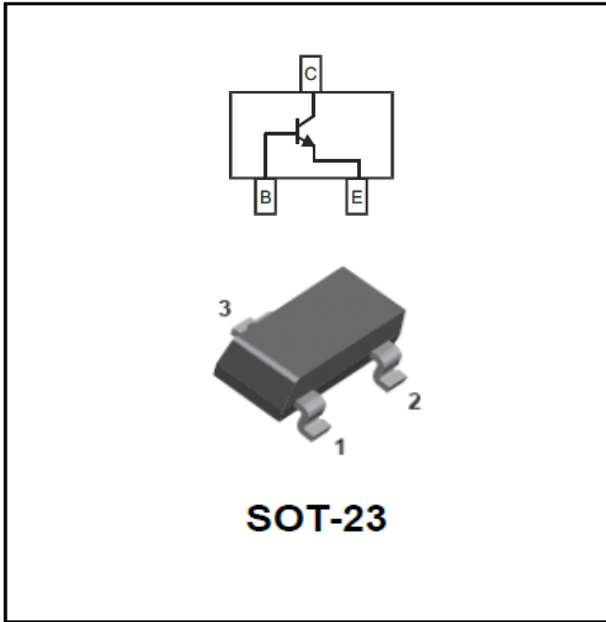


NPN Transistor



Features

- Epoxy meets UL-94 V-0 flammability rating
- Moisture Sensitivity Level 1
- High Conductance
- Surface mount package ideally Suited for Automatic Insertion

Mechanical Data

- **Package:** SOT-23
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 1P

■ Maximum Ratings (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Value
Collector-Base Voltage	VCBO	V	75
Collector-Emitter Voltage	VCEO	V	40
Emitter-Base Voltage	VEBO	V	6
Collector Current -Continuous	IC	mA	600
Total Device Dissipation	PD	mW	300
Junction Temperature	Tj	°C	150
Storage Temperature	TSTG	°C	-55 to +150



■ Electrical Characteristics (Ta=25°C unless otherwise noted)

