

## PNP Transistors

**MMBT3906** (KMBT3906)

## ■ Features

- Complementary to MMBT3904
- Marking: 2A

■ Absolute Maximum Ratings  $T_a = 25$ 

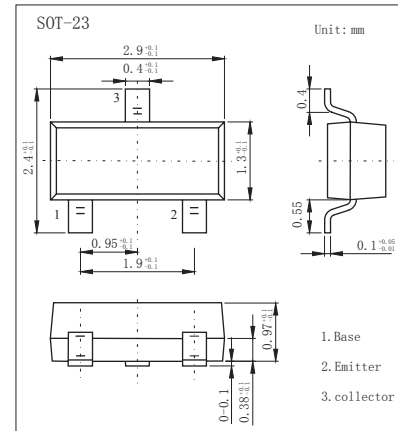
Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CB0}$	-40	V
Collector - Emitter Voltage	$V_{CE0}$	-40	
Emitter - Base Voltage	$V_{EB0}$	-5	
Collector Current - Continuous	$I_c$	-0.2	A
Collector Power Dissipation	$P_c$	0.2	W
Junction Temperature	$T_J$	150	°C
Storage Temperature range	$T_{stg}$	-55 to 150	

■ Electrical Characteristics  $T_a = 25$ 

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CB0}$	$I_c = -100 \mu A, I_E = 0$	-40			V
Collector- emitter breakdown voltage	$V_{CE0}$	$I_c = -1 mA, I_B = 0$	-40			
Emitter - base breakdown voltage	$V_{EB0}$	$I_E = -100 \mu A, I_c = 0$	-6			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = -40 V, I_E = 0$			-100	nA
Collector- emitter cut-off current	$I_{CEX}$	$V_{CE} = -30 V, V_{EB(off)} = 3V$			-50	
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5V, I_c = 0$			-100	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_c = -10 mA, I_B = -1mA$			-0.2	V
		$I_c = -50 mA, I_B = -5mA$			-0.3	
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_c = -10 mA, I_B = -1mA$	-0.65		-0.85	
		$I_c = -50 mA, I_B = -5mA$			-0.95	
DC current gain	$h_{fe(1)}$	$V_{CE} = -1V, I_c = -10mA$	100		300	
	$h_{fe(2)}$	$V_{CE} = -1V, I_c = -50mA$	60			
	$h_{fe(3)}$	$V_{CE} = -1V, I_c = -100mA$	30			
Delay time	$t_d$	$V_{CC} = -3.0V, V_{BE} = 0.5V$			35	ns
Rise time	$t_r$	$I_c = -10mA, I_{B1} = -1.0mA$			35	
Storage time	$t_s$	$V_{CC} = -3.0V, I_c = -10mA$			225	
Fall time	$t_f$	$I_{B1} = I_{B2} = -1.0mA$			75	
Collector input capacitance	$C_{ib}$	$V_{EB} = -0.5V, I_E = 0, f = 1MHz$			10	pF
Collector output capacitance	$C_{ob}$	$V_{CB} = -5V, I_E = 0, f = 1MHz$			4.5	
Transition frequency	$f_T$	$V_{CE} = -20V, I_c = -10mA, f = 100MHz$	250			MHz

■ Classification of  $h_{fe(1)}$ 

Type	MMBT3906	MMBT3906-L	MMBT3906-H
Range	100-300	100-200	200-300



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## Typical Characteristics

