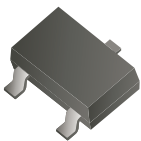


MMBTA92-HF (PNP)

RoHS Device
Halogen Free



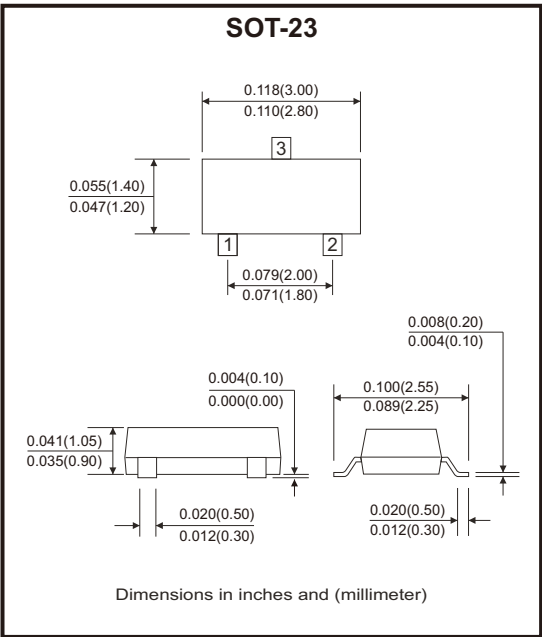
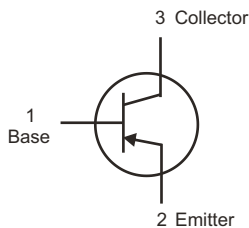
Features

- Epoxy meets UL-94 V-0 flammability rating.
- Moisture sensitivity Level 1.
- Surface mount package ideally suited for automatic insertion.

Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102.

Circuit Diagram



Maximum Ratings (at TA=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Value	Unit
Collector-base voltage	$I_C = -100\mu A, I_E = 0$	V_{CBO}	-300	V
Collector-emitter voltage	$I_C = -1mA, I_B = 0$	V_{CEO}	-300	V
Emitter-base voltage	$I_E = -100\mu A, I_C = 0$	V_{EBO}	-5	V
Collector current		I_C	-300	mA
Collector power dissipation		P_C	300	mW
Operation junction temperature range		T_J	-55 to +150	°C
Storage temperature range		T_{STG}	-55 to +150	°C
Thermal resistance from junction to ambient		$R_{\theta JA}$	417	°C/W

Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Max	Unit
Collector-base breakdown voltage	IC = -100μA, IE = 0	V _{CBO}	-300		V
Collector-emitter breakdown voltage	IC = -1mA, IB = 0	V _{CEO}	-300		V
Emitter-base breakdown voltage	IE = -100μA, IC = 0	V _{EBO}	-5		V
Collector-base cut-off current	V _{CB} = -200V, IE = 0	IC _{BO}		-250	nA
Emitter-base cut-off current	V _{EB} = -5V, IC = 0	IE _{BO}		-100	nA
DC current gain	V _{CE} = -10V, IC = -1mA	h _{FE(1)}	60		
	V _{CE} = -10V, IC = -10mA	h _{FE(2)}	100	200	
	V _{CE} = -10V, IC = -30mA	h _{FE(3)}	60		
Collector-emitter saturation voltage	IC = -20mA, IB = -2mA	V _{CE(sat)}		-0.2	V
Base-emitter saturation voltage	IC = -20mA, IB = -2mA	V _{BE(sat)}		-0.9	V
Transition frequency	V _{CE} = -20V, IC = -10mA, f = 30MHz	f _T	50		MHz

Rating and Characteristic Curves (MMBTA92-HF)

Fig.1 - Static Characteristic

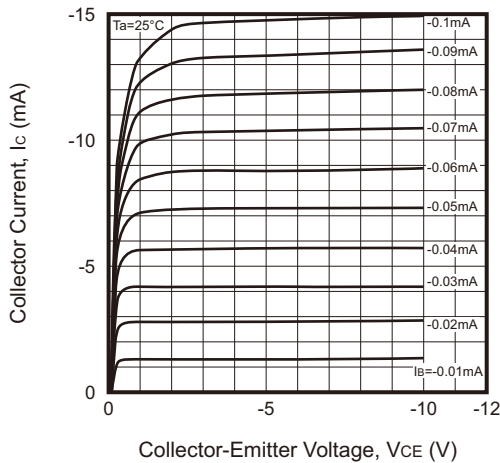
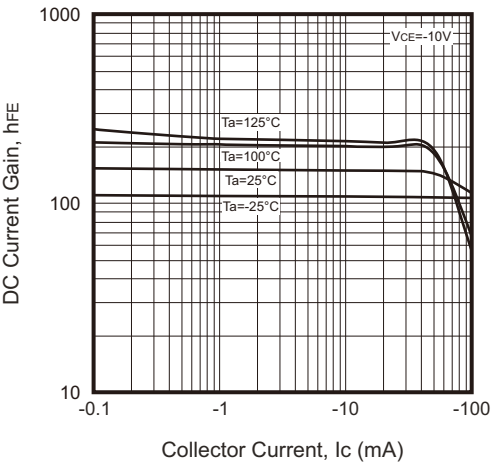