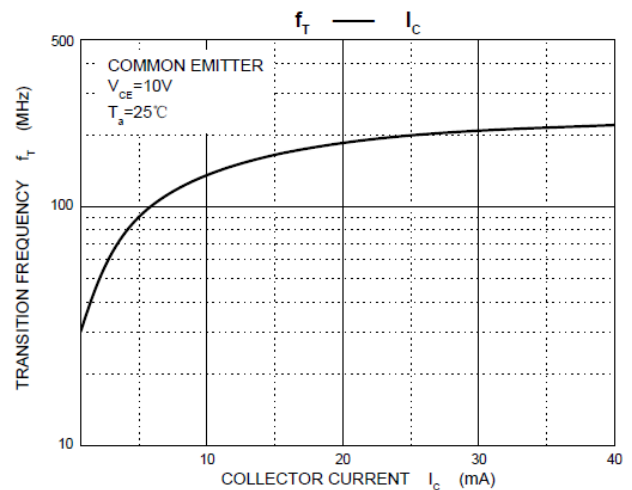
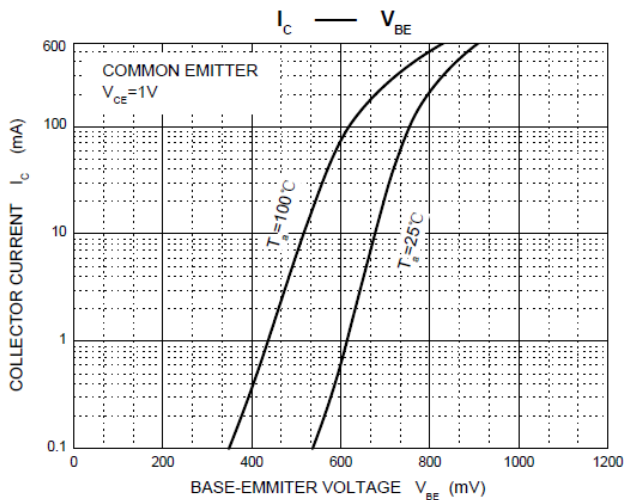
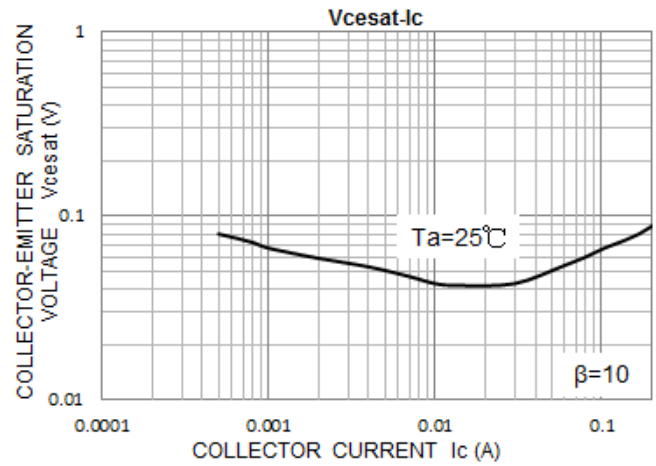
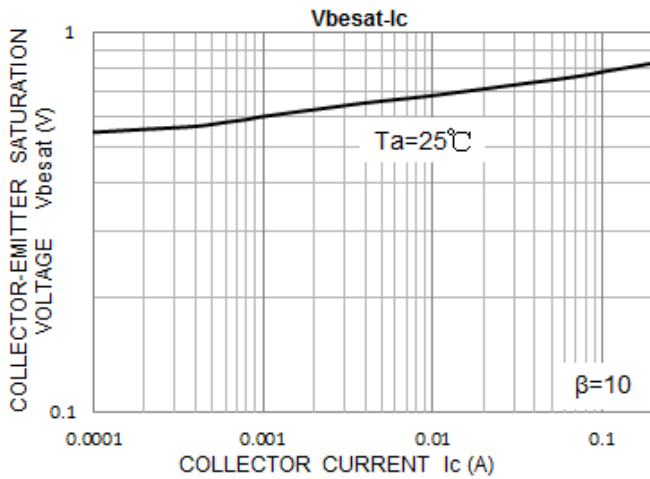
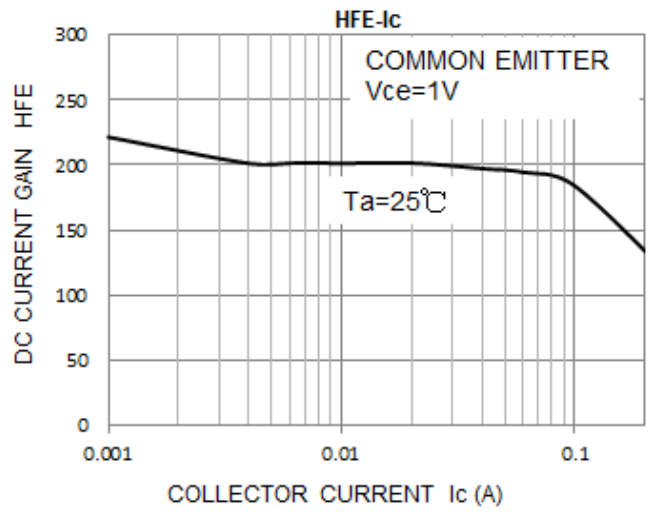
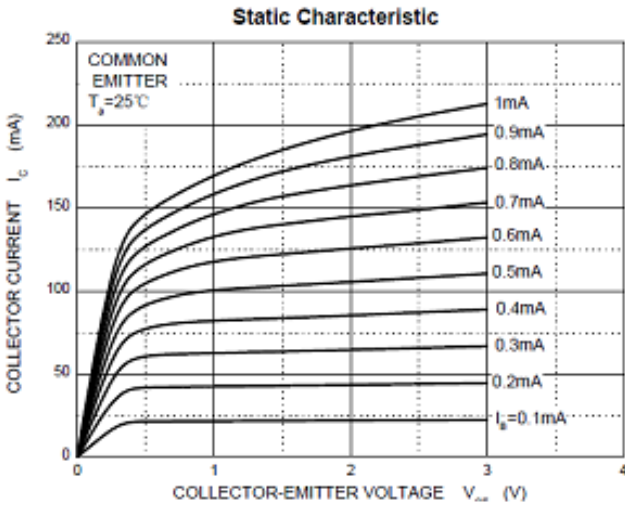
Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	IC=10mA,IE=0	75		
Collector-emitter breakdown voltage	$V_{(BR)CEO^*}$	V	IC =1mA,IB=0	40		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	IE=100μA,IC=0	6		
Collector cut-off current	I_{CEX}	nA	VCB=60V, VBE=3V			10
Base cut-off current	I_{CBO}	nA	VCE=60V, IC =0			100
Emitter cut-off current	I_{EBO}	nA	VEB=3 V, IC =0			100
DC current gain	h_{FE}		VCE=1V,IC=0.1mA	20		
	h_{FE}		VCE=1V,IC=1mA	40		
	h_{FE}		VCE=1V,IC=10mA	80		
	h_{FE}		VCE=1V,IC=150mA	100		300
	h_{FE}		VCE=1V,IC=500mA	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	IC=150mA,IB=15mA			0.3
Base-emitter saturation voltage	$V_{BE(sat)}$	V	IC=150mA,IB=15mA	0.6		1.2
Transition frequency	f_T	MHz	VCE=20V,IC=20mA,f=100MHz	300		
Delay time	t_d	ns	VCC=30V, VBE(off)=-0.5V IC=150mA,IB1=15mA			15
Rise time	t_r	ns				25
Storage time	t_s	ns	VCC=30V,IC=150mA,IB1=IB2=15mA			225
Fall time	t_f	ns				60

