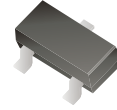


MMST2222A-G (NPN)

RoHS Device



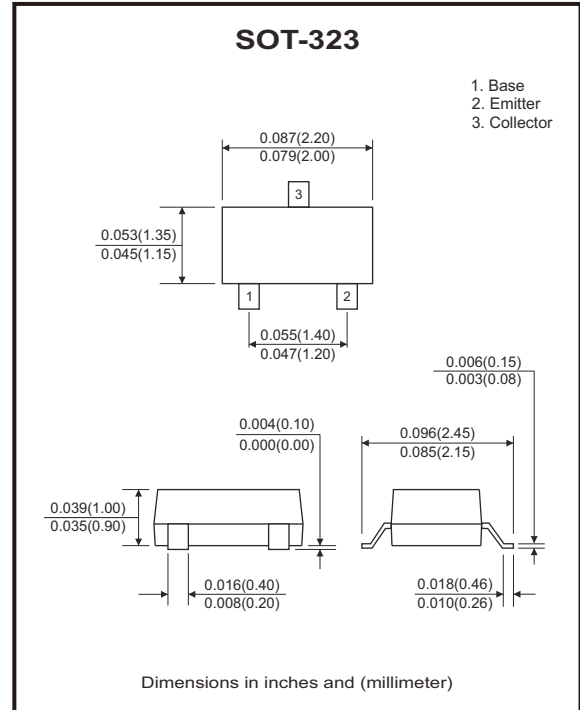
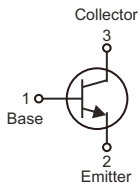
Features

- Epitaxial planar die construction.
- Ultra-small surface mount package.
- $BV_{CEO} > 40V$
- $I_c = 600mA$ collector current

Mechanical data

- Case: SOT-323, molded plastic.
- Terminals: Solderable per MIL-STD-750, Method 2026.

Circuit Diagram



Maximum Ratings (at $T_a=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	75	V
Collector-emitter voltage	V_{CEO}	40	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_c	600	mA
Collector power dissipation	P_c	200	mW
Junction temperature	T_J	150	$^\circ C$
Storage temperature range	T_{STG}	-55 ~ +150	$^\circ C$

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

Parameter	Conditions	Symbol	Min	Max	Unit
Collector-base breakdown voltage	$I_C = 10\mu A$, $I_E = 0$	$V_{(BR)CBO}$	75		V
Collector-emitter breakdown voltage	$I_C = 10mA$, $I_B = 0$	$V_{(BR)CEO}$	40		V
Emitter-base breakdown voltage	$I_E = 10\mu A$, $I_C = 0$	$V_{(BR)EBO}$	6		V
Collector cut-off current	$V_{CB} = 70V$, $I_E = 0$	I_{CBO}		100	nA
Collector cut-off current	$V_{CE} = 35V$, $I_B = 0$	I_{CEO}		100	nA
Emitter cut-off current	$V_{EB} = 3V$, $I_C = 0$	I_{EBO}		100	nA
DC current gain	$V_{CE} = 10V$, $I_C = 0.1mA$	$h_{FE(1)}$	35		
	$V_{CE} = 10V$, $I_C = 1mA$	$h_{FE(2)}$	50		
	$V_{CE} = 10V$, $I_C = 10mA$	$h_{FE(3)}$	75		
	$V_{CE} = 10V$, $I_C = 150mA$	$h_{FE(4)}$	100	300	
	$V_{CE} = 10V$, $I_C = 500mA$	$h_{FE(5)}$	40		
	$V_{CE} = 1V$, $I_C = 150mA$	$h_{FE(6)}$	35		
Collector-emitter saturation voltage	$I_C = 500mA$, $I_B = 50mA$ $I_C = 150mA$, $I_B = 15mA$	$V_{CE(sat)}$		1 0.3	V
Base-emitter saturation voltage	$I_C = 500mA$, $I_B = 50mA$ $I_C = 150mA$, $I_B = 15mA$	$V_{BE(sat)}$		2 1.2	V
Transition frequency	$V_{CE} = 20V$, $I_C = 20mA$, $f = 100MHz$	f_T	300		MHz
Output capacitance	$V_{CB} = 10V$, $I_E = 0$, $f = 1MHz$	C_{ob}		8	pF
Delay time	$V_{CC} = 30V$, $V_{BE(off)} = -0.5V$	t_d		10	ns
Rise time	$I_C = 150mA$, $I_{B1} = 15mA$	t_r		25	ns
Storage time	$V_{CC} = 30V$, $I_C = 150mA$	t_s		225	ns
Fall time	$I_{B1} = -I_{B2} = 15mA$	t_f		60	ns