Fig.2 - DC Current Gain



Rating and Characteristic Curves (MMBTA92-HF)

Fig.3 - Collector-Emitter Saturation Voltage

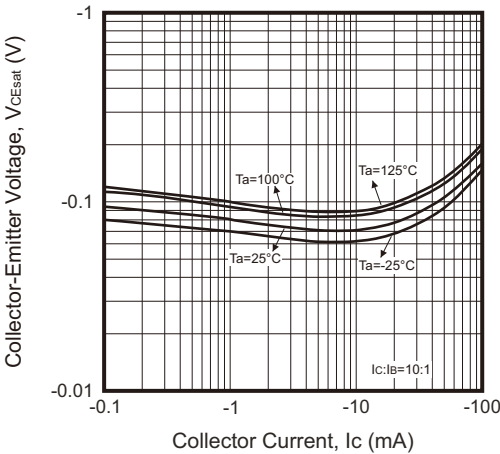


Fig.4 - Base-Emitter Saturation Voltage

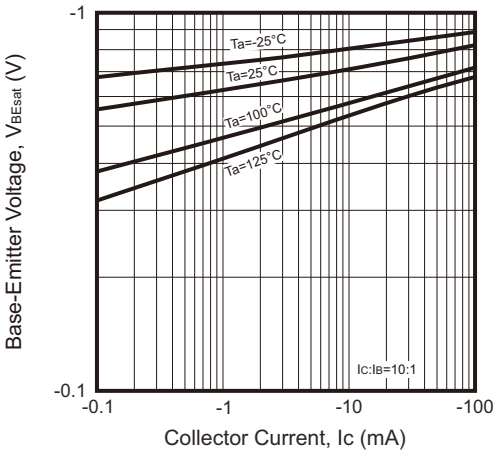


Fig.5 - Base-Emitter on Voltage

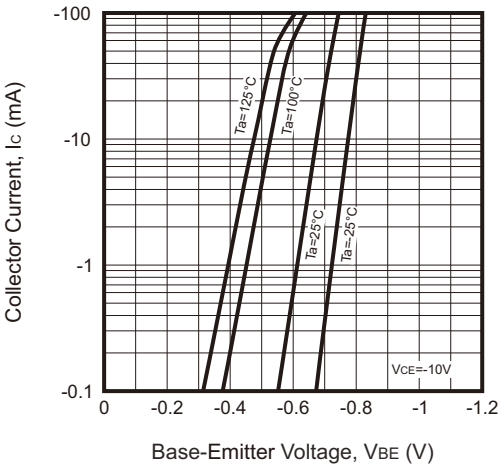


Fig.6 - $C_{ob}/C_{ib} - V_{CB}/V_{EB}$

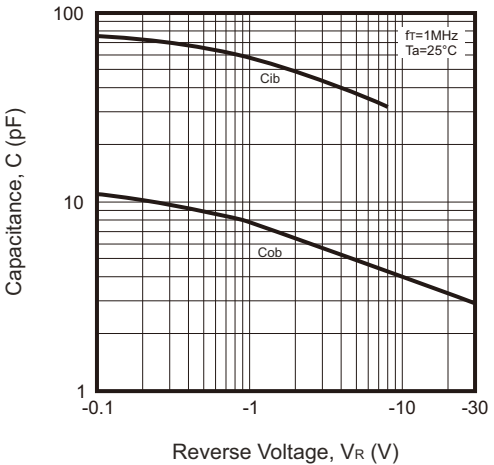
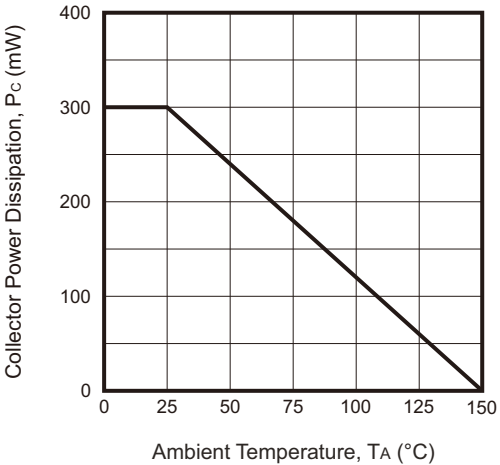
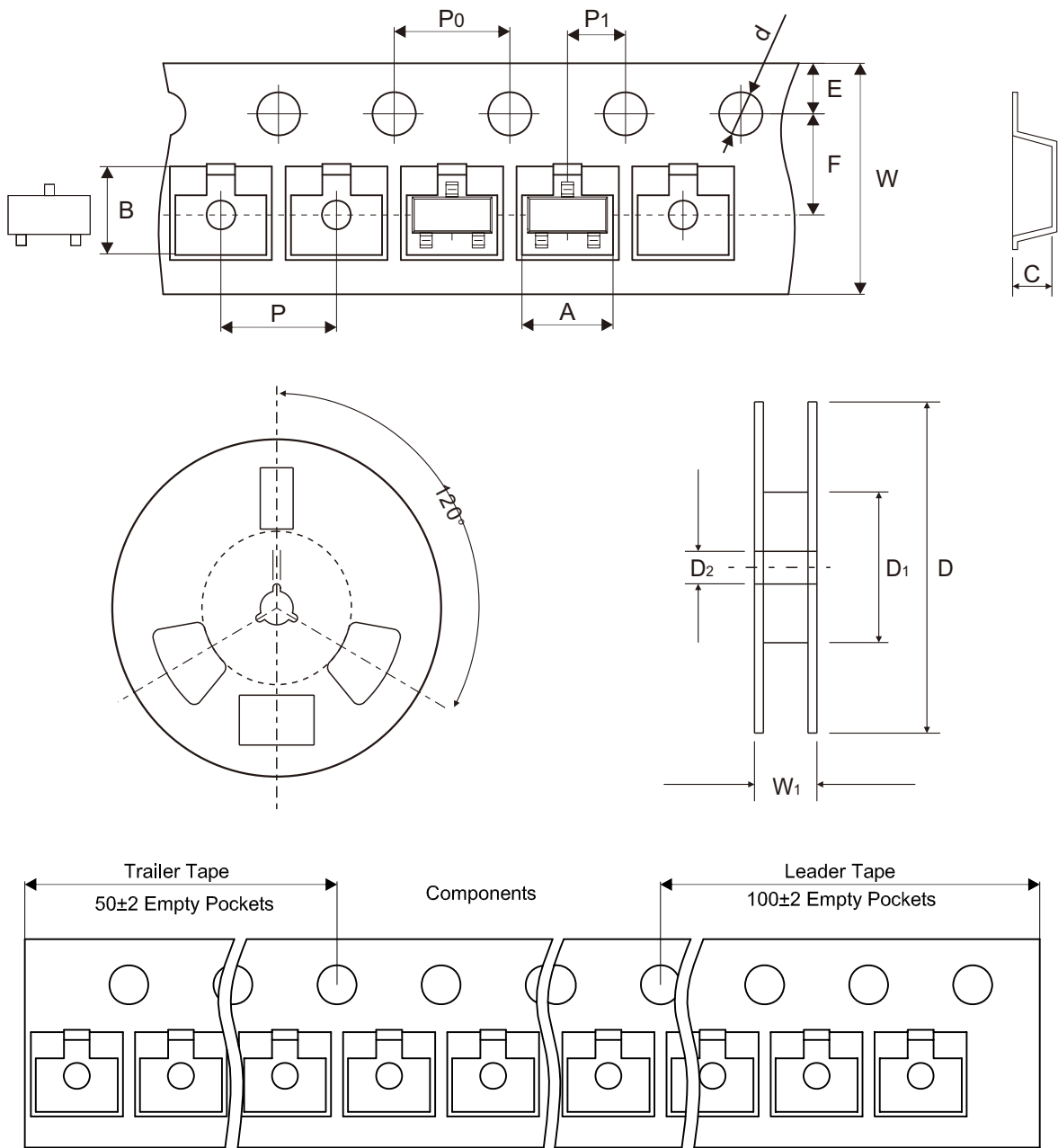


Fig.7 - Collector Power Derating Curve



Reel Taping Specification

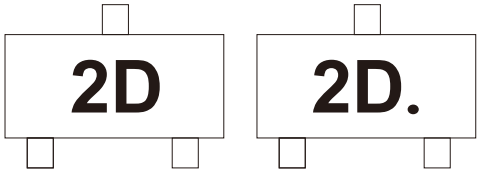


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 + 0.10 - 0.00	178.00 ± 1.00	54.60 ± 1.00	13.30 ± 1.00
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 + 0.004 - 0.000	7.008 ± 0.039	2.150 ± 0.039	0.524 ± 0.039

SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 + 0.30 - 0.10	11.10 ± 0.20
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 + 0.012 - 0.004	0.437 ± 0.008

Marking Code

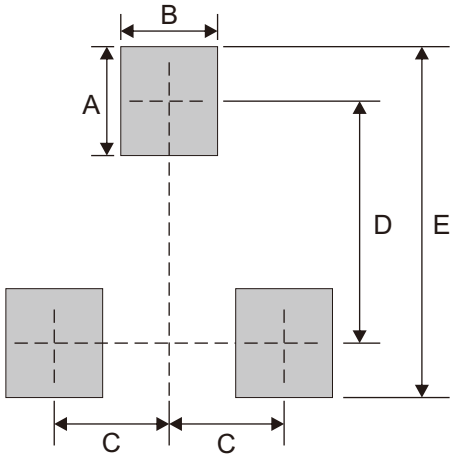
Part Number	Marking Code
MMBTA92-HF	2D



Solid dot = Control code

Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	0.95	0.037
D	2.00	0.079
E	2.90	0.114



Note: 1. The pad layout is for reference purposes only.

Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7