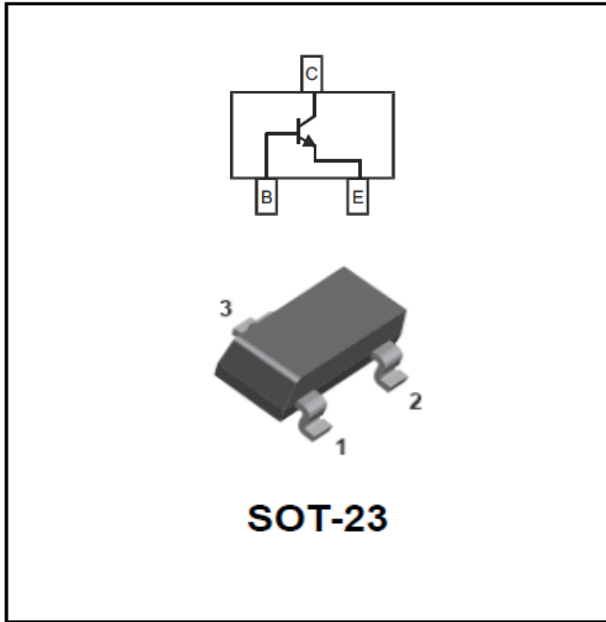


NPN Transistor



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:** 1D

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

Item	Symbol	Unit	Value
Collector-Base Voltage	BVCBO	V	300
Collector-Emitter Voltage	BVCEO	V	300
Emitter-Base Voltage	BVEBO	V	5
Collector Current -Continuous	IC	mA	500
Total Device Dissipation	PD	mW	350
Junction Temperature	Tj	°C	150
Storage Temperature	TSTG	°C	-55 to +150

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

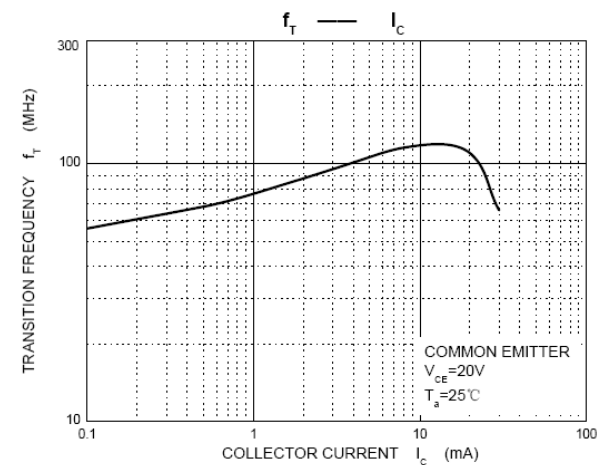
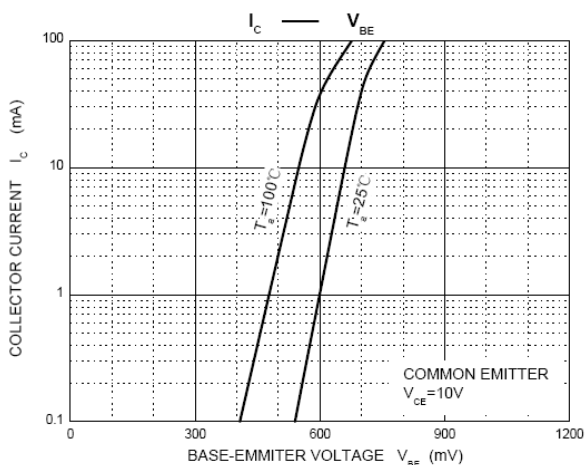
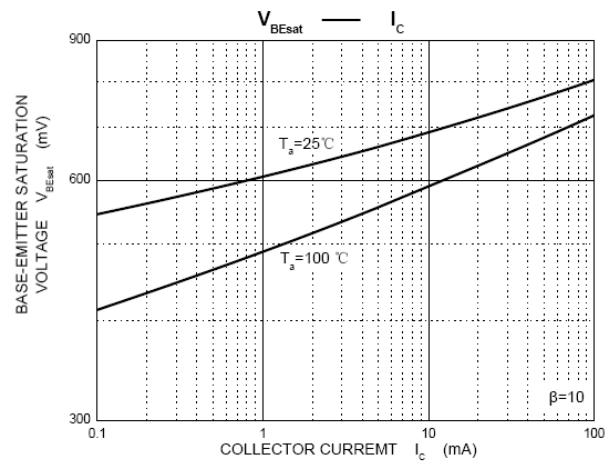
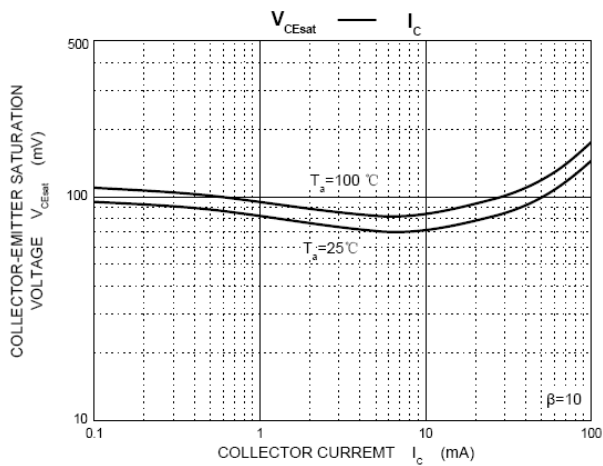
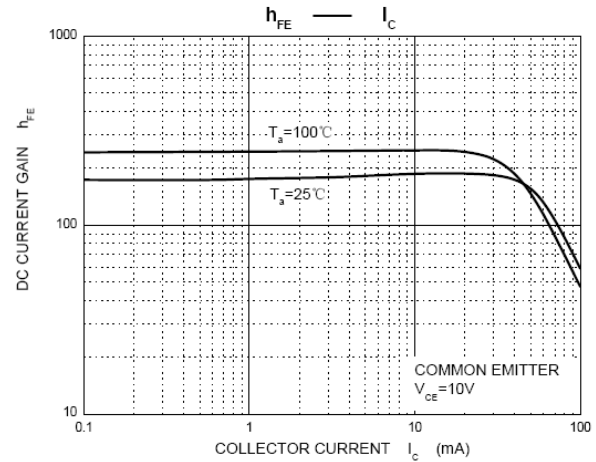
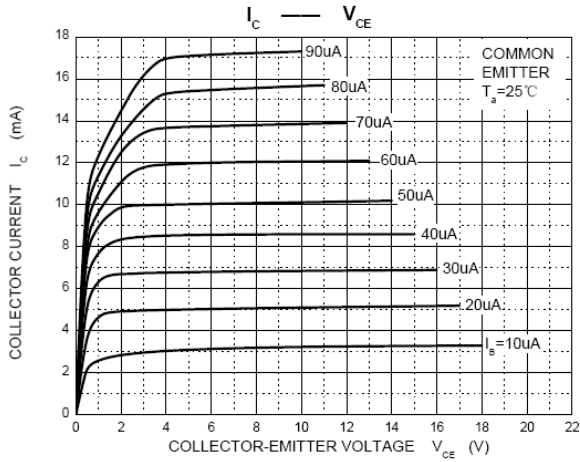
Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	IC= 100uA, IE=0	300		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	IC= 1mA, IB=0	300		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	IE= 100uA, IC=0	5		
Collector cut-off current	ICBO	uA	VCE=200V, IC=0			0.5
Emitter cut-off current	IEBO	uA	VEB=5 V , IC=0			0.5
DC current gain	$h_{FE(1)}$		VCE= 10V, IC= 1mA	25		
	$h_{FE(2)}$		VCE= 10V, IC=10mA	40		300
	$h_{FE(3)}$		VCE=10V, IC=30mA	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	IC=20mA, IB= 2mA			0.5
Base-emitter saturation voltage	$V_{BE(sat)}$	V	IC=20mA, IB= 2mA			1.0
Transition frequency	fT	MHZ	VCE=20V, IC=10mA, f=30MHZ	50		

