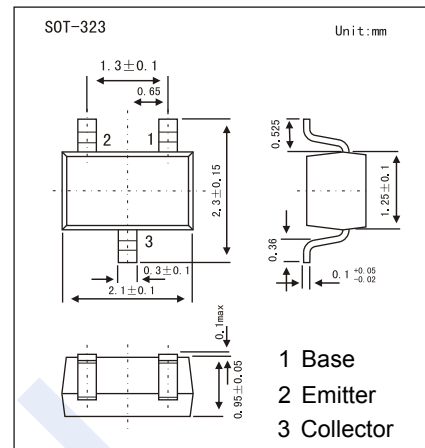


NPN Transistors

MMBT3904W

■ Features

- Collector Current Capability $I_c=0.2A$
- Collector Emitter Voltage $V_{CE0}=40V$
- Complementary to MMBT3906W

■ Absolute Maximum Ratings $T_a = 25^{\circ}C$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	60	V
Collector - Emitter Voltage	V_{CE0}	40	
Emitter - Base Voltage	V_{EB0}	5	
Collector Current - Continuous	I_c	200	mA
Collector Power Dissipation	P_c	200	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	625	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature Range	T_{stg}	-55 to 150	

NPN Transistors

MMBT3904W

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V _{CB0}	I _c = 100 μA, I _E = 0 (Note.1)	60			V
Collector- emitter breakdown voltage	V _{CEO}	I _c = 1 mA, I _B = 0 (Note.1)	40			
Emitter - base breakdown voltage	V _{EBO}	I _E = 100 μA, I _C = 0 (Note.1)	5			
Collector-base cut-off current	I _{CB0}	V _{CB} = 60 V, I _E = 0 (Note.1)			60	nA
Collector- emitter cut-off current	I _{CEO}	V _{CE} = 40 V, I _E = 0 (Note.1)			700	
Collector- emitter cut-off current	I _{CEx}	V _{CE} = 30 V, V _{BE(off)} = 3V			50	
Emitter cut-off current	I _{EBO}	V _{EB} = 5V, I _C =0			100	
Collector-emitter saturation voltage (Note.1)	V _{CE(sat)}	I _c =10 mA, I _B =1 mA			0.25	V
		I _c =50 mA, I _B =5 mA			0.3	
Base - emitter saturation voltage (Note.1)	V _{BE(sat)}	I _c =10 mA, I _B =1 mA			0.85	
		I _c =50 mA, I _B =5 mA			0.95	
DC current gain (Note.1)	h _{FE(1)}	V _{CE} = 1V, I _c = 100 μA	40			
	h _{FE(2)}	V _{CE} = 1V, I _c = 1 mA	70			
	h _{FE(3)}	V _{CE} = 1V, I _c = 10 mA	100		300	
	h _{FE(4)}	V _{CE} = 1V, I _c = 50 mA	60			
Delay time	t _d	V _{CC} =3V, V _{BE(off)} =0.5V I _c =10mA, I _{B1} =1mA			35	nS
Rise time	t _r				35	
Storage time	t _s				225	
Fall time	t _f				75	
Collector input capacitance	C _{ib}	V _{EB} = 0.5V, I _E = 0, f=1MHz			8	pF
Collector output capacitance	C _{ob}	V _{CB} = 5V, I _E = 0, f=1MHz			4	
Transition frequency	f _T	V _{CE} = 20V, I _c = 10mA, f=100MHz	300			MHz

Note.1: Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2.0%.

■ Marking

Marking	K2N
---------	-----

NPN Transistors

MMBT3904W

■ Typical Characteristics

Static Characteristic

