MHz @ V_{CE}=20V, I_C=10mA, f=100MHz$$

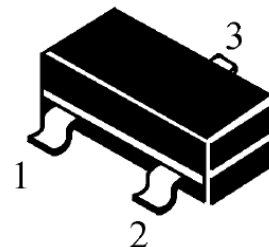
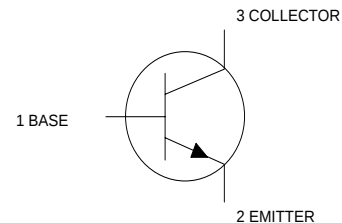
»General Description

- As complementary type the PNP transistor MMST3906 is recommended
- Epitaxial planar die constructio
- SOT-323 Plastic Package.

»Applying

- Amplifiers and switching

»Pin Configurations



»Absolute Maximum Ratings @T_A=25°C unless otherwise noted

Symbol	Parameter	Rating	Units
V _{CB0}	Collector-Base Voltage (open emitter)	60	V
V _{CE0}	Collector-Emitter Voltage (open base)	40	V
V _{EB0}	Emitter -Base Voltage (open collector)	6	V
I _C	Collector Current (continuous)	200	mA
P _C	Collector Power Dissipation (T _{amb} =25°C)	225	mW
T _j	Junction Temperature	150	°C
T _{STG}	Storage Temperature	-55 ~ 150	°C

Classification	A	L
HFE2	100-300	140-270

»Electrical Characteristics @ $T_A=25^{\circ}\text{C}$ unless otherwise noted

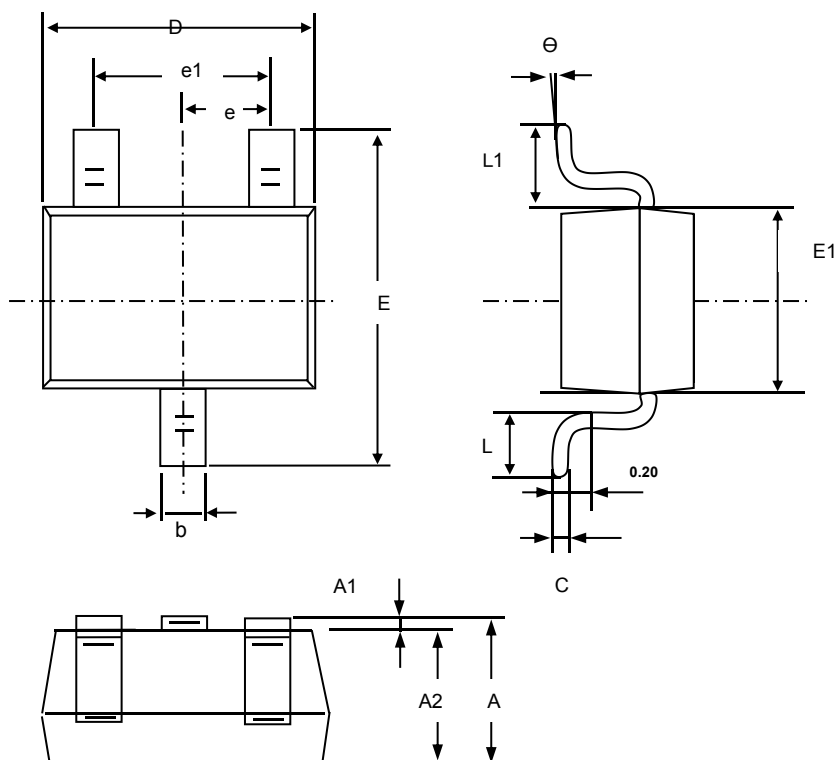
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
BVCEO	Collector-Emitter Breakdown Voltage	$I_C = 1\text{mA}, I_B = 0$	40			V
BVCBO	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}, I_E = 0$	60			V
BVEBO	Emitter -Base Breakdown Voltage	$I_E = 100\mu\text{A}, I_C = 0$	6			V
ICBO	Collector Cut-off Current	$V_{CB} = 30\text{V}, I_E = 0$			100	nA
IEBO	Base Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$			100	nA
hFE1*	DC Current Gain	$V_{CE} = 1\text{V}, I_C = 0.1\text{mA}$	40			
hFE2*		$V_{CE} = 1\text{V}, I_C = 10\text{mA}$	100		300	
hFE3*		$V_{CE} = 1\text{V}, I_C = 100\text{mA}$	30			
VCE(sat)	Collector-Emitter Saturation Voltage	$I_C = 10\text{mA}, I_B = 1\text{mA}$			200	mV
		$I_C = 50\text{mA}, I_B = 5\text{mA}$			285	mV
VBE(sat)	Emitter -Base Saturation Voltage	$I_C = 10\text{mA}, I_B = 1\text{mA}$			850	mV
		$I_C = 50\text{mA}, I_B = 5\text{mA}$			950	mV
VBE(on)	Base- Emitter on Voltage	$V_{CE} = 1\text{V}, I_C = 10\text{mA}$			1.0	V
Cc	Collector Capacitance	$V_{CB} = 5\text{V}, I_E = 0, f = 100\text{KHz} \sim 1\text{MHz}$			5	pF
Ce	Emitter Capacitance	$V_{EB} = 0.5\text{V}, I_C = 0, f = 100\text{KHz} \sim 1\text{MHz}$			15	pF
fT	Transition frequency	$V_{CE} = 20\text{V}, I_C = 10\text{mA}, f = 100\text{MHz}$	300			MHz
F	Noise figure	$V_{CE} = 5\text{V}, I_C = 100\mu\text{A}, R_s = 1\text{K}\Omega, f = 10\text{Hz} \sim 15.7\text{KHz}$		5		dB
Switching times (see Fig. 2)						
ton	Turn-on time	$I_{Con} = 10\text{mA},$ $I_{Bon} = 1\text{mA}$ $I_{Boff} = -1\text{mA},$ $V_{CC} = 3\text{V},$ $V_{BE} = 0.5\text{V}$			65	nS
td	Delay time				35	nS
tr	Rise time				35	nS
tf	Fall time				50	nS
toff	Turn-off time				240	nS
ts	Storage time				200	nS

 Pulse test ----- $t_p \leq 300\mu\text{s}$;

 $\delta = 0.02$

»Package Information

SOT-323



Symbol	Dim in mm		
	Min	Nor	Max
A	0.90	1.00	1.10
A1	0.00	0.05	0.10
A2	0.90	0.95	1.00
b	0.20	0.30	0.40
c	0.08	0.12	0.15
D	2.00	2.10	2.20
E	2.15	2.30	2.45
E1	1.15	1.25	1.35
e	0.650TPY.		
e1	1.2	1.3	1.4
L	0.26	0.36	0.46
L1	0.525REF.		
θ	0°	4°	8°

»Ordering information

Order code	Package	Marking	Base qty	Delivery mode
MMST3904	SOT-323	K2N	3K	Tape and reel