Rating and Characteristic Curves (MMST2222A-G)

Fig.1 - Static Characteristic

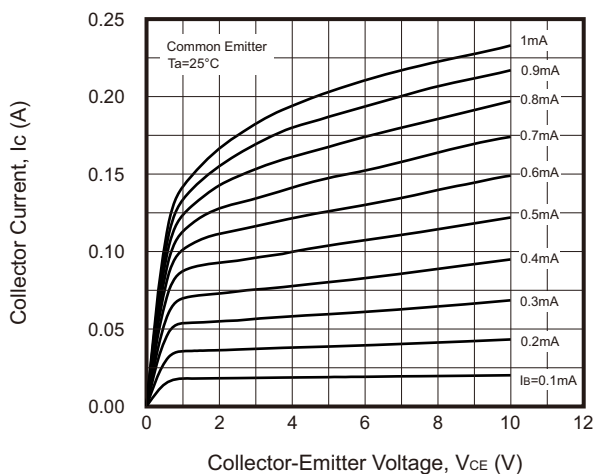
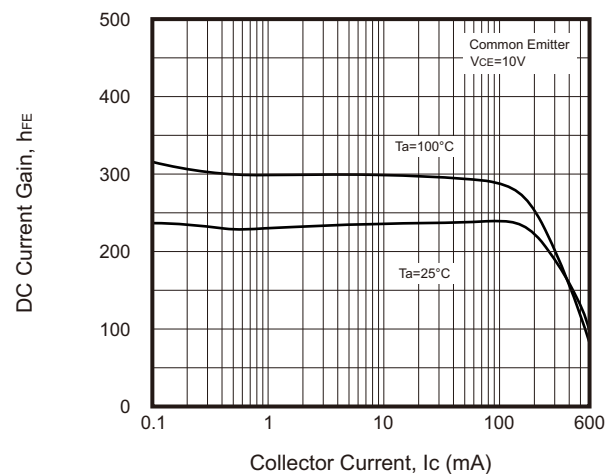


Fig.2 - $h_{FE} - I_C$



Rating and Characteristic Curves (MMST2222A-G)

