



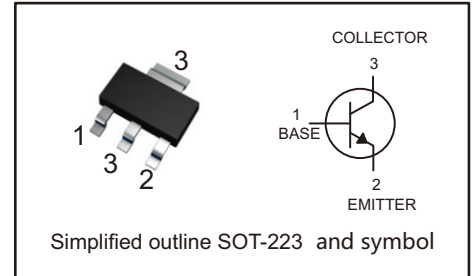
MMBT3904WK
NPN TRANSISTOR

FEATURES

- Low Voltage and Low Current
- Complementary to MMBT3906WK

PINNING

PIN	DESCRIPTION
1	BASE
2	EMITTER
3	COLLECTOR



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

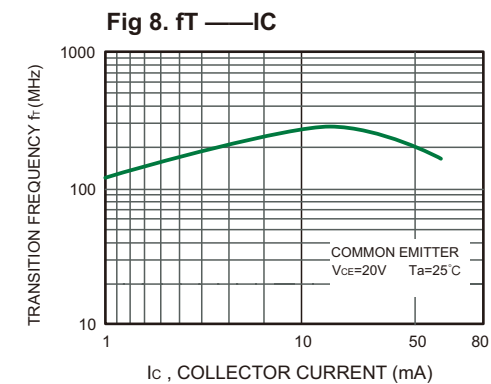
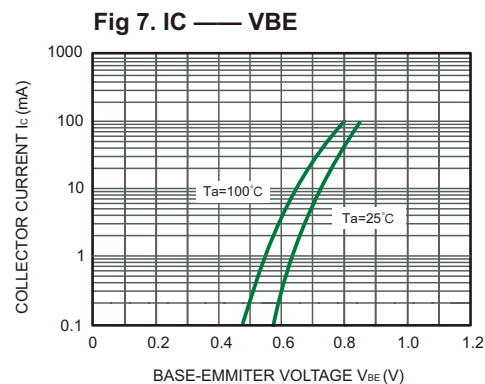
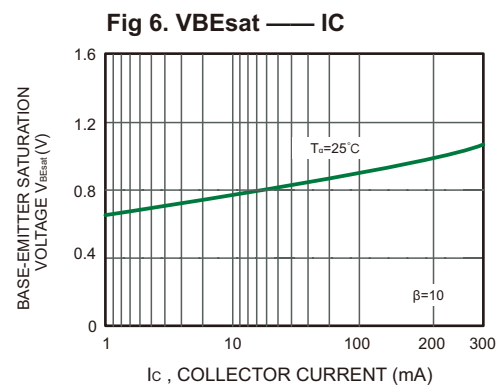
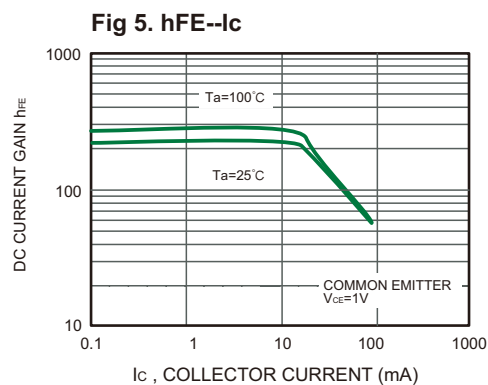
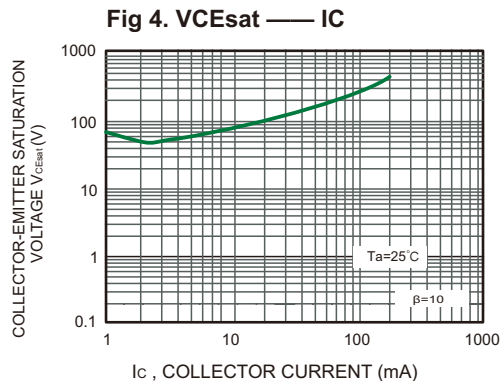
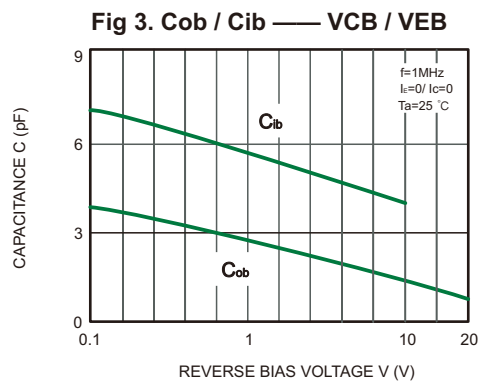
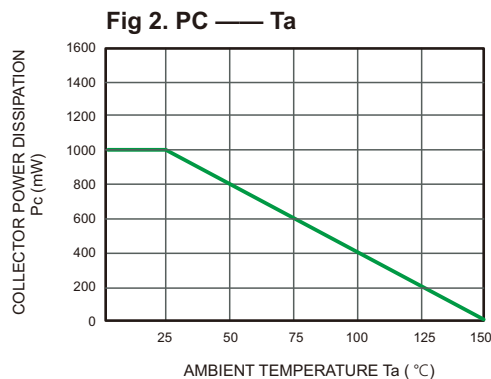
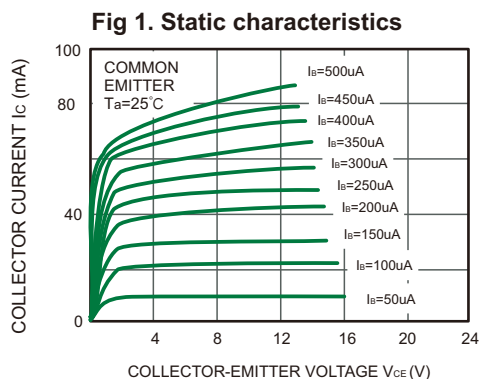
Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current — Continuous	I_C	200	mA
Collector Power Dissipation	P_C	1	W
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	125	°C/W
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	°C

ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu A, I_E = 0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1mA, I_B = 0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB} = 30V, I_E = 0$			50	nA
Collector cut-off current	I_{CEX}	$V_{CE} = 30V, V_{EB} = 3V$			50	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			50	nA
DC current gain	$h_{FE(1)}$	$V_{CE} = 1V, I_C = 0.1mA$	40			
	$h_{FE(2)}$	$V_{CE} = 1V, I_C = 1mA$	70			
	$h_{FE(3)}$	$V_{CE} = 1V, I_C = 10mA$	100		300	
	$h_{FE(4)}$	$V_{CE} = 1V, I_C = 50mA$	60			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10mA, I_B = 1mA$			0.2	V
		$I_C = 50mA, I_B = 5mA$			0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10mA, I_B = 1mA$			0.85	V
		$I_C = 50mA, I_B = 5mA$			0.95	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
Delay Time	t_d	$V_{CC} = 3V, V_{BE} = -0.5V, I_C = 10mA, I_{B1} = 1mA$			35	ns
Rise Time	t_r				35	
Storage Time	t_s				200	
Fall Time	t_f				50	

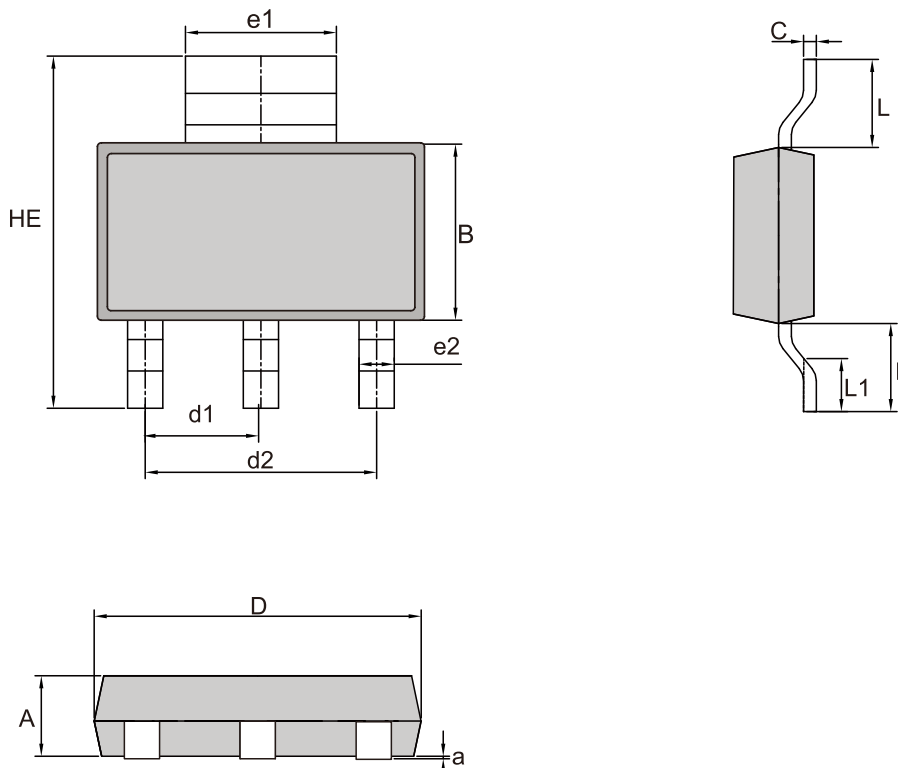


TYPICAL CHARACTERISTICS





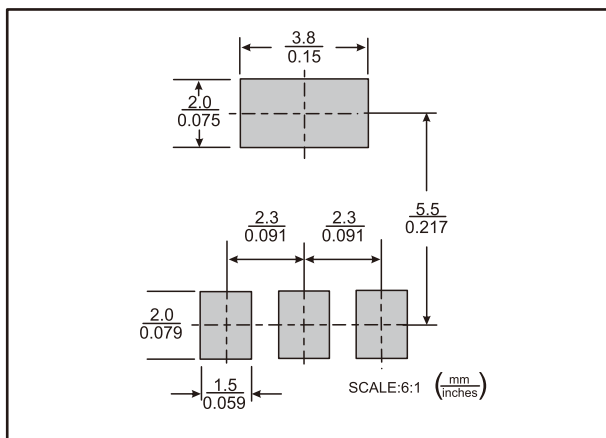
SOT-223 Package Outline Dimensions



SOT-223 mechanical data

UNIT		A	B	C	D	d1	d2	e1	e2	HE	L	a	L1	ALL
mm	MAX	1.65	3.7	0.254	6.7	2.3	4.6	3.15	0.84	7.20	1.750	0.1	/	11~13°
	MIN	1.55	3.3	REF	6.3	BSC	BSC	2.9	0.66	6.80	REF	0	0.75	
mil	MAX	64.96	145.67	10.00	263.78	90.55	181.10	124.02	33.07	283.46	68.90	3.94	/	
	MIN	61.02	129.92	REF	248.03	BSC	BSC	114.17	25.98	267.72	REF	0.00	29.53	

The recommended mounting pad size



Marking

Type number	Marking code
MMBT3904WK	1AM



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