

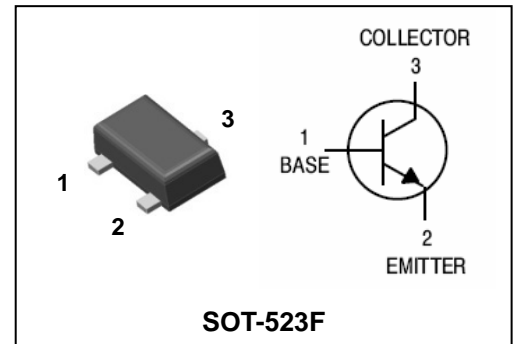
Descriptions

- Small signal application
- Switching application

Features

- Low collector saturation voltage
- Low collector output capacitance
- Complementary pair with MMBT3906EF

PIN Connection



Ordering Information

Type NO.	Marking	Package Code
MMBT3904EF	\underline{Z} □ ① ②	SOT-523F

① Device Code ② Year&Week Code

Absolute maximum ratings

Ta=25°C

Characteristic	Symbol	Rating	Unit
Collector-Base voltage	V_{CBO}	60	V
Collector-Emitter voltage	V_{CEO}	40	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_C	200	mA
Collector Power dissipation	P_C	150	mW
Junction temperature	T_J	150	°C
Storage temperature range	T_{stg}	-55 ~ 150	°C

Electrical Characteristics

Ta=25°C

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base breakdown voltage	BV_{CBO}	$I_C=10\mu A, I_E=0$	60	-	-	V
Collector-Emitter breakdown voltage	BV_{CEO}	$I_C=1mA, I_B=0$	40	-	-	V
Emitter-Base breakdown voltage	BV_{EBO}	$I_E=10\mu A, I_C=0$	6	-	-	V
Collector cut-off current	I_{CEX}	$V_{CE}=30V, V_{BE}=-3V$	-	-	50	nA
DC current gain	h_{FE}	$V_{CE}=1V, I_C=10mA$	100	-	300	-
Collector-Emitter saturation voltage	$V_{CE(sat)}$	$I_C=50mA, I_B=5mA$	-	-	0.3	V
Transition frequency	f_T	$V_{CE}=20V, I_C=10mA, f=100MHz$	300	-	-	MHz
Collector output capacitance	C_{ob}	$V_{CB}=5V, I_E=0, f=1MHz$	-	-	4	pF
Turn on delay time	t_d	$V_{CC}=3V, V_{BE(off)}=0.5V$	-	-	35	ns
Rise time	t_r	$I_C=10mA, I_{B1}=1mA$	-	-	35	ns
Storage time	t_s	$V_{CC}=3V, I_C=10mA,$	-	-	200	ns
Fall Time	t_f	$I_{B1}=-I_{B2}=1mA$	-	-	50	ns