Fig.3 - V_{CEsat} — I_c

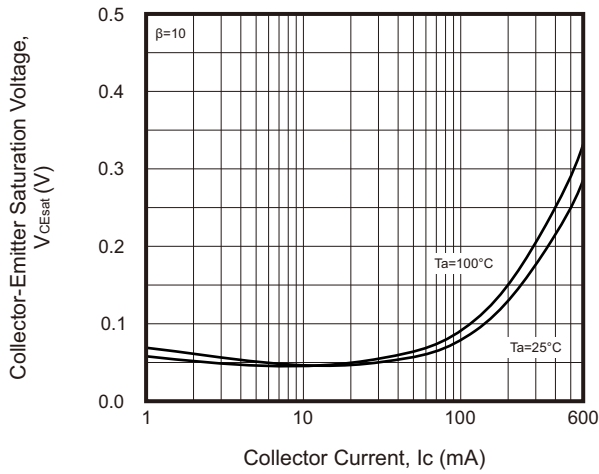


Fig.4 - V_{BEsat} — I_c

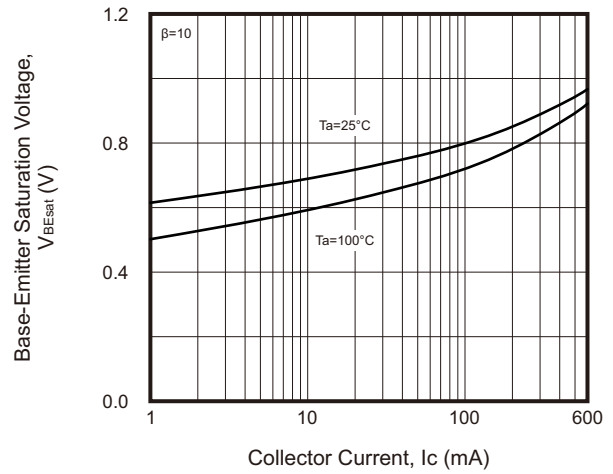


Fig.5 - I_c — V_{BE}

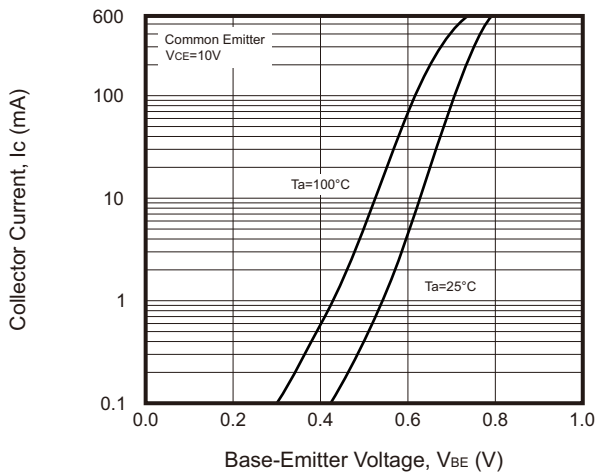


Fig.6 - C_{ob} / C_{ib} — V_{CB} / V_{EB}

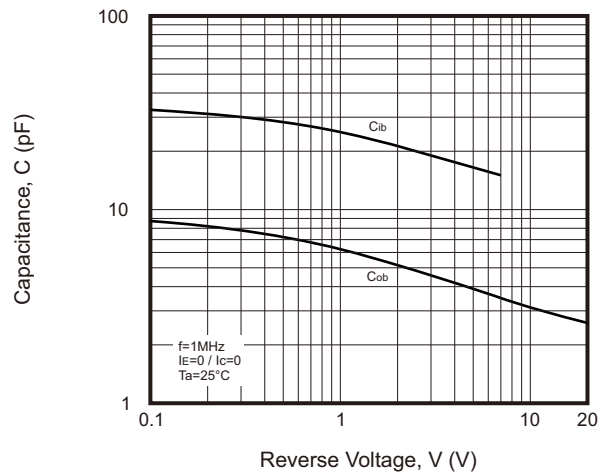


Fig.7 - f_T — I_c

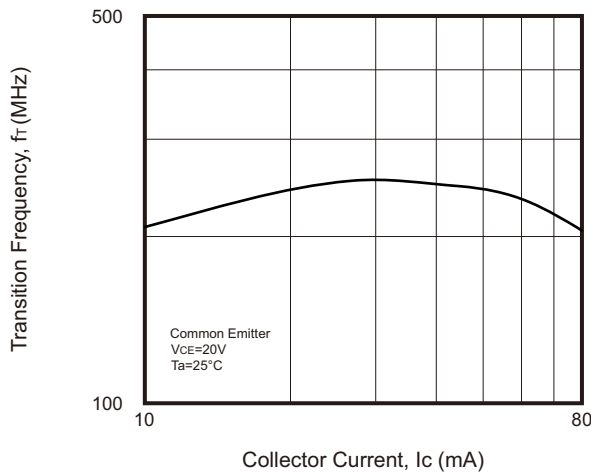
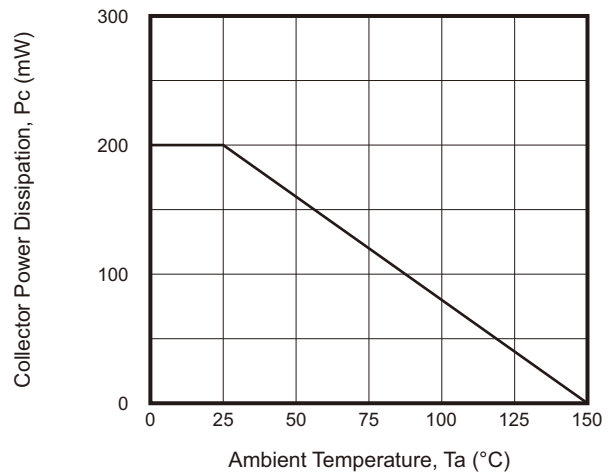
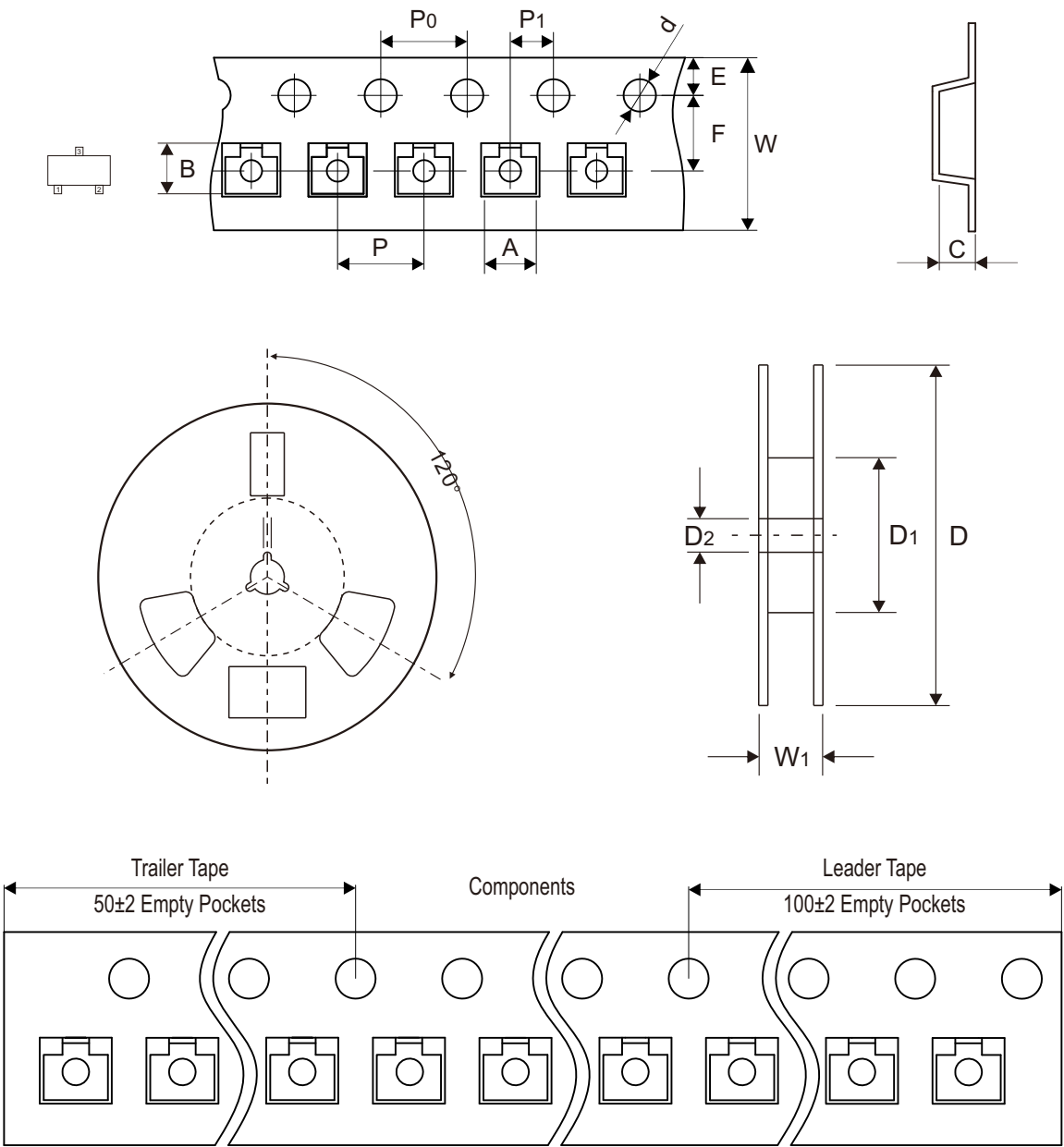