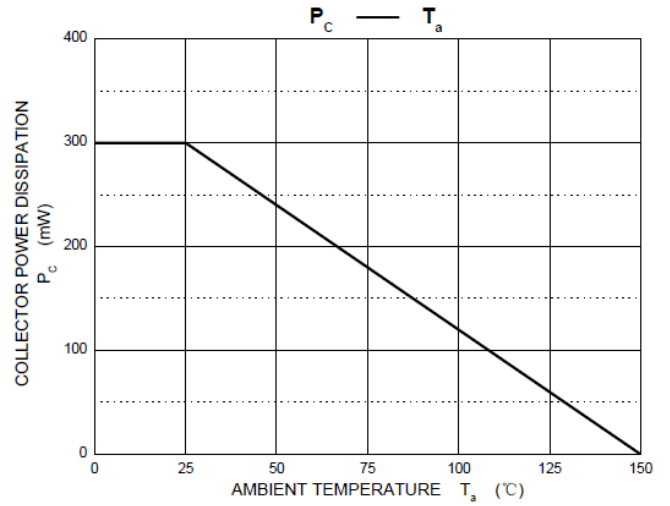
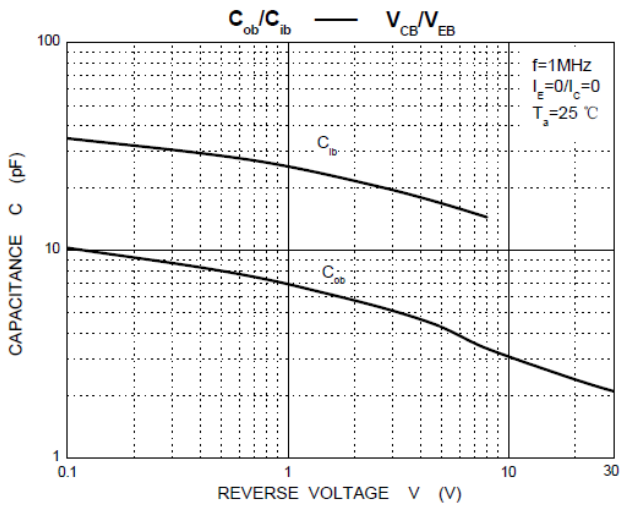
■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMBT2222A	F2	Approximate 0.008	3000	30000	120000	7" reel

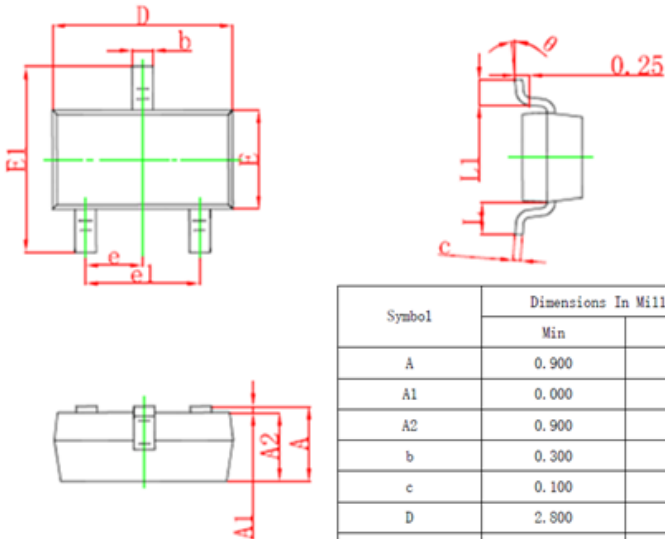


■ Characteristics (Typical)





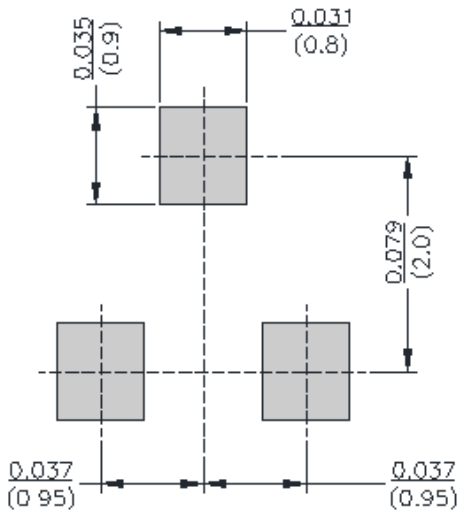
■SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°



■ SOT-23 Suggested Pad Layout





Disclaimer

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The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

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