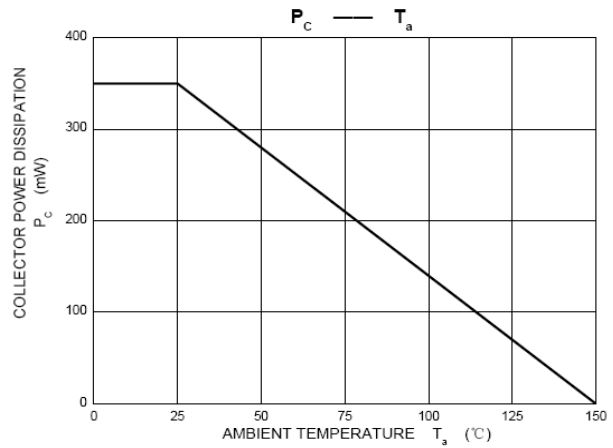
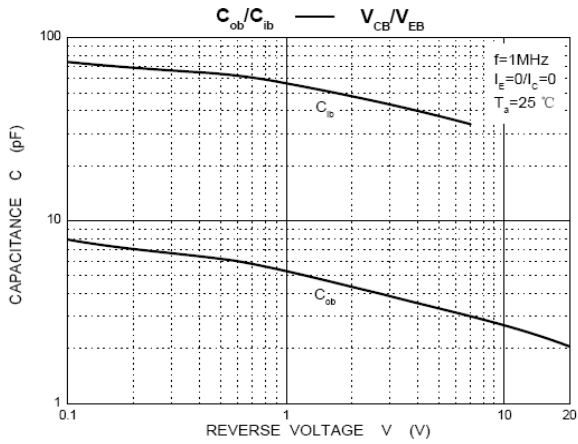


Ordering Information (Example)

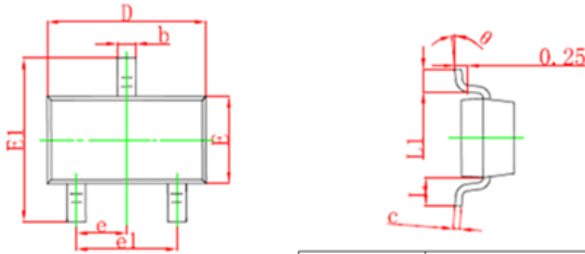
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMBTA42	F2	Approximate 0.008	3000	30000	120000	7" reel

Characteristics (Typical)



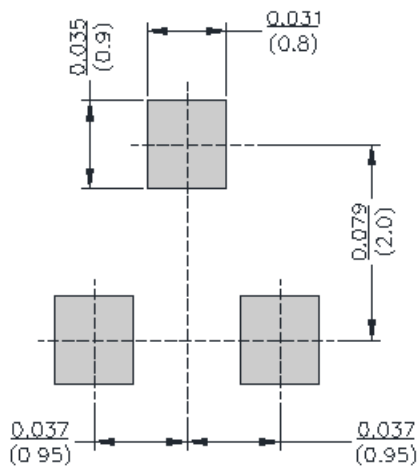


■SOT-23 Package Outline Dimensions



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
φ	0°	8°	0°	8°

■SOT-23Suggested Pad Layout





Disclaimer

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