Fig.8 - P_c — T_a



Reel Taping Specification

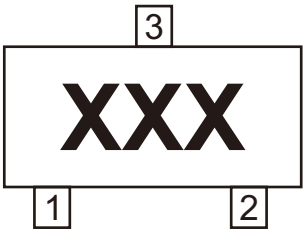


SOT-323	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	2.25 ± 0.05	2.55 ± 0.05	1.19 ± 0.05	1.55 ± 0.10	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.089 ± 0.002	0.100 ± 0.002	0.047 ± 0.002	0.061 ± 0.004	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

SOT-323	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	8.00 + 0.30 - 0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.315 + 0.012 - 0.004	0.484 ± 0.039

Marking Code

Part Number	Marking Code
MMST2222A-G	K3P

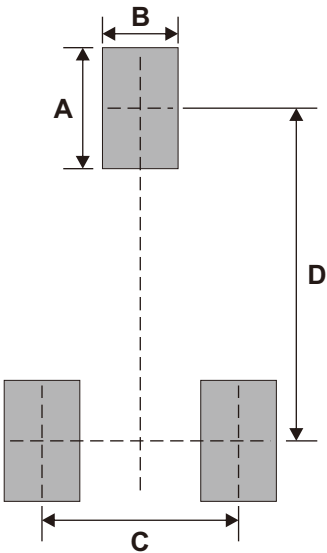


xxx = Product type marking code

Suggested PAD Layout

SIZE	SOT-323	
	(mm)	(inch)
A	0.80	0.031
B	0.50	0.020
C	1.30	0.051
D	2.20	0.087

Notes: 1.General tolerance: $\pm 0.05\text{mm}$.
2.The pad layout is for reference purposes only.



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-323	3,000	7