Electrical Characteristic Curves

Fig. 1 P_C - T_a

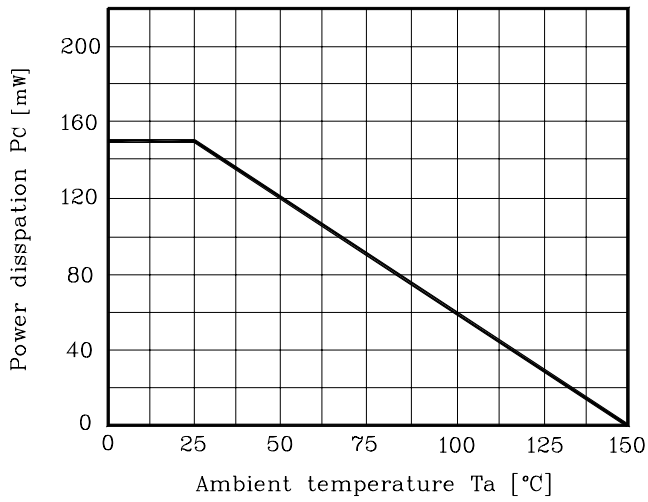


Fig. 2 h_{FE} - I_C

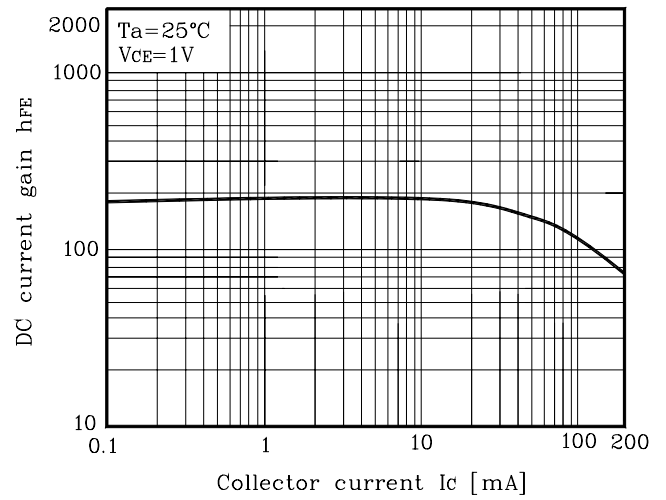
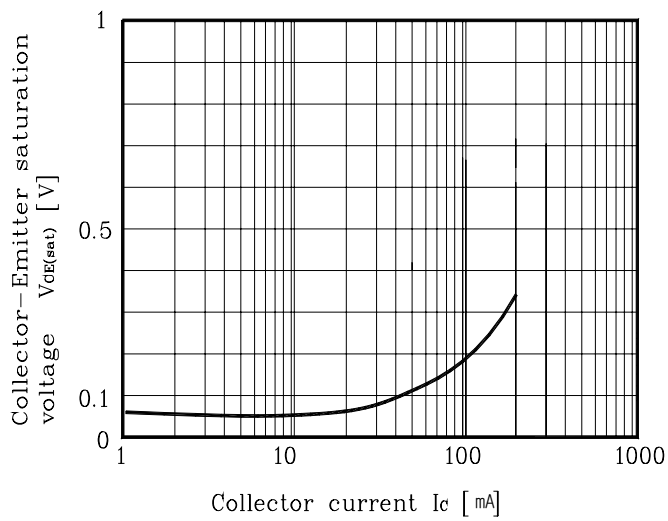
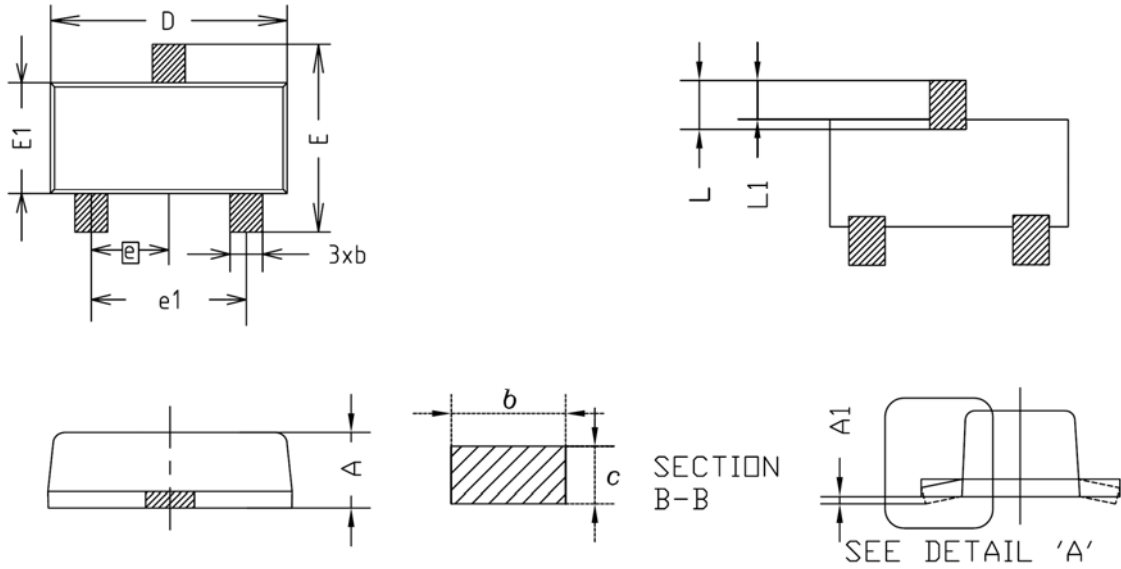


Fig. 3 $V_{CE(sat)}$ - I_C

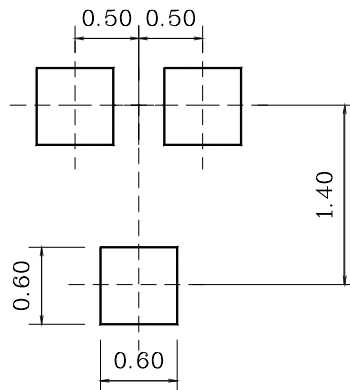


Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	0.63	0.68	0.73	
A1	0.00	-	0.10	
A2	-	-	-	
b	0.25	0.30	0.35	
c	0.04	0.11	0.20	
D	1.50	1.60	1.70	
E	1.50	1.60	1.70	
E1	0.78	0.88	0.98	
e	0.50BSC			
e1	0.90	-	1.10	
L	0.34	0.44	0.54	
L1	0.28	0.34	0.43	

※Recommend PCB solder land [Unit: mm]



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