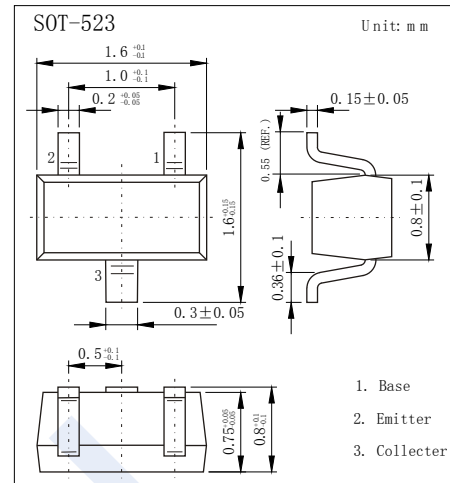


## NPN Transistors

### MMBT2222AT (KMBT2222AT)

#### ■ Features

- Small Package
- Complementary to MMBT2907AT



#### ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V <sub>CB0</sub>	75	V
Collector - Emitter Voltage	V <sub>CEO</sub>	40	
Emitter - Base Voltage	V <sub>EB0</sub>	6	
Collector Current - Continuous	I <sub>c</sub>	600	mA
Collector Power Dissipation	P <sub>c</sub>	150	mW
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	833	°C/W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to 150	

## NPN Transistors

## MMBT2222AT (KMBT2222AT)

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V <sub>CBO</sub>	I <sub>c</sub> = 100 μA, I <sub>E</sub> = 0	75			V
Collector- emitter breakdown voltage	V <sub>CEO</sub>	I <sub>c</sub> = 10 mA, I <sub>B</sub> = 0	40			
Emitter - base breakdown voltage	V <sub>EBO</sub>	I <sub>E</sub> = 100 μA, I <sub>C</sub> = 0	6			
Collector-base cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = 75 V, I <sub>E</sub> = 0			100	nA
Collector cut-off current	I <sub>CEX</sub>	V <sub>CE</sub> = 60 V, V <sub>EB(off)</sub> =3V			100	
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = 6V, I <sub>C</sub> =0			100	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =150 mA, I <sub>B</sub> =15mA			0.3	V
		I <sub>C</sub> = 500 mA, I <sub>B</sub> = 50mA			1	
Base - emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =150 mA, I <sub>B</sub> =15mA			1.2	
		I <sub>C</sub> = 500 mA, I <sub>B</sub> = 50mA			2	
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 0.1mA	35			
	h <sub>FE(2)</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 1mA	50			
	h <sub>FE(3)</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA	75			
	h <sub>FE(4)</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 150mA	100		300	
	h <sub>FE(5)</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 500mA	40			
Delay time	t <sub>d</sub>	V <sub>CC</sub> =30V, V <sub>BE(off)</sub> =-0.5V			10	nS
Rise time	t <sub>r</sub>	I <sub>C</sub> =150mA, I <sub>B1</sub> =15mA			25	
Storage time	t <sub>s</sub>	V <sub>CC</sub> =30V, I <sub>C</sub> =150mA, I <sub>B1</sub> =I <sub>B2</sub> =15mA			225	
Fall time	t <sub>f</sub>		60			
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f=1MHz			8	pF
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = 20V, I <sub>C</sub> = 20mA, f=100MHz	300			MHz

## ■ Marking

Marking	1P
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