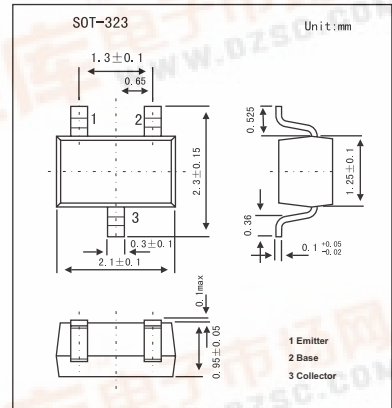
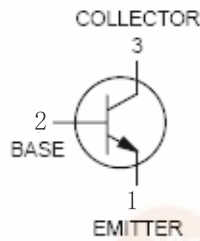


SMD Type Transistors

General Purpose Transistor
MMBT2222AW

■ Features

- General purpose transistor.



■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Collector-emitter voltage	V _{CEO}	40	V
Collector-base voltage	V _{CBO}	75	V
Emitter-base voltage	V _{EB0}	6.0	V
Collector current	I _c	600	mA
Total Device Dissipation FR-5 Board	P _D	150	mW
Thermal Resistance, Junction-to-Ambient	R _{θJA}	833	°C/W
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

MMBT2222AW

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collector-emitter breakdown voltage	V(BR)CEO	I _C = 1.0 mA, I _B = 0	40			V
Collector-base breakdown voltage	V(BR)CBO	I _C = 10 μA, I _E = 0	75			V
Emitter-base breakdown voltage	V(BR)EBO	I _E = 10 μA, I _C = 0	6			V
Base cutoff current	I _{BL}	V _{CE} = 60 V, V _{EB} = 3.0 V			20	nA
Collector cutoff current	I _{CEx}	V _{CE} = 60 V, V _{EB} = 3.0 V			10	nA
DC current gain *	H _{FE}	I _C = 150 mA, V _{CE} = 10 V	100		300	
Collector-emitter saturation voltage *	V _{CE(sat)}	I _C = 150 mA, I _B = 15 mA			0.3	V
		I _C = 500 mA, I _B = 50 mA			1.0	
Base-emitter saturation voltage *	V _{BE(sat)}	I _C = 150 mA, I _B = 15 mA	0.6		1.2	
		I _C = 500 mA, I _B = 50 mA			2.0	
Current-gain-bandwidth product	f _T	I _C = 20 mA, V _{CE} = 20 V, f = 100 MHz	300			MHz
Output capacitance	C _{obo}	V _{CB} = 10 V, I _E = 0, f = 1.0 MHz			8.0	pF
Input capacitance	C _{ibo}	V _{EB} = 0.5 V, I _C = 0, f = 1.0 MHz			30	pF
Input impedance	h _{ie}	V _{CE} = 10 V, I _C = 10 mA, f = 1.0 kHz	0.25		1.25	kΩ
Voltage feedback ratio	h _{re}	V _{CE} = 10 V, I _C = 10 mA, f = 1.0 kHz			4.0	X10 ⁻⁴
Small-signal current gain	h _{fe}	V _{CE} = 10 V, I _C = 10 mA, f = 1.0 kHz	75		375	
Output admittance	h _{oe}	V _{CE} = 10 V, I _C = 10 mA, f = 1.0 kHz	25		200	μmhos
Noise figure	N _F	V _{CE} = 10 V, I _C = 100 μA, R _s = 1.0 kΩ, f = 1.0 kHz			4.0	dB
Delay time	t _d	V _{CC} = 3.0 V, V _{BE} = -0.5 V, I _C = 150 mA, I _{B1} = 15 mA			10	ns
Rise time	t _r				25	ns
Storage time	t _s	V _{CC} = 30 V, I _C = 150 mA,			225	ns
Fall time	t _f	I _{B1} = I _{B2} = 15 mA			60	ns

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

■ Marking

Marking	P1
---------	----